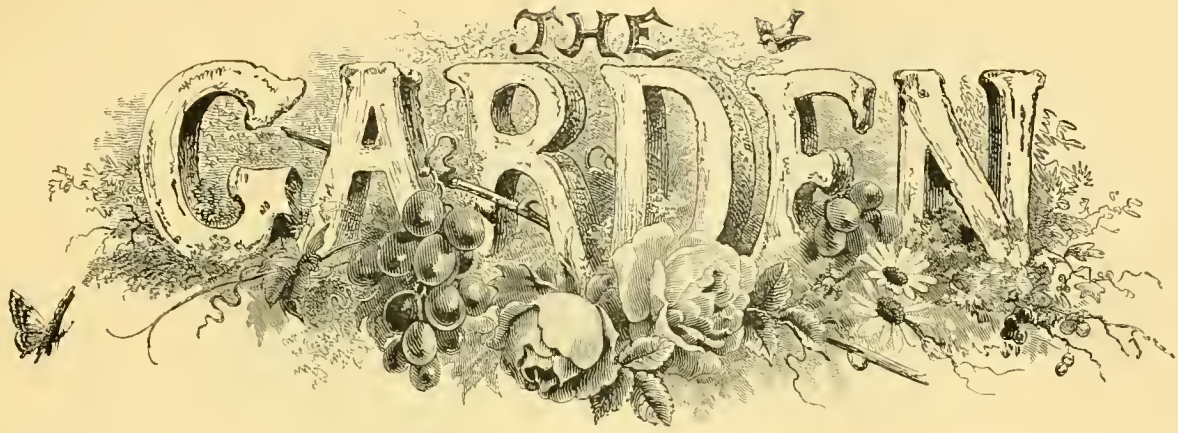
THE GARDEN

PATRICK BARRY,

VICE-PRESIDENT OF THE AMERICAN POMOLOGICAL SOCIETY.



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature: change it rather.
The art itself is nature"—*Shakespeare.*

VOL. XXX.—CHRISTMAS, 1886.

LONDON:

OFFICE: 37, SOUTHAMPTON STREET, COVENT GARDEN, W.C.

TO

PATRICK BARRY,

OF ROCHESTER, NEW YORK,

VICE-PRESIDENT OF THE AMERICAN POMOLOGICAL SOCIETY,

THIS THIRTIETH VOLUME OF "THE GARDEN"

IS DEDICATED.

W. R., Jan. 1, 1887.

INDEX TO VOLUME XXX.

(Illustrations in Italics.)

C.

D

E.

F.

G.

H

I.

J.

K.

L.

T.

U.

V.

W.

Y.

Z.

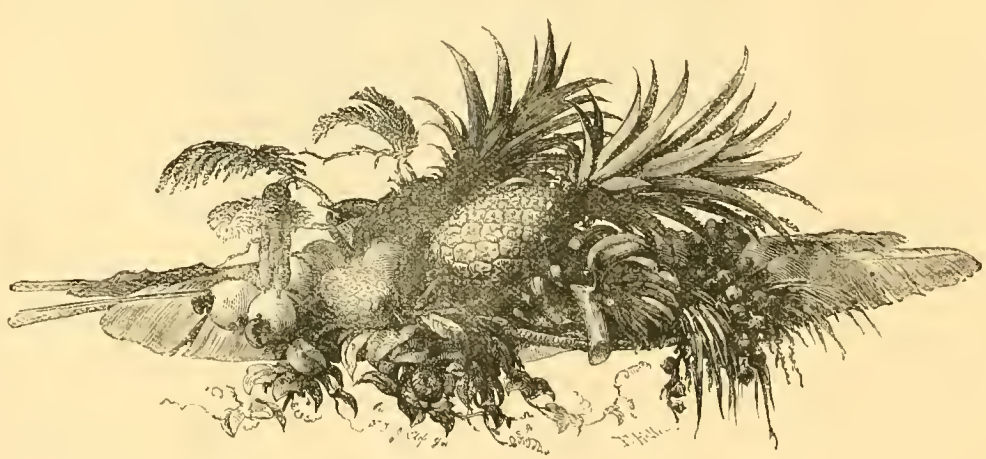
COLOURED PLATES.

PATRICK BARRY,

VICE-PRESIDENT OF THE AMERICAN POMOLOGICAL SOCIETY.

In accordance with our plan of prefacing each volume of The Garden with a portrait of some one distinguished as a horticulturist, we now offer one of Mr. P. Barry, of Rochester, New York, whose work has had a widespread influence on American horticulture during the past quarter of a century. He had long been known as an effective writer through papers in different periodicals, when in 1852 his first work, "The Fruit Garden," appeared. In 1852, Mr. A. J. Downing was drowned during the burning of the *Henry Clay* on the Hudson River, and the *Horticulturist*, which with Mr. Luther Tucker, of Albany, he had established, was purchased by the late Mr. James Vick, and edited by Mr. Barry, in whose hands it remained two years, until 1854, when it was sold. Mr. Barry's best work, however, is probably the "Catalogue of the American Pomological Society," the preparation of which as chairman of the committee chiefly fell to his share. Until recently the association had a vice-president from every State, but no one specially designated as vice-president of the whole body. That office was created a few years ago, and Mr. Barry was unanimously chosen as first vice-president, an office to which he has been constantly re-elected. For more than twenty years he has been president of the Western New York Horticultural Society, one of the most useful and flourishing of its kind in the United States. He has also been president of the New York State Agricultural Society, and is at present a member of its Board of Control over its experimental station. His father was a farmer near Belfast, where Mr. Patrick Barry was born in 1816. He was given a good education, and at eighteen was appointed schoolmaster of one of the national schools. Two years later he resigned in order to try his fortune in the New World. In his twentieth year we find him acting as clerk in the then celebrated Linnean nurseries of the Princes at Flushing, in which capacity he served four years, having gained in that time a thorough knowledge of the nursery business. Fixing on the fair city of Rochester, in Western New York, he, in partnership with Mr. Ellwanger, started business on seven acres of land. This was in July, 1840, and was the foundation of the celebrated Mount Hope Nurseries, which are now of vast extent and among the best in the world, as we can testify, from having visited them. These nurseries are chiefly remarkable for a very fine collection of hardy fruit trees, and for general collections of great extent, the whole admirably arranged.

American horticulture will in future be of increasing interest to us. The fact that it is our own kindred who are at work there will no doubt make their doings more useful to us than those of other races; but we have a real interest in horticulture and fruit growing in the United States, because they possess a northern climate somewhat like our own, and, moreover, many plants, fruits, and vegetables are common both to Britain and to N. America. Our gardens and farms already owe to America not a few fine vegetables and fruits, and our markets are notably affected by the fruit supply. These influences are likely to increase as time goes on, and it will be to our interest in the future to pay a greater amount of attention to the fruits and plants raised by American orchardists and gardeners, and to their methods of management. Among the institutions of which American horticulture may be proud is the Pomological Society, of which Mr. P. Barry is the vice-president. We have in past volumes shown the valuable work done by this society in the progress of fruit culture in the United States, and often regretted that like societies at home are not so efficient for good.



THE GARDEN.

VOL. XXX.

Fruit Garden.

GOOD STRAWBERRIES.

We beg to call the attention of our readers again to the important subject opened up in The Garden as to the Strawberry and its varieties, and to say that we should like to hear from them at an early date as to any further views they may have to urge in connection therewith. It will be noted in the valuable articles that we published in the last two numbers of The Garden how much our correspondents d well on well-known kinds, and these very few in number. We particularly desire to call our readers' attention to the importance of considering as far as possible other sorts than those commonly in cultivation. Many sorts have been raised and more variety would be desirable. We invite our readers' notes on the following points in addition to any other observations that they may think worth setting down :—

Best kinds for flavour, bearing, and district.
Early or late kinds, especially for open-air culture.
New, foreign, or little known sorts.
Best plan to secure good and regular crops.

Strawberries for Early Forcing.

Early varieties.—Much diversity of opinion exists as to the merits of the various sorts of Strawberries, both as regards their adaptability for pot culture and their quality when forced. All things considered, there is no more profitable early variety than Vicomtesse Hérieart de Thury. It is not so early as either Black Prince or Princess Frederic William; but as to the former, few succeed in growing it to a presentable size; while the latter, though earlier by a week or ten days and a vigorous grower, blooming very strongly and freely and also setting well, is rather inferior in point of quality. We commenced gathering this sort about March 16, at which time we had good dishes of fairly large fruits, but being ripened in strong heat they were sour; whereas the Vicomtesse, under similar conditions, was nearly as large and very much superior in point of flavour. Any other sorts but the latter ripened in a strong heat and a moist atmosphere require to be stood for a short time in a cooler, drier position, otherwise they are certain to be sour; therefore the Vicomtesse, as being especially amenable to all sorts of good or bad treatment, ought to be most extensively cultivated in pots, pits, or frames. It is also the best for late autumn fruiting, as the forced plants, being either planted out or plunged deeply in a rich border, bloom strongly a second time, some on the earliest forced plants ripening in the open, while the remainder can be lifted and the fruit ripened on shelves in Peach and other houses. At Longleat, where some 5000 or 6000 plants are fruited in pots, about one-half consists of Vicomtesse and the remainder President. The good old Keen's Seedling is still forced in some gardens, but I should say it is gradually being superseded by the Vicomtesse. La Grosse Sucrée is a very handsome early sort, but not often met with, only one grower of my acquaintance forcing it extensively. With us it has failed both in pots and in the open ground.

Later varieties are fairly numerous, though were I left to choose for myself President would be the only one grown in pots, this kind being of good habit, fruitful, and really of easy culture. Its fruits are usually of good size, very handsome, and, when given a fair amount of air, excellent in quality. Both this and the Vicomtesse are also good travellers, which cannot be said of several that I have named or may hereafter allude to. Sir Joseph Paxton forces fairly well, and the fruit is large, firm, and fairly well flavoured, but it is too gross in habit and does not suit all situations. Seven-inch pots are the size most suited to this variety. James Veitch is sometimes cultivated in pots, but size is its only recommendation, and the same may be said of Oscar, a variety very well grown for exhibition in the neighbourhood of Bath. At Orchardleigh, near Frome, Somerset, the favourite variety is Sir Charles Napier, and when well grown, as at that place, it certainly has much to recommend it. Under rough and ready treatment it is, however, far from satisfactory, the flavour frequently being decidedly acid, beyond even the moderating influence of sugar and cream. Besides, in many gardens, strong early runners are unprocurable, and weakly plants of this or any other variety are to be avoided if possible. In a well-known Suffolk garden the selected variety is British Queen, several thousands of plants of this sort being fruited in pots with marked success. Quite recently I tasted some Queens that were ripened in a light, airy house at Rood Ashton, Wilts, and these were highly coloured and most delicious, surpassing anything of the sort I had tasted this year. As a rule, the colour is not good, and it is only under most favourable treatment that the flavour is quite satisfactory. At the same time, it is the variety that I would add, if possible, to the Vicomtesse and President, keeping it entirely for the late supplies.

The effect of treatment upon the quality, as I have just hinted, is most marked, much depending, in fact, upon the culture given to each sort, as in one garden we may find a certain Strawberry exceptionally good and in another scarcely fit to eat. Of all reprehensible practices, that of fruiting Strawberries with the pots standing in saucers of water is one of the worst. Doubtless it saves much labour in the shape of watering, and red spider is also more or less prevented, but that is all that can be said in its favour, as it quite spoils the flavour of the fruits, rendering them not unfrequently quite sour. The same remarks are applicable to the plan of providing water-troughs instead of plain shelves for the plants. On the other hand, if too little water is given various evils follow, and it must be well known that fruits gathered from plants actually suffering from want of water are quite acid. Where available, squares of turf, placed grass-side downward, if cut fresh, are best for standing the pots on. Into these the roots soon find their way, and besides, to a certain extent, checking a rapid loss of moisture from the pots, these turves also serve as a rich feeding ground, the loam absorbing much of the liquid manure running from the pots into it.

Procuring fresh plants.—By the time the principal portion of plants in pots has been fruited attention will have been directed to the establishing of a fresh lot of plants for forcing next season. A few, a very few, growers, I should say, fruit some of their plants the following year in the same pots; but not having tried the plan, I can say nothing about it. Our plan is to lay the runners direct into the fruiting pots as soon as this can be done, or before they have formed many roots, and, may be, lost them again. One operation only is needed, and it can be easily and properly performed; whereas by the old system of layering into small pots, and subsequently shifting the perhaps much root-bound plants into the fruiting pots, more labour is expended, and there is less likelihood of the work being properly done. We use 6-inch pots principally, this size suiting both Vicomtesse and

President, and the compost usually consists of two parts of good turfy loam, or the best loam procurable, to one of old Mushroom bed manure, with a sprinkling of half-inch bones added. This, after a little drainage in the shape of a few crocks, some strawy manure, and a little soot over that to keep out the worms is placed in the bottom of each, is firmly rammed down, and the pots are then stood in position round the old plants; a single runner is placed on each, and fastened down with a stone. If given water as required they soon become well rooted, when they are at once detached and the plants stood in a sunny position on beds of ashes. This is by no means a novel practice, nor is it popular with various growers, but we are perfectly satisfied with it, believing it to be the most labour-saving, and it gives us stronger plants than are usually obtained by any other system. Runners that last season were either allowed to root naturally around the old plants, or are taken off early and dibbled out on good ground, may be potted up or later on be lifted and planted in frames where they are to fruit with every prospect of ultimate success; and we have also had fairly strong plants from runners taken off the old plants and placed at once in the fruiting pots instead of layering. This plan commends itself when the runners are procured from a neighbour or from a distance, but they succeed all the better for having a few strong roots to support them. Whatever plan is adopted it should not be long delayed after the runners are once procurable, as the season is a late one. — W. I. M.

British Queen Strawberry.

I must take exception to what Mr. Douglas (p. 579) says respecting the possibility of this Strawberry being grown well in ninety gardens out of a hundred. If a census was made of all the best gardens in England, I will undertake to say that it will not be found in fifty gardens out of a hundred, much less cultivated with any degree of success. Mr. Douglas must be congratulated on his success with it, but I can assure him that I have known many of our best gardeners fail to get it to thrive. When I had charge of a garden attached to one of the residences that skirt Wimbledon Common, a place famous for its peat and loam, I could grow British Queen as well as anybody; but here I fail, and so do nine gardeners out of every ten in this neighbourhood.—Taunton.

Notes on Strawberry Culture.

Strawberries, like other plants, do best when grown on from first to last unchecked, and, thus managed, there is no reason why they should not bear a full crop when only twelve months old. It will, of course, be understood that a runner taken, say, about the end of June will not as a rule produce more than one crown; therefore, plants two years old, with several crowns, will produce a greater number of fruit than single-crowned plants will. Still, a single crown, well developed by steady continuous unchecked growth, may be made to yield a very heavy crop of fine fruit. Strawberry forcers know how important it is to have runners taken early. The moment the long pliable stems are thrust out far enough to show a pair of leaves, pots should be made ready, and the buds or germs beneath each little tuft of leaves should be immediately placed in contact with rich soil, and secured there either by means of a small peg or by a stone laid on it. The latter plan is quite as good as the former, as it conserves moisture and encourages early root formation. For planting in beds, the runners may be pegged on to mellow pieces of sod, or pressed down into the soil, with a stone laid on them to keep them steady until they have formed roots. The sods should have been cut two or three months previously and laid in a heap, with alternate layers of horse droppings. Another plan is to form mounds of rich soil, and peg several runners into each mound, forming little colonies of plants, whence they can be removed with balls when the beds are ready to receive them. They must be moved to their permanent quarters before they have become crowded. When small pots are used for Strawberry runners, the soil within them should be kept moist till the young plants can be separated from the old ones, as few plants suffer more than Strawberries if at any time starved for want of moisture. For this reason, if pots are used, 5-inch ones are not at all too large in which to lay the runners. Small hard, dry, rusty-looking fruits, that will not swell nor ripen properly, are the natural outcome of starvation from drought.

Making ready the ground.—In a well-managed kitchen garden there are never any plots of land long vacant, and the growing crop should not only be profitable in itself, but it should make preparation for the next. Land planted with early Potatoes now fit to lift, or nearly so, should have been prepared last winter for Strawberries by trenching and manuring, and the Potatoes will still further prepare it for that crop. As soon as they are lifted, a dressing of soot, lime, and artificial manure should be given, and the surface hoed over deeply. Thus treated and manured, it will be ready to receive the plants. The earlier planting is done, the stronger will the plants get before winter. The end of July or the first week in August is a good time for planting Strawberries. The space allowed for each plant will, to some extent, be influenced by the kinds grown. One of the great evils in Strawberry culture is overcrowding; unless the sun's rays can have free play round the plants, the fruit will neither be so good in flavour nor so well coloured as it should be. On good Strawberry land a well-grown plant of British Queen, President, or Sir J. Paxton should profitably occupy a square yard. Keen's Seedling, Sir C. Napier, and Vicomtesse Héricart de Thury, being less robust, may each have 6 inches less space. Sometimes double the number of plants required are planted, and half of them cut away at the end of the first year; but where pains have been taken to get the plants as strong as possible, and they are set out in good time, the full distance apart should be given at once. The soil should be made firm round the plants as they are planted. I generally press them down with the foot on both sides. When firmly embedded in the soil, the roots begin to work at once and no check is experienced; but I only plant when the surface is dry, as I should not tread the land about the roots when wet. A good soaking of water is given to settle them in their places. A little of the dry surrounding soil is drawn around them, and very little attention beyond stirring the surface with a hoe is required till the autumn mulching of manure is given. If the same pains were taken to obtain strong plants for beds in the open air as most growers take with their plants for forcing, good crops of fine fruit might be had the first year.

A succession of fruit.—With the early-forced fruit under glass, and the Elton Pine and alpines at the other end of the season, there can be no difficulty in obtaining a succession from March till September, or say for six months—a period long enough for most people. The early border could be utilised for the first crop in the open air. The main crop could occupy an open situation, and a few Elton Pines on a north border, though too acid for most people, might close the season so far as large fruit is concerned; but the alpines will continue bearing later if the early blossoms are cut off.

As regards flavour, tastes differ much, and of late years flavour has been greatly sacrificed to mere size. Good-sized varieties are, however, not always flavourless, for the British Queen is both large and good; indeed, I doubt if anything among newer sorts can beat it if it has a good position on deep warm land. It is generally considered to be more delicate than it really is. President is a good cropping, handsome kind, and Sir Joseph Paxton has many admirers. Keen's Seedling, when carefully selected, maintains its position in many gardens where good old fruits are valued. The White Pine in a sunny situation, planted thinly, so that the fruit can be exposed to the warm sun, is a very agreeably-flavoured kind. During the hot weather last summer fruits of this variety were very fine and high-flavoured, but the bright sunshine gave them a pinkish tinge. In fine sunny seasons I have had the alpines very good—superior to most of the large kinds in some people's estimation.—E. Hobday.

Best Six Strawberries.

Considering the ease with which Strawberries can be raised from seed, it seems strange that good new kinds are not more plentiful than they are. True, we have had numerous additions since the days when the Hautbois and Grove End Scarlet stood in the front rank, but still slow progress has been made in Strawberry raising compared with that of other fruits. With old Strawberry fanciers the flavour of the Hautbois was held to excel that of all other kinds. Now, our highest standard of excellence is British Queen, a finely flavoured sort, no doubt, but, as long experience has proved, a very unprofitable kind, cropping indifferently and often going blind. Though we have numerous varieties that crop freely and regularly and produce very fine fruit, yet none seem to possess what may be termed high class flavour. To put the matter fairly, it would seem as if abundant cropping and fine flavour were, in Strawberries, incompatible. Private growers have often their own fancy Strawberries, and, considering the small patches which they cultivate, a moderate crop is of no great consequence; but with those who grow for the million not only by the acre, but sometimes by hundreds of acres, it is a matter of the first importance that the kinds grown shall be reliable and free croppers. Now, if we turn to the most popular kinds of the day, it is difficult to withhold an expression of surprise on finding how few of them are really new; indeed there is not one that has not been under cultivation for probably fifteen years—a long period in the life of many garden products. But were the question put to the growers of Strawberries of every class throughout the kingdom, "Give a list of the best six kinds in your estimation," we should certainly find three at least, and probably four, included in every list. These are President, Sir Charles Napier, and Sir Joseph Paxton, and the fourth Vicomtesse Héricart de Thury. Some may substitute President for Keen's Seedling, a good old early sort, and add for a late kind even an older one, viz., Elton Pine. Others still may prefer Frogmore Late Pine. For mid-season croppers there would no doubt be some votes in favour of La Grosse Sucrée and Jas. Veitch, both fine, but rather coarse kinds. Neither of these, however, seems to have found much favour for market culture. The preponderance of opinion would probably favour, as the best six sorts, Vicomtesse Héricart de Thury, President, Sir Joseph Paxton, Sir Charles Napier, La Grosse Sucrée, and Frogmore Late Pine. If British Queen is omitted, it is simply because its cropping qualities can rarely be trusted. Raisers of Strawberries, I fear, have been working too much for mere size and too little for flavour. Cannot someone raise for us a kind having all the rich flavour of the British Queen with the many other admirable qualities of President or Sir Joseph Paxton?—A. D.

The Pear crop.—Although this is not likely to be heavy, it is several years since it has been such an even one; out of about thirty different varieties on walls with east, south, and west aspects there is no difference as regards the condition of the crop, let the trees be old or young. The proportion of fruit according to the size of the tree is almost equal in each case. Even an old tree of Napoleon, that has only hitherto borne poor fruit, is this year quite equal to the others. Small trees of General Todleben, Pitmaston Duchess, and Doyenné du Comice are bearing freely. The fruits on large trees are already swelling fast, and where too thick we have already commenced to thin them; if possible, we shall go over them a second time about a month hence, and remove such fruits as appear to be crowding each other. This will be more necessary in the case of such sorts as

Marie Louise, Brockworth Park, and Williams' Bon Chrétien than in that of others. These all grow to a large size if the tree is not over-cropped, and a small crop of fine, handsome fruit is always more valued than a greater quantity of fruit inferior in point of size. Comte de Paris, which I believe is scarce in the country, is also bearing well; this is a small, but delicious November Pear. Thompson's, Glou Morceau and Beurré Diel invariably bear well with us, but in our soil they are only suitable for culinary purposes.—J. C. C.

NOTES ON HARDY FRUITS.

STRAWBERRIES.—I cannot quite agree with "W. I. M." (p. 576) as to its being useless to attempt the cultivation of Strawberries on shallow soils as a profitable speculation, for this reason, viz., in South Hants Strawberries have of late years become quite a large local industry. Several large tracts of land that only a few years ago were well-nigh barren have been now converted into fertile Strawberry fields, yet the soil is exactly the reverse of what is generally supposed to be the right sort for Strawberries, some being loose and stony and others light peat, while perhaps the next field may be a fairly good loam, so variable is the staple. In fact, nearly every kind of soil can be found under Strawberries. The system of culture as to firmness of soil and other details are exactly such as are described by "W. I. M.," and the enormous quantities of Strawberries sent from this neighbourhood testify to the suitableness of the South Hants fields for their growth. Let no one, therefore, be deterred from growing Strawberries by reason of their soil not coming up to the standard of a good sound loam. Some of the growers here on light, shallow, warm soils having the earliest crops make more money of their first gathering than those with double the crop do later in the season on much better soil. A scarcity generally occurs between late crops under glass and main crops out of doors—an opportunity embraced by light-soil cultivators to make the most of their crop of early fruit.

BRAMBLES.—South Hants is a Blackberry as well as a Strawberry-growing district, and we have tried some of the best of the American varieties of the first-named fruit, but I must confess that up to the present their produce has not come up to the descriptions given of it. Our native Blackberries, however, come to great perfection in hedgerows and on common and crown lands, and realise as good, and frequently better, prices than the cultivated Strawberry. As ornamental climbers American Blackberries are certainly good; their blooms are large and abundant, and I hope I may have formed an erroneous impression regarding their esculent properties. This could, however, be easily settled by offering prizes for dishes of any or all the varieties of them at our fruit shows.

DAMSONS.—How is it that in many parts of the kingdom these are but little grown? Here, scarcely a Damson tree or bush can be found, and young trees fit for planting are unobtainable; the general idea is that they would not grow in this part of Hampshire. To test this, I sent to Maidstone for a good supply of the genuine Crittenden or Cluster Damson, and planted them in the stony, light soils of this district. They certainly did not appear fit for choicer fruits, but the result has been that they have grown luxuriantly, and the largest are just commencing to bear fruit. Hardy fruits are scarce merely because they are not planted. My advice to each fruit grower is, try what can be done. Soil for any kind of fruit tree is doubtless of the first importance, but if we cannot get just what suits them we must make the best of what we can get.

Gosport. J. GROOM.

Early Grapes and their prices.—Early Grapes at Keele Hall, consisting of Black Hamburgh and Buckland Sweetwater, during the time of the late Mr. Hill realised 25s. per lb. in March and April, 1863, and 21s. per lb. during the same months of the year 1864.—GEO. BOLAS, *Hopton, Wirksworth.*

SYRINGE-SET GRAPES.

IN gardening matters, as in most things, old lines of practice with which people have long been familiar are often considered the best and only course that can be followed, so that even when something else turns up to answer the purpose better it is long before it meets with anything more than very limited acceptance. Nor is a conservative feeling of this character without its advantages, as if people were always ready to discard that which has been proved to answer fairly in favour of every new fangled notion that is set afloat, disappointments would be much more the rule than the exception. It is not, therefore, to be wondered at that the use of the syringe in the case of shy-setting Grapes has hitherto made comparatively little way. But there seems to be a chance that the advantages of its use will be better understood and appreciated now when good cultivators, like Mr. Coleman, have taken to using it, and advise others to do the same. Anyone who will give the method a trial, with even the most inveterate of bad setters, if they carry out the operation as it requires to be, will soon be convinced of the simplicity, the expedition, and the success attending the practice.

When or how the practice was first hit upon is a matter of no consequence. Not unlikely it may have been known to Grape growers of the past, but who, through some cause or other, kept to the old methods. For myself, I became acquainted with it accidentally a few years after I began gardening. On a wet day one of the outside hands was directed to clean an Orange tree that stood in a mixed vinery, and which was affected with brown scale; he was told to clear the insects off the wood and the leaves, to sponge the latter, and then to syringe them well with clean water. This he did, evidently not stinting the water. Immediately over, and not more than a foot or 15 inches above, the top of the Orange was a Black Morocco Vine that happened to be in bloom; in syringing the top of the Orange the bunches on some half-dozen of the shoots got regularly drenched. The gardener came in just at the time, and said he believed that the crop would be spoiled for the season; all the bunches that had been wetted he looked on as lost. The day after he directed the foreman to go over the Vine to set the berries with the brush in the ordinary way, but told him to disregard those on the shoots that had been wet. This was done, but, much to the surprise of those who knew the circumstance, the syringed bunches set much fuller than those operated on with the brush. There was much speculation as to how this could have happened, and it might have been thought that the incident was sufficient to have warranted a trial of the syringe afterwards on this, which is proverbially one of the worst setting varieties in cultivation, and other bad setting kinds in the house, but prejudice was too strong. To set Grapes by the direct application of water where a dry condition had been looked on as the first essential was too much of a departure from the old line of practice to be accepted. However, I did not lose sight of the circumstance, and as soon as I had Vines to deal with on my own account I tried the syringe on a few bunches of indifferent setting kinds, including Muscats, and after the first season I was so satisfied with the result, that I never afterwards used any other means. I have advised many to adopt the practice, but it is a rare occurrence to get an experienced Grape grower even to try it on ever so limited a scale; not so, however, young hands, a good many of whom have followed the advice I have given them. Last year a gardener in a large place, whom I had induced to try the method, sent me a bunch of Muscats as a sample to show how it had acted. I took the trouble to ascertain what condition the berries were in as to the stones which they contained, and there was not one that contained less than two, and by far the greater number had three and four. This is a fair example of the effects of syringing. Last week I had a letter from the same gardener, saying that this season when his Muscats were in bloom the weather was the worst which he had ever experienced in spring, adding that in his principal house of Muscats containing 250 bunches there was not one in which the set was not perfect; and in another house filled with young Vines of the same variety coming into bearing, he had 150 bunches set equally well. This season in several places in which I have seen houses of Muscats syringed they have looked as if it would be a difficult matter to find a bunch with a stoneless berry in it. The certainty and the expedition with which the setting can be effected in this way are its great merits. But, as already said, in order to insure the set being as it should be, the work must be properly done; several whom I have recommended to try the method have only partially succeeded in the first instance, through syringing too lightly. To be thoroughly effectual, the water requires to be sent into the bunches with a moderate amount of force, and it should be applied to each side of the bunches when fully in bloom. My practice has been to carry out the operation in the middle of the day; no harm will occur through wetting the leaves then, however bright the weather may be, if there is a little air on at the top of the house.

If syringe-setting was generally followed, there would be little heard of the provoking failures that often take place in the case of bad-setting Grapes, as even the worst to deal with in this respect, such as the Black Morocco already named, Muscat Hamburgh, and Alnwick Seedling, could be set so that they are as regular in the bunches as a Black Hamburgh. T. B.

GOOSEBERRIES.

AMONGST small fruits few are more missed when there is a failure than Gooseberries. I have known them to be in use from the beginning of June until the beginning of October. In the instance to which I allude ripe Gooseberries were preferred to Grapes. Therefore, prolonging their season as much as possible was important. A row of trees was planted across one of the quarters of the kitchen garden specially to provide a supply of fruit for dessert. The sort grown was the Warrington, which as a late Gooseberry was considered superior to all others in flavour, and its berries hang long on the trees without cracking. I remember picking for two seasons in succession firm and good flavoured fruit from these trees in the first week in October, and I have not forgotten the way in which the trees were treated; not a fork nor spade was allowed to go within 4 feet of their stems. Every year as soon as cleared of their fruit a layer of half-rotten manure was laid on the surface for some distance outwards from the stem, and sufficiently thick to last all the year round. This mulch served, moreover, to keep the fruit free from grit. Before each fresh mulching was put on the refuse from the old one was cleared away. These trees were also pruned in a particular way, *i.e.*, they were pruned rather severely for the purpose of getting fine fruit. As much of the old wood was cut out as could be spared, the object being to let in as much light and air as possible to the middle of the trees, which were at least 5 feet through and nearly as much in height. Fortunately, birds did not interfere

with the buds, but we had to net the trees very carefully to keep them off the ripe fruit. When the fruit began to change colour a temporary framework of wood 6 feet high was erected over the trees, and on this framework was placed a strong net reaching on both sides to the ground, and made secure by being pegged down. This arrangement was most convenient, as we had only to lift up the net at one end and walk in and pick the fruit, again leaving it secure as before.

The trees which supplied ripe fruit during August and the first part of September were trained to wires placed in the form of espaliers. Choice Gooseberries grown in this way get more light and air than those on ordinary bushes; therefore they are of better flavour, and the fruit is kept perfectly clean. Gooseberry trees trained in this way bear regularly and freely, and their fruit being exposed to view, can, if necessary, be thinned out with very little trouble. The varieties dealt with in this way were Early Rough Yellow, Whitesmith, and Red Champagne. I can in no way account for the circumstance, but it is a fact that I never knew birds to eat either the buds or fruit of these trained trees. I ought to mention that although the wires were horizontal, the branches took nearly a vertical direction; the trees were planted 4 feet apart, and the branches spread out and trained across the wires 6 inches apart. In pruning care was taken to let a certain number of shoots grow their own way during the summer at various points between the middle and the bottom of the tree. At the winter pruning some old shoots were cut out and young ones tied in to take their places, and in this way sufficient young bearing wood was secured.

In many gardens the soil is not deep enough to grow Gooseberry trees successfully. I am aware that most of us have to take the soil as we find it, but that is beside the question. The fact that in some gardens the Gooseberry crop is always heavier than in others proves that soil has a good deal to do with the matter. The question to decide by those about to plant Gooseberry trees is, is the soil deep enough for them? My contention is that where the soil is deep and of a good holding character, not only will better crops and finer fruit be produced, but the trees will last much longer in vigorous condition with considerably less labour in the matter of manuring than they would do where the roots are insufficiently nourished in a poor medium. Where, therefore, the soil is unfavourable more than ordinary care must be devoted to its preparation. In every case there ought to be a depth of at least 2 feet. In the matter of planting, it will be clear to anyone who investigates the subject that Gooseberry trees are, as a rule, planted too closely together. In very few instances have they room in which to properly develop themselves, and the result is that a severe system of pruning has to be adopted in order to keep them within bounds. If the trees are required to grow into large bushes, 6 feet apart each way will suffice for sorts having an erect habit of growth, but 8 feet apart is not too much for sorts like the Warrington, the branches of which take a spreading or somewhat drooping direction.

As to pruning, two distinct systems should be adopted. If large fruit is wanted, rather severe pruning becomes a necessity, but if a full crop of ordinary fruit only is desired, then very moderate pruning will answer. As a rule, Gooseberry trees are pruned too severely; by far too much of the young wood is cut out every year—a circumstance which reduces the number of fruits much below that which the tree is capable of maturing. The proper way to prune in order to get heavy crops is to cut out one or two old branches right back to the stem every year. This makes room for young growth, which will quickly take the place of that removed, and produce larger fruit than the old wood. Gooseberry trees growing against north walls produce plenty of fruits, which hang long on the trees quite sound and fresh, but the flavour, compared with that of fruit from trees growing in the full sun, is indifferent.

Fruit for exhibition.—At fruit shows surprise is often expressed at the large size of some of the Gooseberries. The secret lies in judiciously thinning the berries when young and only allowing the tree to carry a light crop. As the biggest fruit invariably takes the prizes, provided the skin is clear and the fruit fresh gathered, no one can expect to become a successful exhibitor who does not aim at securing large fruit, and they can only do so by beginning to thin out the young berries as soon as they are large enough to handle, taking care to see that the fruit is evenly distributed over the tree, and so placed that it can get plenty of light and air.

J. C. C.

Indoor Garden.

CULTURE OF PASSIFLORAS.

Amongst the numerous climbing plants suitable for growing under glass Passion-flowers hold a foremost position. They are easily managed, grow vigorously when in the enjoyment of suitable conditions, and are extremely effective when blooming freely. They must, however, get plenty of light and air, as, if grown in houses which do not get the sun during the greater portion of the day through the summer, they do not acquire the maturity which only a free circulation of air and abundant sunshine endow them with. This remark applies equally to the cool house kinds and to those which demand the more elevated temperature of a stove or intermediate house. There are two ways of growing Passifloras; they may be kept in pots or boxes, or may be planted out in a specially prepared border. It is needless to say that by the latter method a more vigorous growth and a correspondingly larger amount of bloom will be obtained; indeed, it is only in the case of houses of small dimensions that the roots of this family of climbers should be confined to such a small amount of soil as even the largest-sized pot contains. At the same time good and timely feeding will at all times ensure a fair amount of floriferousness. By means of top-dressings of concentrated manure and watering with liquid manure the necessity for change of soil can be in a great measure obviated. It is only food that a plant wants, and if you give it that through the spout of the watering-pot it will be as thankful as if the means of building up strength and flower production were supplied in any other way. It is well to bear this in mind, because it is not always practicable to form borders where this form of culture cannot be carried out. A box will be found better than a large pot to grow the plant in. A box about 3 feet square will hold enough soil to grow a Passiflora to quite large dimensions; but, as in the case of climbers generally, shifting is hardly practicable; good drainage should therefore be given, or the comparatively large body of soil will become sour before the roots can fill it.

Loam should form the basis of the compost, the only other necessary ingredients being a little leaf soil and some coarse white sand; and if some charcoal in pieces about the size of a nut are added to it, the soil will be better insured against the effects of an overdose of water. It is during the first two years that over-watering is to be feared, and great care must be taken not to bring the compost into a close, sour condition during that period. Passifloras are strong-rooting plants, and although they more quickly fill a comparatively large body of soil with fibres than the generality of greenhouse climbers, they nevertheless soon show the effects of over-watering. Up to the time that the box becomes filled with roots, the rule must be to allow the soil to become almost dry before watering, but when the plants are well established with a good head of foliage the roots should be constantly maintained in a moist condition. This equable state of moisture, in combination with frequent doses of liquid manure, or occasional top dressings of some concentrated stimulant, will maintain a sufficiently vigorous development to allow of the production of good flowers. When boxes or large pots are used for Passifloras and the floor of the house is not paved, they should be stood on bricks or something similar to prevent the entry of worms. Pruning to a certain extent in the case of old-established plants is necessary, as when the wood becomes too crowded it cannot mature as it should do, and plants allowed to ramble unrestricted soon become a flowerless mass of foliage. The aim should be to secure a sufficient number of strong shoots which can be trained quite 6 inches apart over the allotted space. Having selected the requisite number, the remaining growths should be cut clean away, and those which remain allowed perfect freedom; and if the culture is right in other respects, they will, in due course, form plenty of flower-buds. The best time to prune is in March, cutting the shoots of the preceding year back to within two eyes of the base.

Insect pests.—The principal enemy of Passifloras is scale, although plants in a healthy condition do not usually become attacked. When this pest makes its appearance it should be grappled with immediately, before it has time to get firm hold. Like all insect pests, scale multiplies exceedingly, and as it infests leaves and young and old wood indiscriminately, it soon arrests the flow of sap and brings the plant into a crippled condition. Fortunately, the nature of scale allows of its destruction at the time when the plants are at rest; and if proper measures are taken, one season will suffice to bring the infested specimen into a tolerably fine growing condition, and in two years the insects may be annihilated. Directly after pruning should be the moment selected for cleansing, and as there is more leisure in winter than in spring, a badly infested specimen may be taken in hand at that time, for, although when the sap is rising is the best time to prune, no actual harm will result from doing so in winter if the plant is kept rather dry until it breaks again into growth. Any of the insecticides recommended for the destruction of scale may be used and are efficacious, although I have found nothing better than a solution of soft soap at the rate of 4 oz. to the gallon of water. I have never known scale able to resist for any time repeated applications of soft soap at this strength. When the scale has obtained a firm hold of the old wood it is well to thoroughly wet every portion of the plant, and a day or two after scrub it with a toothbrush. The majority of the scale will come off easily, their hold having been loosened by the soap, but some will remain, and these should be looked after during the growing time. In a general way, a second season will be required to completely clean a plant which has become smothered with this insect.

Plants in a growing condition may also be syringed with soft soap if so desired, but the succulent wood will not bear the solution so

strong as the hard wood of a plant at rest. A solution at the rate of 2 oz. of soap to the gallon is a good deterrent, is quite safe, and if the soap has been well dissolved it will not stain the foliage; on the contrary, I always think that it has a more glossy look after being washed with a weak solution of soft soap. By syringing once a week, getting the mixture well on the wood and under-surface of the leaves, scale will not increase during the growing time to any appreciable extent, and may be dealt with at the resting period as above recommended. It may be as well to state that, in making a soft-soap solution, the water should be boiling when poured on the soap, and it should be well stirred two or three times before the water gets cool. If this detail is not attended to, the soap does not become thoroughly incorporated with the water; small particles are left floating in it, which discolour and sometimes injure the foliage.

Varieties.—One of the best varieties for a cool house of moderate dimensions is P. Campbelli, bearing bright-coloured flowers and blooming freely. It does not grow quite so strongly as some other kinds, and is therefore suitable for houses of moderate dimensions. P. racemosa is an excellent kind, one of the very best of the Passion-flowers, and Impératrice Eugénie is a fine variety, and one which is said to bear better than any other the vitiated atmosphere of towns. Of the Tacsonias, exoniensis and Van Volxemi are the two best for a cool house, their congener, Buchani, being more suitable for an intermediate structure. The hardiest of all the Passifloras is cærulea, which does very well in the open air in the warmer districts of England, and it thrives very well on the chalk; indeed, the best plants I ever saw were thus situated. This Passion flower grows well within the influence of the sea breeze. It should have the warmest position on a wall and the shoots should be thinly trained, so that they may ripen well, otherwise undue succulency puts them at the mercy of a frost that better matured tissues would enable them to bear. In a suitable position and in a warm summer this Passiflora perfects fruits, which are of a decidedly ornamental character. For a cool house this is well suited, and is sure to flower and fruit well. Trained up the rafters or to iron rods in a roomy glass house, and allowed to hang down in festoons, it has a very ornamental appearance. In large conservatories I should certainly prefer this way of training, as being better adapted to show the true character of the genus, and the pendent shoots get a more free circulation of air round them than when trained near the glass. One species, *i.e*, edulis, I have omitted to mention. It is an old inhabitant of our gardens, and when climbing plants were not so numerous as now was much used. When the orangery was more common in English gardens than now, it was often to be seen rambling under the roof and fruiting freely in the summer-time. J. C. B.

Lilium candidum under glass.—We all know that this lovely white Lily makes a glorious display at midsummer in beds or borders, but I do not think its merits as a cool-house plant are fully recognised. It may not stand forcing for very early bloom, but for cool houses I have ample evidence of its suitability in the shape of magnificent spikes, that have lately proved most welcome in a cut state, being of that ivory whiteness which is so much prized for wreaths and other floral decorations. The way in which we treat our plants is to lift large clumps of them in autumn and set them in boxes about 6 inches deep, filled with light soil (for I may remark that this Lily grows here without any special mixture of soils); we leave them out of doors until frosty weather sets in; they are then transferred to a light airy part of a cold orchard house, or set in frames, and they grow on gently through the winter. No artificial heat is employed in their culture at any time, and under the protection of glass alone ours were in full bloom on the 1st of June, a time at which they are more valuable than a month earlier when so many white flowers are available. To anyone who has to supply a constant succession of white flowers throughout the year this white Lily will be found to be most useful, and for the conservatory a few potfuls of it will form striking objects at any time. If planted out after flowering no harm will result to the bulbs, as the best time for transplanting them is just after they have done flowering.—J. Groom.

Mignonette.—I lately saw some fine plants of this at Cuerdon Hall, Lancashire. They were in pots varying in size from 4½ inches to 9 inches. Those in the smaller sizes were brought into flower about the middle of March. The seeds had been sown in the smaller size and the plants shifted into the larger size. The best of those in 9-inch pots were compact bushes a yard through, and 2 feet 6 inches high measuring from the rim of the pot, and furnished with plenty of deep green leaves. Others were, if anything, taller, but not so broad; one of the spikes measured 16 inches, seed vessels and flowers together.—V.

Bougainvilleas.—We have here, beautifully in flower, a Bougainvillea glabra, trained up a column and forming a cylindrical mass 8 feet high and 6 feet in diameter. I have been familiar with this variety more than twenty years when it flowered in a 4-inch pot in the garden where I then was; I have frequently flowered it in pots of various sizes, and, as "T. B." stated in The Garden (p. 348), two or three times in the year. Will B. spectabilis do this? It should do so if there is no more difference between the two than "S." represents (p. 369), viz., "one being a stronger grower than the other." "S.'s" knowledge concerning the two varieties must have been gained from seeing B. glabra growing strongly in one place and weakly in another.—W. P. R.

Tuberoses.—Some of the best Tuberoses I have ever seen in small pots are in one of the plant houses at Dunedin, Streatham Hill, the residence of Mr. Sherwood. The method of treatment appears to be both simple and effectual. When the Tuberoses are set to work, they are placed singly in small pots and plunged in bottom heat, a little white sand being placed at the base of each bulb, and it is believed that the sand encourages them to root more freely. They are then potted in 4½-inch pots and again placed on, but not plunged in bottom heat; here they remain until they have made a good start, when they are taken to an intermediate house and brought on into flower. The plants are just flowering, and have spikes of seven to nine fine blossoms, though growing in such comparatively small pots, and they retain their foliage green to the very base of the plant. They are well looked after in the matter of watering, and treated to occasional doses of Clay's Fertiliser. A little is placed on the surface while the soil is quite moist from recent watering and watered in. This manure appears to suit the Tuberoses well, as their fine condition testifies.—R. D.

SHORT NOTES—INDOOR.

Repotting Camellias.—The best time for repotting Camellias is the months of June and July, after the plants have made their growth. Strong growing plants may be repotted before their wood is ripe or their buds set; weak ones, after setting their buds. Plants without buds may be repotted any time before October.—E. N.

Aralia Sieboldi.—The best way in which to get dwarf well-furnished plants of this Aralia—say about 18 inches high and 2 feet wide—is to sow its seeds in April. They soon germinate, and the young plants may be pricked off into pans or boxes as soon as they can be handled. By the beginning of July they may be placed in 2½-inch pots, and after a few days put out-of-doors in a shaded place where they may remain till late in November. In winter they must be kept as cool as possible to avoid starting them into growth. In the beginning of May they may be planted out-of-doors in well prepared beds, and after being planted, mulched. When growing they like once a week to be watered with liquid manure. They may be out till September, when they should be potted and put into a cool house.—E. N.

Epiphyllum Gibsoni.—This is described in the *Revue Horticole* as being a charming addition to Epiphyllums. It is nearly allied to E. truncatum, requires the same culture, and may be propagated in the same manner. The flowers, which are produced in bunches at the end of the shoots, are of a fine orange-red, a colour certainly quite distinct from that of any other member of the genus. M. Carrière suggests that by crossing it with the varieties of truncatum, some distinct varieties would be obtained.—Byfleet.

Hybrid Begonias.—In no London nursery have I met with hybrid varieties of incarnata so beautiful as at Lyons. The flowers of these hybrids are much larger than those of the ordinary B. incarnata and of various colours. The kinds called M. Chomer, M. Crosse, M. Ed. Pynaert, M. Eug. Vallerand, and M. Jean Sisley are all pretty, as are also Caroline Schmitt, Mme. Fanny Giron, Mme. Thibaut, M. Louis Van Houtte, and Victor Lemoine. They force well in winter, and in summer succeed outdoors in beds; they are also useful plants for windows, as they do not need large pots and they flower very abundantly. Their culture is easy. They may be propagated at any time of the year in moderate heat; for this purpose they must be cut down in order to get young shoots, because when they once begin to flower it is difficult to get shoots for cuttings.—Polander.

Kitchen Garden.

SPRING CABBAGES.

Small early hearting sorts of Cabbages are the best to select when wanted as early as they can be had. There is no lack of reputed sorts that answer this description, but if their history was traced back, we should find that all of them are selections from an old well-known variety called Atkins' Matchless. Of sorts offered by the trade, Early Heartwell Marrow, Stuart and Mein's No. 1, and Daniels' Defiance are all good. Cabbage seed, to produce plants for an early spring supply, should be sown from the middle of July to the end of the first week in August. For the northern counties the middle of July may not be too early, but in the west of England I find a fortnight later quite early enough. In this matter we must remember that the character of the weather during autumn and winter has a good deal to do with the behaviour of the plants in spring. After a mild winter it is more than probable that many of the earliest sown plants will "bolt" in March. For that reason it is safest to make two sowings at intervals of a fortnight, and to use half of each to fill up the space, or what I consider to be a better plan is to put out the plants of the first sowing 2 feet apart, and as soon as the next lot is ready put another lot between them, so that if any, or all, of the first lot "bolts," there will be enough left to form a crop. Should neither lot "bolt," it is an easy matter to thin them out if too thick. It is a common practice to sow Cabbage seeds too thickly, and the result is that the plants stand so close together in the seed-bed that they get drawn up weakly. Much stronger plants are obtained when plenty of space is allowed for the seed bed and when the seed is scattered thinly over the surface. All seeds of the size of those of Cabbage or Broccoli should be sown in shallow drills, or if sown broadcast be covered with finely sifted soil, but drills 9 inches apart are best. If the weather should be dry, the bed must be kept regularly moist, or the seed will not vegetate so soon as it ought to do.

Respecting ground for Cabbages, I need hardly say it must be deep and fairly rich. Nothing is gained, however, by making the soil too rich for any member of the Brassica family that has to stand through the winter; strong manure forces on growth, and growth obtained under such circumstances is not so hard as that made in poorer ground. On the other hand, in the case of the early crop, we all know that Cabbages are gross feeders, and that to insure tender-hearted

plants their growth must be made quickly, which cannot be effected if the soil is not fairly rich. A fairly good dressing of manure is therefore necessary. Cabbages should not be planted on land that has been recently occupied with any of the same family or the result will not be satisfactory. They should follow Potatoes, Peas, or Onions. Many of us might get earlier Cabbages if we were to devote a small space on a south border to them. The number of plants put out need not be many, oven a couple of score of plants would extend the season.

The main crop must, of course, occupy open quarters, as each plant takes up a good deal of space. The first planting should be made early in October and another a fortnight later. Should dry open weather occur during January tread the ground firmly about the roots, draw up some earth all round the stems and in sufficient quantity to prevent wind-waving. J. C. C.

POTATO FERTILISATION.

Were we dependent upon the seed of Potatoes for the production from year to year of our Potato crops we should have to vary our cultivated sorts materially, for many of the best Potatoes produce no seed whatever. On the other hand, kinds that do not rank as first-rate are often great seeders. But little inquiry is needed to show that whilst such remarkably free seeders as Woodstock Kidney, Grampian, Bedford Prolific, and Radstock Beauty are far from being disease-resisters, such kinds as Magnum Bonum, Chancellor, Reading Hero, &c., all very robust growers and comparatively disease-resisters, are yet absolutely non-seed bearers, indeed, producing seed only when blooms are artificially fertilised, and not otherwise. Why some kinds of Potatoes should have in their blooms such a liberal supply of pollen whilst others have none is one of those things hard to understand. What is probable is, that modern kinds develop such tuber-producing properties that material which otherwise might go to the production of pollen and seed is now diverted to the formation of tubers. We find lack of pollen specially marked in the American kinds, but very few indeed producing enough naturally to set blooms; indeed, all our best new kinds, products of Anglo-American crosses, have resulted from the application of pollen from home-raised kinds to the flowers of American sorts.

To all anxious to try their 'prentice hands at Potato cross-fertilisation, it is not possible to recommend better seed parents than some good Americans, and better pollen parents than some good English sorts. Last year there seemed to have been an unusual lack of pollen in many kinds which, as a rule, give some, resulting most likely from the heat and drought. For that reason cross-fertilisation was difficult, and in some cases where blooms were set the seed-balls fell ere mature, owing to the drought. This year Potatoes look already so well, and early kinds are showing bloom so freely, that ample opportunities should offer to any wishing to take a turn at Potato raising. It is perhaps rather a drawback that they find the field already pretty well occupied with sorts all fairly, if not superlatively, good. Perhaps the superlatively good ones may yet be produced by some enterprising fertiliser who can devote time and attention to the subject. If but some half-dozen kinds be so fertilised, and but one seed-ball obtained from each, there will be found during the winter, when the decaying flesh of the seed-ball allows the seed to be cleared out, enough of the latter to produce quite one hundred seedling plants. These are readily raised by sowing the seed in pots or pans in fine soil about the middle of April, as with ordinary care the seedling plants may then be strong enough to plant out in rows in good free-working soil early in the month of June. If of so many some few are not deliberately set aside as undesirable the first year, these seedlings may the second year prove a serious trouble; hence it is advisable to sacrifice the first year all but the most promising, and those should not exceed twenty diverse ones. That quantity of sorts, each perhaps being represented by from eight to twelve tubers, will need considerable space in a small garden the second year, and at the lifting time some more must be relegated to the kitchen, not more than one-half, perhaps but half-a-dozen sorts, must be saved for further trial. All this work is exceedingly interesting, and to those who have faith in their labour as well as intelligent appreciation of its usefulness, much enjoyment is found in it. Having regard to the fact that no seedling Potatoes need be wasted, and that no labour expended in raising them is wasted either, there is perhaps even more to attract amateurs in Potato-raising from seed than is found in that of many other garden products. A. D.

KITCHEN GARDEN NOTES.

Early Peas.—We had two varieties of Peas ready for gathering on a south border on June 1; one was American Wonder, the other a new sort which we had on trial. We have sowings of other early Peas, including Ringleader, William the First, and some other American and Canadian varieties with great pretensions as to earliness, but the two just named have beaten them. The American Wonder only grows about 1 foot in height, and although very prolific for its size, there is not much of the "gather-and come-again" character about it. It is good for one early gathering, and that is all. The new one is better in this respect, as it grows 3 feet in height, is equally early, exceedingly prolific, and a most valuable first-crop Pea. Telegraph, now in pod, is earlier by several days than Telephone, and Duke of Albany is later than either. Ringleader and William the First are as nearly equal as possible. We have lately heard of many Peas being bought in the market which were quite void of flavour, and I am inclined to think that this must be the result of the fermenting process which they undergo in their transit to market, as when large quantities of them are placed in boxes or baskets together they heat like newly-mown Grass, and then the flavour must deteriorate. Anyone gathering Peas from their garden who has the least regard for flavour must avoid this.

Seakale.—This being a favourite vegetable in winter and spring, many are anxious to grow it well. About this time of year all plants of it above one year old show a great disposition to run to flower; they throw up strong stems and then produce masses of white flowers. These are excellent as bee flowers, but that is the only good purpose which they serve; they are indeed injurious to the plants, and the whole of them should be removed as soon as formed. What may be termed fruiting crowns will then be produced, and should more flowers make their appearance, they must all be cut off as before, as large leaves and flowerless crowns give the best returns next spring.

Early Turnips.—Of all the sorts we have ever grown Early Milan is the earliest. We had nice bulbs of it on May 18 from a patch sown in the open in March. It bulbs wonderfully quick, and is not over-burdened with top growth. It is a white with a purple top, and exceedingly good in quality. Early Turnips are always most acceptable, and the aim should be to grow only the earliest as a first crop, and that is undoubtedly the one in question.

Rhubarb flowering.—All sorts throw up long stems and flower at this season, but flowers are no advantage to the plants—indeed, they are injurious, and all who wish Rhubarb to do well must keep it constantly free from flower-stems.

Hoeing.—This must be followed up vigorously now. Hand-weeding any vacant space where a hoe can be used is slow work. Apart from the ready way in which weeds may be destroyed by hoeing on a fine sunny day, the operation opens up the surface, and this is very beneficial to the crops. Even where there are no weeds the hoe should still be run amongst crops now and then. Young vegetables are especially benefited by hoeing. Onions, Turnips, Carrots, &c., should be hoed once a fortnight until the leaves obstruct the work. Corners containing odd crops are very apt to be neglected at this season when other work presses, but on no account should weeds be allowed to run to seed in such situations. If they cannot be raked off they should be hoed over at least, and if timely attention is given to this, weeds will almost cease to be troublesome.

Mulching Peas.—The advantage of mulching is that it retains the moisture about the roots, keeps the top growths fresh and growing, and the Peas tender, sweet, and juicy. Peas mulched also bear longer than Peas unmulched, and if a long succession is desired from a row, mulching must be resorted to. It is during the warm, dry summer months when the practice is most beneficial; some use good manure for mulching, others only light material of any kind. If the Peas are to be watered artificially, rich manure is of much service, as the richness is washed down to the roots; but when rich manure is put on and never watered all its best qualities are lost, and therefore, any kind of material, such as lawn mowings, half-decayed leaves, &c., may be used for mulching, as they will retain the moisture in the soil as well as anything; mulching saves watering and averts mildew.

Early Lettuces.—The Paris Market was our first Lettuce this season. It is a Cabbage variety, grows very dwarf, produces fine heads, is very tender, exceedingly crisp, and altogether a grand sort. Midseason Lettuces are very plentiful, and new ones are annually being introduced, but I do not know of any new early one to equal the Paris Market. Veitch's Perfect Gem follows it. It is of much the same type, but larger and darker green in colour. It well deserves its name.

Late Cabbages.—When grown to come in new and fresh about October, Cabbages are really very acceptable, being as tender and nicely flavoured as in early spring. When old plants are kept on to produce sprouts in autumn they furnish a large quantity of green material, but the produce of old roots and stems is not half so tender or well flavoured as the heads which form for the first time in autumn. To secure these seed should be sown in June, and the plants transplanted and grown on in the ordinary way when ready.

Cutting Asparagus.—There is always a danger of cutting too late. As soon as Peas are ready many cease to expect Asparagus, but where Peas are late and other choice vegetables scarce the temptation is great to cut Asparagus later than is good for the roots or the permanent success of the beds; those who are inclined to cut on will find out that ultimately there is no profit in this. Cutting should never be carried on after there is danger of depriving the roots of all the best growths, as some of these should always be allowed to remain to strengthen the plants for the succeeding year. The middle of June is late enough in all cases to cut, and in some parts where the crop was early cutting ought to have been given up before that time.

Autumn Onions flowering.—In some seasons the majority of autumn-sown Onions run to flower before they begin to bulb; if allowed to go on and seed no bulbs will form and the crop will be spoiled, but if the flower-stems are broken off as soon as they begin to appear fresh ones will not take their place, and the bulbs, although they will not be so large as the non-flowered ones, will nevertheless reach a useful size. J. Muir.

Margam, South Wales.

SHORT NOTES.—KITCHEN.

Early Peas.—Soil, season, and situation have much to do with getting Peas early. My earliest this season has been Early Champion. I sowed it, American Wonder, Sunrise, and William the First on February 5. Early Champion was ready on the 19th of June, and American Wonder three days later. I think the Champion superior to the American Wonder, as it is a better cropper.—W. A. C.

Red Cabbage.—Though full late to plant Red Cabbage, yet it may still be done If planted among rows of Potatoes, the latter should be at least 3 feet apart. Fork in a little artificial manure, and plant at once; but the Cabbages will not be large. To grow early Potatoes to come in soon after Christmas, the pit must be heated with hot-water pipes; both top and bottom-heat should be supplied.—H.

ORCHIDS.

CŒLOGYNE CRISTATA MAXIMA.

THERE is not a more popular, and there could scarcely be a more lovely, Orchid than the old Cœlogyne cristata, which for nearly half a century has been an occupant of English hothouses. It is one of the few Orchids that have found their way into general cultivation. Like the ever popular favourite Dendrobium nobile, it is to be met with in almost every good garden, and, like the rest of what may be termed everybody's Orchids, its culture is of the simplest kind. There are now about half a dozen varieties of it in cultivation, more or less distinct, one of the most recent additions being maxima, of which we herewith give an illustration. This variety is undoubtedly the largest flowered of all, its blossoms being much larger than those even of the Chatsworth or Trentham varieties, which until recently have been looked upon as the largest. The flowers of maxima are quite a third larger than those of the ordinary form, and as many as eight or nine are produced on a spike. One can, therefore, readily imagine what a lovely object a large specimen of this Cœlogyne must be. The engraving was prepared from a photograph of a plant which flowered in the St. Albans Nursery in February, and is said to be the largest specimen of the variety known. When out of flower it may be recognised by its bulbs, which are large and truncate, and by its foliage, which is very deep green in colour, while the Chatsworth variety (major) has more pointed bulbs. The other named forms of this Orchid are hololeuca or alba, a kind with snow-white flowers, and which it is the desire of every orchidist to possess, and Lemoniana, which is equally beautiful on account of its primrose-yellow lip, not orange-yellow, as in the ordinary form. This is also a scarce variety, and always commands a high price. It was named after the late Sir Charles Lemon, of Carclew, with whom the variety originated, and not on account of its lemon-coloured lip, as is generally supposed. The culture of Cœlogyne cristata is so well understood, that little need be said respecting it. It requires a greenhouse temperature, and is best when grown in pans on account of the spreading tendency of the bulbs. These are apt to become very crowded; it is therefore a good plan to cut the old bulbs away, otherwise the flowering bulbs become weakened. The plant likes plenty of water during active growth, which commences just after flowering; at no time, indeed, must it be allowed to get dry, otherwise the bulbs shrivel. It flowers in winter and early spring, and no Orchid is more valuable at Christmas-time than is this fine variety of Cœlogyne.

Cœlogyne cristata maxima. Engraved for THE GARDEN from a photograph.

SUMMER NOTES ON ORCHIDS.

CATTLEYA HOUSE.—May, June, and July are busy months in Orchid houses. We begin at one end of each house, and closely examine and attend to the wants of every plant till the other end is reached. This season our plants of Cattleya Trianæ flowered very late; the last of them were in blossom when the first flowers of C. Mossiæ opened. Such plants of C. Trianæ as required repotting were all attended to; others were surface-dressed with the best fibrous peat and a little live Sphagnum, working in amongst the compost lumps of charcoal and clean potsherds. Under careful attention to watering and keeping up the right temperature and atmospheric conditions, the young healthy roots soon set to work amongst the compost, pushing along freely on the surface and immediately under it. We are even now repotting Cattleyas and Lælias that have just gone out of flower, and, not to delay the work, some have been repotted that are yet in full bloom. Lælia majalis has flowered well with us this year, and one plant of small size has had on it two beautiful blooms. It was equally fine last year, and one of the flowers of last year ripened a fine pod of seeds. Orchid growers asserted that the pod of seeds would cost the plant its life; but no apparent harm is the result; indeed, I have ripened many pods of seeds on Orchids, and never could observe any harm that seed-bearing did them. I never, however, allowed an unhealthy Orchid to ripen a seed-pod, nor interfered with plants on which seed-pods were developing. Plants of Dendrobium Wardianum, D. nobile, D. thyrsiflorum, D. Farmeri, D. Dalhousianum, and others which flowered late have now been potted. The young growths of most of them had started about an inch or so, and new roots had begun to push out freely from their bases. They root freely in the new potting material, which causes them to push rapidly and make good growths. Some may not need repotting; in that case they ought to be surface-dressed, as is done in the case of Cattleyas. If the plants cannot be placed in a warmer house, they ought to have the warmest corner of the Cattleya house. During the operation of repotting, basketting, &c., great care must be taken not to injure any of the young roots. It is undesirable to saturate these plants with water, but the surface ought to be kept sufficiently moist to keep the Sphagnum Moss in growing condition; if this becomes dried up, the plants never succeed so well. Aerides odoratum and Fieldingi grown in this house, and some of the Vandas, such as V. tricolor and V. suavis, not potted in the spring, have now all been repotted. I have frequently potted such plants in June, and none of them have been any the worse for it, though it would have been better to have done so earlier. Odontoglossum vexillarium should now be repotted, *i.e.*, as soon as it is out of bloom. It then begins to grow and should be repotted, though I have repotted it in July, August, and even as late as September without any bad results. Cypripediums we generally repot as they go out of bloom, and altogether we have had plenty of work amongst Orchids during these last few weeks.

IN THE COOL HOUSE all repotting was done early in spring, and the plants are now rooting freely. The whole of these cool Orchids seem to thrive best when the surface of the potting material is covered with healthy, growing Sphagnum. One of the most successful growers of cool Orchids with whom I am acquainted told me that he clips the Moss from the surface of the compost in which established plants are growing with a pair of scissors whenever he wants any with which to surface-dress other plants. All that is required in this house at present is to keep the plants free from insect pests, and to attend to ventilation, which ought to be ample night and day; in calm nights the ventilators may be quite open, as

out-of-doors the night temperature is now quite warm enough for the plants, and the moist night air resuscitates them after they have passed through a hot day. Oncidium macranthum is now in flower, and its long spikes, the flowers on which take at least six months to fully develop, greatly exhaust the plants. The best way is to treat them liberally, and occasionally to give them a season's rest before flowering them again.

IN THE WARMEST HOUSE there is not much repotting to be done at present, except in the case of plants of Odontoglossum Roezli; these may be repotted either now or during the two following months. I have also repotted them in September and they have afterwards made exceedingly good growths. This is a plant which requires a good season of growth; water must be freely given it, and it also requires to be kept drier at the roots in winter than when growing. The Cypripediums which thrive best in the warm house, such as C. Lowi, C. Stonei, C. lævigatum, C. superbiens (Veitchi), C. Dayi, &c., may also be repotted. Some of them were potted a month ago, but a few still remain to be done. They do not seem to suffer even if potted during any month of the year. J. DOUGLAS.

The Vanilla Orchid (*Old Sub.*).—Information is asked in THE GARDEN as to how this plant should be treated in order to induce it to fruit. It flowers freely, he says, but the flowers do not set. In order to induce them to do so, he must resort to artificial fertilisation. My plan is as follows: Remove the anthers carefully with the finger and thumb, and with a small camel's-hair brush transfer the pollen to the stigmatic surface. In order to do so, it is necessary to raise the rostellum, which protects the latter. Thus treated, our plants set fruit quite freely. Some recommend that the rostellum be entirely removed, but I consider such a practice unadvisable.—G. C.

Cattleya gigas Sanderiana.—Two magnificent flowers of this Orchid have been sent to us by Mr. Fowler, of Ashgrove, Pontypool. They represent the finest form of it—that with the largest flowers most richly coloured. The flowers sent measure over 8 inches across; the sepals are 2½ inches broad, deep lilac veined with deeper colours; while the lip is 2½ inches broad, and of the richest crimson magenta imaginable, intensified by a dash of pale yellow in the throat. This variety of C. gigas is certainly the most satisfactory of all, as it grows and flowers freely, and the colour is so much finer than that of the other forms.

Cattleya Gaskelliana.—Some flowers of this superb new Cattleya, the first we have seen this season, have been sent to us by Dr. Duke, of Lewisham, who thinks highly of it. This Cattleya is doubtless one of the most valuable introductions among Orchids of late years; its flowers are not only most lovely, but they come in at a time when other Cattleyas of similar character, such as Mossiæ and Mendeli, are going out of bloom. Dr. Duke's flowers represent two distinct forms, one a very large flower with pale mauve sepals and petals and a crimson-purple lip stained with yellow; the other a much smaller flower, with mauve sepals of oval outline and a lip of the richest crimson-magenta, broadly margined with pale lilac and with a dash of primrose yellow upon it. There will, no doubt, be many varieties of this Cattleya, as there are among other varieties of the variable C. labiata; already there is a white and several distinct pale forms.

Masdevallias.—"B." (p. 593) justly remarks on the similarity of the flowers of the pretty triaristella group of Masdevallias. Like as they may appear to be, however, to the casual observer, there are many unmistakable differences by which they may be determined. If he refers to the figure of M. triaristella in the *Botanical Magazine* (t. 6268, I think), he will see that its slender flower-stalk is so densely studded with pinnate wart-like ridges as to appear hairy, while that of M. tridactylites, of which you gave an illustration from the plant when it first flowered with me, is smooth. Of M. trichæte, which has similar flowers, but flat, recurved leaves, I am not so sure, as I cannot find any feature to distinguish it from M. gemmata, of which I sent the first flowers to Prof. Reichenbach.—JAMES O'BRIEN.

Books.

THE MARIANNE NORTH PAINTINGS.*

IT is only four years since Kew became possessed of the rich collection of pictures painted by Miss M. North, the accomplished artist and traveller who has visited countries all over the world for the purpose of painting plant-life at home, and yet in that short space of time no less than four editions of the catalogue have been issued, a fact which in itself is sufficient to show the high appreciation in which these pictures are held by the Kew-visiting public. The last edition of this catalogue, recently issued, deserves to take rank as a valuable contribution to geographical botany, as well as a most useful little book of reference, both for horticulturists and botanists. In the introduction we are informed that the whole of the pictures, numbering 848, were executed by Miss North between the years 1872 and 1885, and nearly all of them in the countries inhabited by the plants. An excellent map is given, in which the places visited are shown, and a list of the species of plants named in the collection is added, arranged in their Natural Orders, so that an idea is obtained of the representative character of the collection. Out of about 200 Natural Orders of flowering plants recognised by English botanists, no fewer than 146 are represented in this collection of paintings, and in these are included 727 different genera. The value of these pictures, as revealed by these figures, must be apparent to anyone who has seen the pictures themselves, Miss North's accuracy in points of detail being conspicuous in every picture, so that there is no difficulty in recognising the plant intended. Indeed, we believe that almost every one of the plants has been named by Mr. Hemsley by means of the pictures alone. Short chapters on the general features of the vegetation of the countries visited contain much interesting and instructive information for gardeners as well as for botanists. In this new catalogue we find that 220 pictures have been added to the collection since the issue of the edition of 1883, and these represent some of the most beautiful plants of Chili, the Cape, Natal, the Seychelles, and several other islands.

Taking the principal garden plants shown in the pictures, we find figures of thirteen species of Rhododendron, ten of Ipomæa, thirteen of Hibiscus, twelve of Eucalyptus, six of Protea, six of Disa, and nine of Lilium. Among plants of special interest we may mention the life-like pictures of the beautiful Amherstia, Poinciana regia, Aristolochia Goldieana, Beaumontia grandiflora, Nymphæa gigantea, Ranunculus Lyalli, Richea dracophylla, and Drosera cistiflora. The pictures of the splendid Puyas from Chili are as attractive in themselves as they are when considered as works of art. We select the following as an example of the sort of information given by Mr. Hemsley in reference to the plants represented:—

THE SACRED LOTUS OR PUDMA.—Nelumbium speciosum is the most beautiful and graceful of all the Water Lilies, its leaves and flowers rising considerably above the surface of the water; and at the same time it is the most interesting on account of its remote historical associations. Four thousand years ago it was the emblem of sanctity in Egypt amongst the priests of a religion long ago extinct; and the plant itself has long been extinct in that country, though very widely spread in the warmer parts of Asia, extending through the Malay Islands to Australia. In India and China the flowers are held especially sacred, and the plant is commonly cultivated. For this purpose the seeds are first enclosed in balls of clay and then thrown into the water. The same method was employed by the early Egyptians.

A panelled wainscot below the paintings is formed of 250 distinct slabs of wood, mostly beautiful in the grain and all polished, to show their value to cabinet-makers, &c. The names of these, both vernacular and botanical, are given in the catalogue, and the native country as well as a word or two about their uses is added in most cases. An excellent index concludes the book, which contains 160 pages, and is well printed on good paper. Copies can be obtained only at the Royal Gardens, Kew, the price being 4d. each. For horticulturists this is by far the most interesting of the series of guides and catalogues now in course of publication at Kew.

* Descriptive catalogue by W. B. Hemsley, A.L.S.

Alpine Flowers.—This book is now out of print and will not be re-issued—at least, in its present form. If the art of drawing flowers with some of their native grace of form and beauty of colour existed, we should probably continue the book under the same title with a series of life-sized plates of all the beautiful alpine flowers. Alas! such art is so rare, that we despair of doing justice to the flowers. We should not like to add to the collections of wiry outlines which have hitherto passed as representations of the prettiest gems in Flora's garland.

GARDEN FLORA.

PLATE 551.

THE SWAMP LILY.

(LILIUM SUPERBUM.*)

THE accompanying plate illustrates this Lily when in flower so faithfully, that little further description of it is needed. Its brightly coloured reflexed blooms, with their curiously irregular markings, are very pretty, and an additional recommendation is the fact that this species is amongst the latest to bloom of all the North

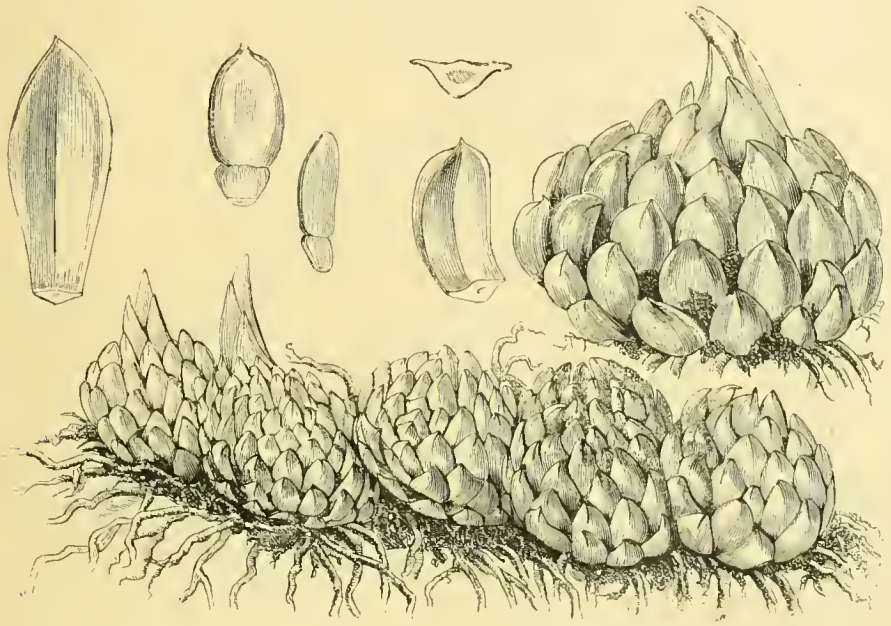
Lilium superbum, showing habit of growth.

American Lilies. In a general way it flowers about the end of July or early in August, though position and other circumstances of course influence to some extent the blooming period. This Lily has the curious creeping roots common to a few kinds; that is to say, the flowering bulb pushes out a rhizome sometimes 6 inches in length, on the point of which a new bulb forms, so that when in a thriving condition this Lily is always seeking fresh quarters. The bulbs greatly resemble those of L. canadense, being only distinguished from those of that species by being generally flushed with red. The flower-stem of L. superbum when grown under favourable conditions reaches a height of 6 feet or 7 feet, and is more or less tinged with purple, especially in its earlier stages. The leaves are narrow, acutely pointed, and arranged in regular whorls round the stem, a considerable distance being usually between each whorl. This Lily may be found in North America, from Canada to Georgia and Carolina, where it grows principally on the out-

* Drawn in Mr. G. F. Wilson's garden, Oakwood, Wisley by Mrs. Duffield, in September, 1885.

skirts of damp woods and in the neighbourhood of streams, where the soil is always moist. There is a variety of it figured in the "Flore des Serres" under the name of superbum pyramidale. This is described as bearing a pyramid of flowers consisting often of from forty to fifty in number, but as usually seen it certainly does not seem sufficiently distinct from the type to be recognised as a variety; different individuals of this Lily vary to a certain extent in many particulars, yet even amongst the most dissimilar connecting links may readily be found.

Culture.—The conditions under which this Lily is found wild afford a trustworthy clue to the treatment which it requires under cultivation; it thrives best in a cool, moist spot, where the soil is largely composed of vegetable matter. Though called the Swamp Lily, I am, however, convinced that it dislikes waterlogged ground, especially when dormant. Led astray by its name, I planted several in what I considered to be a fair specimen of a swamp, and they gradually dwindled away; whereas in a moist, but well-drained, spot they have succeeded admirably.



Bulbs and portions of bulbs of Lilium superbum.

Even in a dry situation it has done fairly well, though its dimensions are less than those of plants liberally treated. T.

WORK DONE IN WEEK ENDING JUNE 29.

June 23, 24, and 25.

The real summer weather which began on the first-named date has made one so busy—in fact, completely tired one out—that the daily record of work done has not been touched for the last three days. The work, however, has been of a general, rather than of a specific, character, and there will, therefore, be little difficulty in bringing up arrears. The flower garden—herbaceous department—has been overhauled, plants tied to stakes, bad flowers and foliage picked off, and the borders weeded and hoed where not mulched with Cocoa fibre. Aquilegias, Delphiniums, Pentstemons, Sweet Williams, Pinks, Pyrethrums, Potentillas, and Pæonies now make a magnificent show, the latter being particularly showy, and most of the varieties are as sweetly scented as Mignonette. It is a pity that their flowering season is so short, but there is some consolation in the fact that their foliage is massive and handsome, and helps to heighten the effect of other flowers near them. In the bedded-out flower garden we can always find plenty of work. The whole has been mulched with Cocoa fibre, which saves hoeing, weeding, and watering. Pegged down Violas, Petunias, variegated Mesembryanthemums, Leucophytums, and Heliotropes, and pinched into form Gold Feather Pyrethrum, Gnaphalium lanatum, and Iresine; also picked flowers off Calceolarias, Pelargoniums, Marguerites, Fuchsias, to induce more rapid growth in the plants. Clipped Box edgings; the small shrubs—Retinosporas principally—that we use in some of the flower-beds have had part of their new growth cut away to keep the plants rotund and shapely, but not too stiff or formal. Kitchen gardening has for the most part consisted of hoeing and staking succession lots of Peas. We are now digging Potatoes in quantity; they are not large, but clean and yield well. The ground thus liberated we again immediately crop either with Cauliflower, French Beans, or Lettuce, and presently with early Peas for the latest crop. Our first crop of Peas being over, the ground has been cleaned—not dug—and planted with Savoys in deep drills 18 inches apart, and 15 inches from plant to plant in the rows. The rest of outdoor work has been the maintenance of neatness generally and watering, which work we always endeavour to do at night in preference to the morning. Indoors, or rather work connected with indoors, has been pinching out side shoots of Chrysanthemums and tying the main shoots to their supports. In this hot weather they require water twice, and sometimes thrice, a day, and they are syringed at 6 a.m. and at 7 p.m. Bush plants are now being staked. Pots and soil are ready for Strawberry layering, and the shelves on which they have been forced in the Pine stoves and vineries are now cleared out, washed, and put away till December next. The Strawberry house is being prepared by a thorough cleaning out for the reception of tuberous Begonias, Coleus, Primulas, and such like easily grown plants that are required for vases in rooms in the autumn. Several Pines that are just coloured, and which are not likely to be required for use for some time to come, have been taken from the fruiting pit to the coolest vinery to retard their ripening, or rather to preserve them in good form for the longest time; they are already usable, else such a sudden check would arrest further growth. The fruiting pit has been filled up with successions—principally Smooth Cayennes—that are required to ripen from October onwards, and to take the place of these others are being potted, and the bottom heat in pits renewed as time can be spared for such work. In a house of mixed sorts of Vines that have just done stoning, this sudden burst of sunshine has caused a few berries to scald. White Tokay and Madresfield Court are the varieties affected, and to prevent further harm, air will now be kept on all night, increased very early in the morning, and slight warmth be turned on each night: the latter is necessary to the maintenance of an atmosphere—airy, yet warm—that is best suited to the swelling up and perfect colouring of fruit.

June 26.

This has been a scorchingly hot day, and we thought it advisable to shade early Vines by lightly syringing the glass with whiting and water. If a little skim milk be added the mixture will resist all but the heaviest rains, after which, if deemed necessary, it can quickly be renewed. The shading in our case is the more needed, because in spite of all our efforts at prevention red spider has gained a lodgment, and the colour of the fruit, from a deep black, is degenerating to a dirty red, but which the shading now given will probably stay. We dislike shading for Vines, and, indeed, all other fruits—Smooth Cayenne Pines excepted; but when once the foliage has become weakened with insects, and consequently unable to bear the full rays of the sun, then it is that shading is beneficial. Figs now in full bearing we keep constantly aired and in a somewhat dry atmosphere, but as soon as the present crop of fruit is over syringing and closing up early will again be had recourse to, as under such conditions only does the fruit attain the largest size. Watering of Pines and Vine and Peach borders and a general clean up complete the round of indoor work. The work outside has been of a varied description, such as clipping the Grass edgings of flower-beds, picking bad flowers off Roses, thinning out seedlings of Mignonette, and filling in after watering the drills in which Asters, Stocks, and Zinnias were planted. Gathered first outdoor Strawberries. We are several days later than usual, and the general gathering for preserving will be fully ten days later than in the average of seasons. Watered Peaches, Apricots, and cordon Pears on walls; our crops of the latter fruit are thin this season, which is attributable more to the heavy crops of last year than to inclement weather in the spring. They have all had their first summer pruning and their principal shoots tacked in to the wall. The hose has been plied on Morello Cherries with force to dislodge black fly from the tips of the young shoots before laying them in to the walls. Plums on walls are loaded with fruit, and in the absence of rain watering of these will soon be necessary, or the fruit will be small. Small fruits—Strawberries, Raspberries, and Currants—are abundant, and netting over is imperative, or the birds would have at least one half.

June 28.

Still very hot, and growth of all crops is now rapid and satisfactory. Peas are abundant and good, so that we can now afford to discontinue cutting Asparagus. Hoed over the plots to destroy self-sown plants and small weeds, and hoed more deeply between the lines of young plantations that were made in the spring. There is space between the rows sufficient for Lettuce, and the Black-seeded Bath Cos variety will be sown there as soon as we get a shower. This is the best of all Lettuces for late autumn and winter supplies. Well watered Celery and the later sowings of dwarf French Beans and Peas. We have no stable litter to spare, or they would be mulched, and thus reduce the need for artificial watering very much. Clipping Box edgings and knifed into shape standard Portugal Laurels. Trimming up flower-beds by clipping flowers off Sedums, and clipping the edgings and groundwork lines of Herniaria glabra, variegated Thyme, Gnaphalium lanatum, and Veronica incana. Planted another batch of Melons; a house of them, swelling up their fruit preparatory to ripening, has been given a thorough watering with liquid manure made from sheep droppings; syringings and waterings we continue till the fruit is nearly quite ripe, and by this means we rarely

lose any of the foliage, on the due preservation of which quality of fruit so much depends. To small decorative plants in the stove we have given more space by moving the hardier Ferns into pits. There being a quantity of hungry surface roots on Calanthes, Sphagnum and small pieces of peat have been mixed up, wherewith the plants are being top-dressed. The pots being well drained, we find watering necessary about twice a week.

June 29.

Grand weather, but drying; and watering is now the order of the day both indoors and out. There is an incentive to do such work when one can see a perceptible progress and well-doing of crops consequent on this desirable change in the weather. Watered wall trees, Peaches, Apricots, Pears, and Cherries, and, of course, all the flower beds. The longer established perennial and herbaceous plants do not yet show signs of requiring rain, but, having got all of them tied up, the hose can—should occasion require—be brought into play without injury to any. Continued clipping edgings and cutting Laurel hedges, and began to earth up latest crop of Potatoes. Indoors, too, the amount of watering and syringing now needed is very great, and takes up a great part of the time each day. Pinched back lateral shoots in late vineries, and cut out small berries from some of the bunches of Lady Downes and Muscat of Alexandria. The bunches of the latter require a fair amount of sunlight to colour them well; hence the lateral growths on these are more severely stopped back than is the case with black Grapes generally. Began layering Strawberries for forcing; our soil is rather a poor light loam, and to make amends for the former, a small proportion of bone-dust and animal manure is mixed with it, and in lieu of adhesiveness the soil is extra well pounded in the pots. Hants.

HARDY FRUITS.

The season is now sufficiently advanced to enable us to form an opinion of the crops of the various kinds of hardy fruit which we may hope to harvest should the weather prove favourable to swelling and ripening. So far the elements, though not dead against us, are not so decidedly with us as we could wish, and the time lost in the spring is still in arrear. Ordinary fruits will, of course, ripen, but unless the weather becomes much warmer and the sun gains the mastery of the cold winds and floating vapour which intercepts its rays the fruit must be vapid and deficient in flavour. This is the more to be regretted, as crops generally are plentiful, and, as far as my observation extends, we have not been so free from aphides and other insect pests for many years. Our first crop to ripen is the Strawberry, and, judging from the prolific bloom and the way in which the fruit has set, the yield will be satisfactory, but decidedly late. Of early sorts we grow Héricart de Thury, La Grosse Sucrée, and Princess of Wales. Last year the Vicomtesse was the first to ripen in the open air, and La Grosse came in second. This year the tables are turned, and although first in flower the order of ripening is reversed. A correspondent thinks the Vicomtesse is only fit for forcing, and that early. With us, the crops it produces in the open air are enormous, and its bright colour places it fairly well on the list for preserving, but for quality, colour, and flavour the old Elton beats it out of the field altogether. La Grosse produces finer fruit, both in the forcing house and in the open air, and although a lighter cropper, size, earliness, and brilliant colour will always insure it a prominent place in every garden. Our next Strawberry to ripen is President, a most prolific and delicious variety when not overfed into the production of a profusion of foliage, and the plants are placed at least 2 feet apart. When crowded and the fruit cannot have full exposure to sun and air we find it subject to mildew, a parasite which is speedily conveyed to other varieties by the pickers. Sir Joseph Paxton stands well amongst hardy, handsome varieties; it is a good cropper, and stands packing and carriage well. British Queen and Doctor Hogg by some are considered miffy in closely walled gardens, but a Strawberry garden is no more complete without them than a set of vineries is complete without Muscats. The best site for Queens is a broad open quarter in the centre of the garden where the plants can have full exposure to sun and air and the soil is deep, well drained, and heavy. Then to secure fine fruit and avoid unsightly gaps from sudden deaths, three-year-old plantations should be destroyed, and an equal breadth of young plants put out on fresh ground every year. If the soil is not naturally heavy, a spadeful of suitable loam placed round the ball of each runner at planting time and good mulching will be found a profitable investment. Under the impression that Queens require coddling, many people put them out on warm south borders, and allow them to remain too long on the ground. In course of time the soil becomes dry and exhausted; spider and mildew attack them; and the queen, truly, of Strawberries is voted a failure, because she dies or becomes unfruitful under unskilful treatment. Where the Queen is well grown it cannot come in at the wrong season; a host of good all-round sorts may be in use at the same time, but both for dessert and exhibition, a dish of Cockscomb-shaped Queens, whose points have been turned up to the sun, always heads the list. For late use, Elton Pine and Oxonian on north and east borders are invaluable. The first, a sub-acid Strawberry, deeply coloured to the core, is grateful in hot weather and makes the best of all preserves, as it is neither mawkish to the taste nor liable to smash during the process of boiling. For this purpose the plants should be grown and treated as Queens on open quarters where they can be well mulched and have full exposure to the sun. Oxonian on a north border is the most profitable variety I have met with. I grow it extensively in front of Cherries and wall Currants; truss or tie up all the plants to keep the fruit off the ground, and kill two birds with one stone by netting from the top of the wall to the top of a breadth of wire-netting, 1-inch mesh, secured to stakes along the front in a perpendicular position. A few slating laths keep the nets clear of one's head; they merely hang over the top of the wire netting, but quite clear and safe from decay, as they do not touch the ground. Pickers can move freely beneath them—no unimportant matter where all hands are fully occupied.

Two Strawberries I have omitted which ought to be included in every selection where high quality is allowed to make up for a somewhat wayward tendency to sudden death in hot, dry seasons. These are Frogmore Late Pine and Loxford Hall Seedling. Like the Queen and Dr. Hogg, they rejoice in deeply trenched ground out in the open quarters, where they can be clear of shade from trees and buildings. A few rows should be planted annually early in August, and a corresponding number destroyed when the third crop has been picked. Half a foot cube of fresh loam at planting time, good mulching, and plenty of water are essentials which should not be overlooked.

Bush Fruits.

Currants and Gooseberries, an abundant crop and free from blight, thanks to repeated winter washings with soapsuds, now require attention. Bush trees of the first from which we pick our earliest fruit have been divested of a portion of the young wood to let in sun and air, and the long rows will be netted before the berries change colour, a condition for which the birds are patiently waiting. We sometimes see the whole of the bushes closely cropped before the wood is half ripe and this mode of treatment hastens the ripening process, not only of the fruit, but the soft immature leaves, so suddenly and ruthlessly exposed to the scorching influence of a July sun, receive a shock from which they never recover. Early Currants are, of course, needed for use with Raspberries, but we do not require all at one time; and good fruit that will keep until November and do good service through the autumn months should be but sparingly exposed before it is fully developed and the ripening process has set in. Then by all means thin freely to insure the perfect maturation of the young growths and spurs, and let in light and air so essential to the preservation of the fruit. Gooseberries we do not find it necessary to prune in summer, as the choice dessert varieties on rather tall clean stems always keep best under a good covering of foliage. Birds with us, whose name is legion, we can keep in abeyance by timely double netting, strained clear of the head, over the quarters and supported by wires secured to stakes driven into the ground a few yards apart. All our feathered friends we do not profess to exclude, as we have red-billed cunning blackbirds capable of defying the skill of our most expert netters. I always protect these charming creatures until they are able to top the highest walls, when they become legitimate game for the netter and the fox-terrier, who understand and enjoy the early morning's sport. Our worst enemy is the relentless wasp, not unlikely this year to be terribly troublesome. Much, however, depends upon the weather, as I have known a plentiful wasp spring like the past to be followed by a waspless autumn, and *vice versâ*. Hexagon netting is the best protecting material, but many owners of gardens think it too expensive for use on an extensive scale, presumably overlooking the fact that a dish of well-grown Warrington or Ironmonger is often enjoyed by the wealthy when Grapes are left untasted.

Raspberries

are too often left to take care of themselves from the time they are mulched until the fruit is ripe; but this is not good treatment, as some varieties throw up a profusion of suckers, which rob each other and overcrowd the fruiting canes. These we find it necessary to thin out to five or six to each stool, and run a piece of matting rather loosely round them to prevent injury from wind and rain when growth is very rapid. Raspberries, like Strawberries, require close netting in wooded districts, otherwise the colour of the fruit would not be seen. When grown in squares, the cheapest protection is a permanent enclosure of galvanised netting 6 feet in height, well secured to Larch posts or stakes with a wire door for entrance. Stout wires strained from post to post form a skeleton support for square-meshed twine netting large enough to cover the whole of the plantation. If well tanned when new and put away in a dry store room as soon as the crop is over, such nets last a number of years, and pay over and over again for the original outlay. Raspberries, it is well understood, resent the introduction of the spade or fork, and revel in heavy mulchings and copious supplies of water during a continuance of dry weather; moreover, they pay for being kept free from weeds, but nothing more penetrating than the Dutch hoe should ever be introduced amongst them.

Apples,

as forward leafing and backward flowering led me to anticipate, are not a regular all-round crop. A great number of trees, it is true, are heavily cropped, but others, especially those which were in full flower when the heavy deluge of rain fell in May, are thin, and in some orchards fruitless. The air temperature since that time has been low, and heavy land being still cold and wet, the fruit swells slowly and will ripen late, if it does not thin freely by dropping. Pyramids and bushes in gardens are also partial; the latter, where the spreading branches shaded the roots during the long-continued drought last year, with us are carrying good, in some instances immense, crops, while pyramids which did not receive a corresponding degree of shelter are thin by reason of their having been sparsely set with perfect flower-buds. Cordons are good, and we have commenced pinching to keep the spurs close at home and get them forward. These with us, and with growers generally, produce the finest fruit; but in this there is nothing remarkable, as we always find this class of trees well mulched and in other ways receiving special attention. Pyramids

in course of formation may now be pinched to keep them in shape and force the sap into channels where it is most wanted. The manipulation of larger or full-sized trees comes next, but it must be borne in mind that this work should be performed gradually, as a complete sweep of soft and tender growth in cold or wet seasons especially results in a forest of spray instead of flower-buds. In ordinary seasons it is a good plan to thin the fruit early and freely, but this operation this year may well be deferred until all that are to drop have fallen; then, with a liberal hand, thin well and follow up pinching to let in sun and air throughout the remainder of the season.

Pears

on walls, especially those facing full south, it is to be feared, will be a light crop, and unless we have a decided change, and that soon, it is doubtful if the choice and tender varieties will ripen properly. Much may be accomplished by timely stopping to force the fruit forward and let the sun into the spurs and walls, which, if composed of brick, will absorb a great deal of heat on bright days, and remain through the night several degrees warmer than others which are shaded by spray and foliage. Pyramids and standard trees, as far as quantity goes, promise to be most profitable—that is, on the assumption that the weather will improve, and varieties usually grown in this way will have time to ripen. At the present time the fruit is quite a month behind, but this will not justify carelessness or neglect, as there is yet a long growing period before us, and, aided by good management, the trees may make up for valuable time apparently lost. Continue, then, to remove or pinch back the vigorous shoots, not only on Pears, but on fruit trees generally. Always commence at the top and work downwards, as the shoots near the apex are the most forward and rob weaker growths near the base. Pinching, it is hardly necessary to repeat, should be performed piecemeal, little and often, and the nailing or tying in of young shoots should never be attempted until they are free from insects.

Cherries

in orchards and on walls at one time promised a most abundant harvest, and may yet yield a quantity of fruit, but on our cold, heavy land the rainfall at a most critical time was too much for them. We generally succeed in ripening and keeping until a late period a quantity of the better kinds of dessert Cherries on north walls. May Duke, Late Duke, Bigarreau Napoleon, Governor Wood, Black Eagle, and Elton do well on a north aspect; but then the borders are thoroughly drained and the roots are confined to the 4-foot pathway. This spring they set the heaviest crop I have yet seen, but some of the trees now look starved and yellow in the foliage, and I fear we shall not have the pleasure of much hand-thinning. When Cherries on cold, heavy soils become gross they are apt to gum, but by planting in rather thin beds of good loam resting on deep drainage, and laying in young shoots on the extension principle instead of spurring back, this troublesome disease does not make much headway. Many shoots must, of course, be removed, but these we pinch when we commence searching for grub and black aphis early in the spring. Black fly with us has not yet put in an appearance; indeed, fruit trees of all kinds are cleaner than I remember having seen them. This happy relief is the more remarkable, as we generally find myriads of insects following checks and chills, of which the trees have had many this season; but my freedom I attribute to the persistent washing of the trees and walls with soapsuds throughout the winter. Cherries on walls must now be netted, and if any of them are wanted for a late succession, broad coping boards, from which the nets may hang, will be found invaluable in wet weather. If Morellos have not been well washed, the hose should now be laid on to free them from stoneless fruit and filth, as the time will soon arrive for netting. Many gardeners nail in their trees in July, but it is a question if this is not a superfluous operation, as I find the fruit keeps best where due regard is paid to the removal of a portion of the young growths, and those intended for nailing in are allowed their freedom until the autumn or winter training. Nailing is not an essential to the ripening of the wood, as we find pyramids and bushes producing heavy crops of fine fruit annually.

Peaches and Nectarines

are now making excellent growth, and the trees are quite free from insects. My own trees have been nailed in rather loosely; I never tie, as the shoots lose the benefit of so much warmth from the bricks. Although the dividing space on wired walls may not exceed half an inch, still it is sufficient to prevent the bricks and shoots from touching, and the backs of the leaves and wood are more or less exposed to cold currents of air. The fruit has been repeatedly thinned, but not finally, twenty per cent. or thereabouts having been left over my usual number. These will be taken off shortly, and when finished each tree will carry as many Peaches as it covers square feet of wall with foliage. A light crop, some may say, but many years have elapsed since I first made Peaches a specialty, and I find my trees cannot carry more year after year in succession. When once nailed or tied in, summer training must receive constant attention, and each shoot must have plenty of room for extension and the full development of its foliage. All leaders and side growths cannot be kept too close to the wall, otherwise the main object, perfect maturation without having recourse to stopping, will not be attained. A few, perhaps, above the breast line may become too gross, but this inclination to take the lead can be seen at a glance, when the points can be pinched to throw the sap into weaker growths below the line. Shoots so pinched generally throw out laterals, all of which, with the exception of one at the extremity, must be pinched and re-pinched, whilst the leader may be secured to the wall to increase the size of the tree and draw the sap forward instead of forcing it into breast growths, which sometimes start near the working. By adopting this plan the largest trees will require very little autumn pruning beyond the removal of shoots from which the fruit has been gathered, and the centres will be abundantly furnished with healthy bearing wood. Two points the extension trainer should never lose sight of; the first is liberal disbudding to make room for summer growths; the second is close training to secure well ripened wood. If not already done, all wall paths should now be well mulched with good stable litter to keep in moisture and draw the working roots to the surface. Up to the present time the borders have been wet enough and cold, but a hot July sun, combined with the rapid action of thousands of perspiring leaves and a full crop of fruit, may soon exhaust the supply. This year the outdoor Peach grower has a good start, for his trees are clean, his borders have been thoroughly moistened. All that is now needed is bright sun and copious supplies of water.

Eastnor Castle, Ledbury. W. Coleman.

The Potato crop in North-east Suffolk.—Potatoes have not looked so promising at this season for years past as they do at present, both in gardens and fields. Their tops have not been cut off or injured, as in former years, by late spring frosts; consequently they are looking strong and healthy. The last frost which we had likely to do any injury to vegetation was on May 1, when but few Potatoes had shown themselves above ground. The principal sorts grown in the cottage gardens along the Waveney valley are Early Rose and Magnum Bonum. A few others are sometimes grown, but none find so much favour as Roses and Magnums.—H. F.

The winter of 1885-6.—Upon looking at my meteorological register, I find that here at Fulham Palace I registered 106° of frost from October 6 (the first night of frost here) to December 31, 1885; and that from January 1 to May 6 (the last night of frost here), 394°—making a total of 500° of frost for the winter of 1885-6; the sharpest frost was on the night of January 7, 1886, when we registered 18°.—A. J. Ballhatchet.

Garden Destroyers.

INSECTICIDES:

their use and abuse.

When bunglers take up edge tools it not unfrequently happens that they cut their fingers. This is an old adage—nevertheless, a true one—which may also be applied to the careless or inexperienced use of insecticides. Remedies for the destruction of every known insect and parasite are now as plentiful as Blackberries, and, judging from testimonials, all must be good when carefully and properly applied. How, then, does it happen that we so often hear of many a well-known remedy proving more destructive than the disease? The question is easily answered. A chemist's nicety may not have been observed in the preparation of the wash or mixture; the plants or trees may have been carelessly prepared, or most likely neglect after the application may have led to serious injury or destruction. Fumigating with Tobacco or Tobacco paper, as all know, is one of our oldest remedies for the destruction of aphides, and hundreds of pounds are consumed daily by men who know what they are about with the best possible results; but this does not do away with the fact that the tender and valuable occupants of many a house are ruined by its injudicious use. Tobacco paper is, nevertheless, a valuable article, and experienced cultivators will not discontinue to use it because a score of bunglers have introduced carbonic or sulphuric acid with their igniting coals, or have allowed the sun to shine on the plants and run up the temperature before they were syringed and shaded. In the same way a wash or solution applied over-night after the sun has gone down and well syringed off before it rises may be found effectual, while neglect the following morning may prove fatal to the foliage of plants and fruits under glass. My object in offering these remarks is plain and straightforward, and if I succeed in drawing the attention of the inexperienced to the fact that all life-destroying remedies should be applied with great caution and under well-proved rules and conditions, the end I have in view will be attained. Some two years ago a gentleman residing in the midland counties introduced

Sulphide of potassium as a well-proved, sure, and safe remedy for the destruction of mildew, green fly, and spider. A small quantity of the sulphide was sent to me for impartial trial, and the result proving highly satisfactory, I have repeatedly recommended its use through the pages of The Garden and privately. My first experiment was made upon some old winter Cucumbers badly infested with mildew. Two dressings cleared them; they started into new growth and bore good fruit for months afterwards. I did not, it is hardly necessary to say, allow the sun to catch them in their sulphur bath, but syringed well the next morning and shaded until the foliage was dry. I next tried it upon an old Vine touched with mildew and just coming into flower; bunches, foliage, and every part of the structure received a thorough drenching, for I had made up my mind to the loss of the crop of Grapes. Early next morning the Vine was syringed with pure water and shaded; mildew disappeared for the time, and the Grapes set and finished well. My next application was to a very tender Melon plant, about 3 feet high, and badly infested with green fly. The fly disappeared, and the plant grew away freely without a blemish. Early in the autumn I again observed a tendency to Oidium on the laterals of my Vine, and, knowing what a subtle enemy I had to deal with, every house then clear of Grapes was thoroughly syringed more as a pre-

ventive than an antidote. The result was satisfactory, and I felt quite justified in giving the sulphide my warmest commendation. Early this spring a leading gardener wrote me to the effect that the Vines in his metallic houses always became badly infested with spider, and expressed a wish to try the sulphide. I sent him the necessary information, and soon by parcel post received a few leaves which he stated were badly affected with mildew. I examined them carefully, and arrived at the conclusion that they were free from spider and mildew, but badly scalded. Leaves afterwards found their way to the office of a contemporary, and the answer was a full corroboration of mine. Anxious to ascertain the cause of the scalding, I applied for full information respecting morning syringing, shading, and ventilating, but the reply has not yet reached me.

In a late issue of The Garden (page 588) "R. M." states that he has used sulphide of potassium for the destruction of mildew on his Peach trees, and complains of the loss of the leaves. Now, a bad attack of mildew, brought on by imperfect ventilation or want of water, would be sufficient to destroy the leaves; but sulphide having been used, "R. M." will greatly oblige me, and, I have no doubt, the thoroughly practical and scientific gentleman who introduced it, by kindly stating how and when the chemical was applied, and what steps were taken for the protection and safety of the trees the following morning. If sulphide of potassium was really dangerous when carefully and properly applied, I should be the first to make the *amende honourable* by publicly withdrawing every word I have written in its favour; but having proved to my entire satisfaction that it can be used with safety, and when properly understood will prove a great boon, not only in gardens, but in Hop yards, I shall esteem it a favour if others will give it a fair trial on a small scale and publish the result. Not so many years ago gas tar, forsooth, was introduced as a remedy for mealy bug on Vines. People who had been scraping, and painting, and slaving half a lifetime were horrified, and resolved on giving it a wide berth. A band of tar pure and simple drawn round the stem of a growing tree means certain death, but, applied as gas tar is now applied to the rods in winter, it is found one of the most efficacious remedies ever introduced, and although it may have proved a sharp-edged tool in the hands of those who will not pause to weigh and consider, scores of intelligent men have exterminated bug by it in their vineries when all other insecticides have failed.

Paraffin in the same way is an excellent servant, but a bad master. When properly used amongst plants and the syringe is well plied as soon as it has done its instantaneous work, there is a speedy disappearance of bug and filth, for the first melts on being touched by mineral or vegetable oils, and the excrement is loosened and washed away by pure water. The judicious use of insecticides is not, as a rule, studied as it ought to be, the majority, I suppose, consoling themselves with the thought that their plants or their Vines will never suffer as their neighbours' suffer, and so they live in a fool's paradise until the Philistines are down upon them, when, overtaken by terror, they fly to dangerous expedients, or act upon advice, sound enough in itself, but death-dealing when the usual common-sense precautions are neglected. W. Coleman.

Eastnor Castle, Ledbury.

The slug pest.—I should dislike killing slugs after 10 o'clock at night by means of a lantern and scissors, as suggested by "T. P. N." I would rather resort to "D. T. F.'s" plan of dosing them with soot and quicklime. In a rainy season our garden is overrun with slugs, and when planting out winter greens, such as Brussels Sprouts, Cabbages, or in fact anything on which slugs prey, I put a good ring of fresh sawdust round each plant, and this plan I find to be very effectual as far as keeping them off the plants thus surrounded is concerned. Slugs do not venture to crawl over the sawdust, of which enough must always be used to prevent the first shower of rain washing it away. A good plan is, after rain, to go round and destroy all slugs that can be seen; a few hands at this work for an hour or so will destroy thousands. Going round at night with a lantern and scissors would doubtless answer admirably in the case of a small garden, but going over acres is quite another matter.—W. A. Cook, *Hunts.*

Flower Garden.

GENTIANA ACAULIS.

It has been asserted that this is easy to grow, but it is nevertheless a fact that in many places it will not even live in the natural soil. I tried it for years in our soil and I could never get it to grow; indeed, it wasted gradually away until I adopted the following plan: I took out the natural soil several inches deep, and filled in with good loam, with which I mixed a little leaf-soil, some mortar rubbish, and pounded brick in pieces the size of a nut. I pressed the soil in very firmly round the roots, and towards the surface I embedded some small stones. When I did this my plants were on their last legs, but the change of soil operated magically; they regained almost at once their healthy hue, and after taking a season for convalescence they are, I see, hard at work renewing the growths of which chronic invalidism had to a great extent deprived them. So many have complained to me of a want of success with this lovely little flower, that I am induced to chronicle my experience in the hope of helping those who have hitherto failed with it. In good loam and mortar rubbish the Gentianella is sure to thrive, and a good spadeful of this mixture will suffice to cure debility in a fair sized specimen. I know an enthusiastic amateur grower of hardy flowers who, for the special accommodation of this Gentian and its little congener, verna, pulled down an old cottage for the purpose of getting a good supply of suitable material. I know, too, that this grower has made verna tractable, and that acaulis flourishes weed-like with him. Truly, these two little alpine gems are lovely enough to warrant such a sacrifice of time and material; their beauty is unique, their vigour perennial when they find a home to their liking. It is in rich, firmly retentive loams that G. acaulis succeeds best, but it is in very light soils that it does worst.

The mechanical as well as the chemical nature of the soil no doubt much influences its well-being, and I have therefore thought that the sinking four or more bricks level with or projecting slightly from the soil would be helpful. If the bricks stand out only a little, this would allow of a can of water going directly to the roots in hot weather, and the Gentian's special food would thus be better kept away from greedy neighbours. The unsightliness of the bricks would be overlooked for the sake of the exuberant Gentian growth. Moreover, old bricks could be used, and in time the exposed surface would become either mossy or overlapped with Gentian shoots. In very porous soils I believe this to be the only safe way of growing the Gentianella. The roots are fibrous near the surface, and in a soil which quickly parches they are burnt up in the hot summertime. Four bricks and a spadeful of loam and mortar rubbish will make a happy home for the Gentianella. J. C. B.

Hepatica angulosa.—I have been more than once during the past few years surprised to see how admirably this Hepatica thrives in the Messrs. Hooper's nursery garden at Twickenham. The soil is deep, but very light and porous, and this Hepatica seems to revel in it, producing big clumps and fine heads of foliage. No other kind thrives so well. The position is a warm one. There is quite a big bed of it, and in early spring it is very beautiful.—A. D.

SOWING STOCK SEED.

June is the proper month in which to sow the seed of perennial Stocks, and in dry, well drained soils in which the plants stand through the winter unhurt, few hardy flowers are more attractive than a good strain of Brompton Stocks. It is useless attempting to disguise the fact that cottagers excel even skilled gardeners in the cultivation of this class of Stocks. Why that should be so I cannot explain, except that in gardens the soil may be too rich for them, thus rendering them more susceptible of frost and damp. In my own case damp and a rich soil are fatal to them. Even in ordinary winters I lose two-thirds of my plants. The different varieties of the Brompton Stock are general favourites with cottagers hereabouts. They sow the seed about the middle of June, and transplant as soon as the seedlings are large enough to handle, and the most successful grower with whom I am acquainted lifts all his plants again in October. He simply places a trowel under the roots, lifts the plant out of the ground, and puts it back again in the same place. His motive for doing so is to check the growth and to harden that already made, which is consequently in better condition to resist any unfavourable influences than that of plants which are allowed to keep growing until frost overtakes them. Be that as it may, he has a fine show of Stocks every year, while I, who have to deal with a rich heavy soil, have to lament the loss of most of our plants. A place in an open spot should be prepared for the seed. The ground should be made rather fine, the seeds being small. Drills half an inch deep should be drawn to receive the seed, and should be filled in with some fine sandy soil. In order to prevent the surface from becoming too dry, a few green branches should be laid on the bed to shade it, but they must be removed as soon as the plants appear above ground. I ought to say that the seed cannot well be sown too thinly; if the plants stand thickly in the rows they get so weak that it is long after they are put out before they get sufficient strength to make good growth. On the contrary, if allowed sufficient room in the seed bed they get strong and sturdy before more space is required, and then they feel the moving less, and consequently make much the stronger plants. The scarlet and white are the most vigorous of the Bromptons, but the purple variety is also very useful. J. C. C.

NOTES ON HARDY PLANTS.

Anemone Robinsoniana.—No more convincing proof, I think, could well be had that this form is distinct from nemorosa and its so-called blue varieties than the fact that all its foliage shrivels up almost as soon as the flowers fade, while in the others it remains more or less green for two or three weeks after they have flowered. Such are the differences which occur in the case of plants that have grown side by side for two years, and which are otherwise placed on an equal footing as regards soil and other conditions, so far as I can judge.

Geranium eriostemon.—What a grand flower—large and richly coloured—this plant produces! Each flower is 2 inches across, and practically a violet-blue or purple, though the lower parts of the petals are paler or inclined to reddish purple. Why is not this showy Crane's-bill more largely grown? I have known it to last nearly three months in good form, all the while affording valuable material for cutting purposes. It grows about 18 inches high, and is erect and robust.

Plant-edgings of a permanent character are more or less grown in every garden; everybody must have an edging plant, be it only Thrift or London Pride; of the latter there are at least a dozen sorts, and the kind known as Saxifraga Ægilops is truly a gem for the purpose. In the case of Thrifts, too, why not plant the brilliant and exceedingly neat Armeria Laucheana instead of the worst variety? There are plants well adapted for edgings near Grass, and others for ordinary walks; the Saxifrages and Stonecrops asso-

ciate admirably with stones, and tall broad-leaved Thrifts and dwarf Grasses for bold borders. Milkworts and creeping Phloxes do well for fringing shrubberies. Sun Roses, preceded by the pleasing purple of Aubrietias, have both the useful property of wreathing sunny walk sides with masses of flowers, and the two together maintain a large amount of gaiety from April to August. For subtropical borders might be used the finer-foliaged Heucheras, choicer Megaseas and Asarum europæum, all being evergreen. It is unnecessary to do more than thus hint at the endless variations which might be adopted in the case of edging plants.

Camassia esculenta.—This, to be fully enjoyed, should be seen like Bluebells in quantity. The comparison, however, reminds one that the spikes of rich blue of the Quamash would be more appreciated if they came a little earlier, or a little later, so as not to be "in" with the Bluebells, which, in effect, they so much resemble. May I suggest that those who intend planting the Camassia should use only the variety which goes by the name of C. esculenta atro-cærulea? Its flowers are larger than those of the type and darker in colour. They are produced a little earlier, too, and in greater profusion.

Margyricarpus setosus.—This is worth planting in a front position on rockwork. Its pearly fruits are most persistent, and, owing to their great quantity and the small size of the foliage, they form an attractive feature. When these drop on clean moist soil, they germinate freely, and by the following spring become thrifty little plants. If on flat cold soil they are apt to damp off; they should, therefore, be set in sunny places, with their roots in deep black mould.

Dianthus petræus.—I often wonder why this is not equally as much valued as alpinus, neglectus and the glacier Pink. It is as easily grown as any of these, and certainly not inferior to them in beauty or neatness, though a little taller in the flower-stems, which, however, do not exceed 5 in. or 6 in. when grown fully exposed to sunshine. Moreover, it is a reliable Pink—one which when once got into growing condition is not apt to "go off" in such a manner as to make one suspect that it is but of biennial duration; on the contrary, it widens its rigid glaucous tufts year after year, without leaving dead patches in the middle, and year by year the bright rosy red flowers become more numerous. It will thrive well in such soil as suits the commonest Pink.

Two alpine plant pests give a deal of annoyance in the early summer months. These are green fly and what is known all over the country by the name of cuckoo-spit. Seldom do Androsaces, Drabas, Arenarias, or Pinks escape the fly. The yellow hue assumed by alpines in summer is often caused by aphides when allowed to get the upper hand. Fortunately, a handy remedy is to be found in tobacco dust, puffed upon both the spit and fly with a puff-pot. When thus operated on they disappear in a day or two. This remedy will not, however, be of much use if the pests are allowed to exhaust the plants before it is applied.

Tropæolum speciosum.—The wet, cool season which we have had has suited this plant well. It doubtless likes moist weather as well as a moist position, for its tender stem-skin is soon scorched by hot sunshine. Nor is it a difficult plant to establish, provided a cool spot is selected for it; but slugs infest such quarters, and attention must be paid to keep them from eating off the young shoots. So fond are slugs of this plant and its roots, that they will eat it down as far as possible. This Tropæolum likes to overrun living twigs rather than wires or dry material, the latter being unsuited to its tender skin. J. W.

Chrysanthemum segetum.—This yellow field flower shows under cultivation a considerable tendency to grow large in size. The ordinary dimensions of the flowers are about 1¾ inches in diameter, but I have occasionally had blooms 2¼ inches across, and as the petals are longer and less formally placed, large blooms are more pleasing than small ones. I have no doubt whatever that in a few years we shall find this Chrysanthemum rivalling other members of the family in the dimensions of its flowers.—D.

Societies.

ROYAL HORTICULTURAL, LIVERPOOL.

June 29 to July 5.

This great exhibition may be termed the first of a new series of provincial horticultural shows which the Royal Horticultural Society intend to hold—a movement which cannot fail to be productive of much good. The success that has attended the present show will serve as an encouragement to hold such gatherings, for a success it undoubtedly is. No exhibition of such importance has been held since 1866. It is in every sense of the word a representative show; in it one sees something of everything connected with gardening, although, of course, some departments have been better represented elsewhere. It is held in the Wavertree Park—a wretched recreation ground about two miles out of Liverpool—and adjoining the Botanic Garden, which for the occasion has been turned into a promenade—altogether a capital arrangement. The park is wholly occupied by the tents, plant houses, garden appliances, boiler trials, and the display made by the Bee-keepers' Association. The principal department of the show is, of course, the plant tent, a capacious structure 260 feet long by 120 feet wide. In this the plants have been effectively arranged by Mr. Barron on ground laid out in a natural style with irregular mounds and undulations, so disposed as to break the monotony inseparable from a flat surface. The effect would, perhaps, have been enhanced had the tent been higher, but there was a difficulty in the way of sinking the paths. Brilliant colours are gathered into distinct groups—those, for instance, of Pelargoniums and Orchids which contrast strikingly with groups of great Palms and Ferns. There are also large groups of beautiful-leaved plants, such as Crotons, other mounds being occupied by miscellaneous gatherings of plants chiefly from the great London nurseries at Chelsea and Upper Holloway. Altogether, one scarcely expected to see so bright a show at the end of June as this is. Its chief features are the Orchids, especially those from Mr. Hardy, of Pickering Lodge, Timperley, who is second to none in every class in which he exhibits; the Crotons from Messrs. Ker; the Pelargoniums, both show and zonal, the hardy Ferns, and the hardy flowers, particularly those in pots and alpines, from Messrs. Backhouse, of York, and Messrs. Paul, of Cheshunt, and the cut flowers.

The fruit show, too, is good, better even than was expected considering the season. Vegetables are excellent; in fact, the fruit and vegetable tent, though large, is filled with as fine examples of good gardening as could possibly be seen at the end of June. There is a great gathering of cut flowers, but among them nothing particularly new, and there is almost an entire absence of new plants that have not already been exhibited in London. The schedule contains no fewer than 133 classes, exclusive of the implements and art sections; we can therefore do little more on this occasion than advert to such salient features as we consider noteworthy, especially as we publish in another column a full list of the awards.

Orchids.

A great show of Orchids was expected, and the display of them is certainly very good. Those who admire *bonâ-fide* specimens may see some of the best examples that could be grown, while for variety we imagine that almost every popular Orchid in bloom at the present season is represented. The finest group in the show is that which Mr. Hardy, of Timperley, furnishes, and wins with it the silver cup and £10, given by the Liverpool Horticultural Company. There are twelve plants in the group, every one being a marvellous example of good culture. The largest specimen is a mass of Cattleya Mossiæ in a shallow basket; it is over 4 feet across, and carries nearly 100 flowers. The next remarkable plant is one of Dendrobium Devonianum, a pot specimen, with about thirty hanging growths, each wreathed with blooms. Other plants are Cattleya Warneri, with fifteen flowers: C. Mendeli, with fifteen flowers; another variety, with twenty-five flowers; C. Sanderiana, with thirteen flowers; Odontoglossum vexillarium, two plants each, nearly a yard across and covered with bloom; Cypripedium superbiens, with nineteen flowers; Dendrobium Jamesianum, a mass of white bloom, a yard through; and Cypripedium Stonei and Brassia Lawrenciana, both good.

The class for a dozen Orchids from amateurs is best represented by Mr. Hardy, who has one of the finest groups we have ever seen. The most remarkable specimens are Dendrobium Wardianum, 4 feet high and a yard across, full of bloom; Cattleya Mossiæ, two plants each 4 feet over; C. Sanderiana, three spikes, four flowers in each; Odontoglossum vexillarium, two plants, a yard across; Cypripedium Parishi, eleven spikes, four flowers on each. Mr. Harvey shows the second best dozen, which includes some noteworthy specimens—for instance, Cattleya Leopoldi, with three spikes, one carrying fifteen flowers; Masdevallia Harryana, two and a half feet across; a highly coloured Odontoglossum vexillarium; Cattleya Mendeli, with a score of blooms; Phalænopsis speciosa, with six spikes; and Aerides crispum, a deliciously scented species, the only plant in the show. In the third group, from Mr. Thompson, of St. Helens, is a plant of the rarely seen Cattleya labiata, with five spikes, carrying twenty-one flowers. This collection also contains the most remarkable Orchid in the show, a species of Schomburghia, presumably undulata. It has growths like those of S. tibicinis, and a long spike bearing about a score of large flowers, with wavy petals and sepals of pale yellow and a claret-tinged lip.

The class for twenty-five Orchids, arranged for effect with Palms, Ferns, and other fine-foliaged plants, is a good feature, being quite a change from the usual style of showing Orchids. There were three exhibits, and it is not difficult to single out the finest, which is that from Mr. Hardy's garden. He shows not only fine plants, but numerous varieties, including among them huge plants of Cattleyas and Odontoglossums intermixed in a tasteful way with greenery. Among the less common kinds are Vanda Denisoni, Aerides Veitchi, with branching spikes, and Saccolabium præmorsum. The choice Orchids shown in the other groups are Odontoglossum cordatum aureum and Kienastianum, from Mr. James; and Oncidium Lanceanum. A remarkable specimen among the Orchids is a specimen of Lælia purpurata in a bushel basket, from Mr. Boscawen's garden in Cornwall. The variety is a magnificent one, the lip of the flower being 2½ inches across, and of the deepest velvety crimson. There are two spikes on the plant, one with six, the other with four, flowers, and the large bulbs show exceptionally fine vigour.

The best twelve Orchids from nurserymen are from Mr. Cypher—a fine group containing several remarkable specimens, the most noteworthy being Dendrobium Dearei, 3 feet through, Epidendrum vitellinum majus, Anguloa Clowesi, Dendrobium suavissimum, and Odontoglossum vexillarium. In Mr. James' second group are the rare Lælia Schilleriana, a near relative of L. elegans; Dendrochilum filiforme, with several scores of elegant spikes; and Aerides Fieldingi, with a spike 2 feet long—a superb object.

Mr. Hardy shows the finest six plants from amateurs, and, like his silver cup collection they are magnificent. There are Cattleya Mossiæ, 3 feet through; C. Mendeli, 3 feet; Odontoglossum vexillarium, 3 feet, covered with bloom; Cattleya Sanderiana, with eighteen flowers (a splendid specimen); Dendrobium crassinode Barberianum, and Cypripedium barbatum. In the second group

from Mr. Harvey are the rare Epidendrum Wallisi, with a spike of a dozen flowers, and Oncidium crispum grandiflorum, a very fine variety.

The great Orchid emporium at St. Albans contributes a small group of its choicest things among Odontoglossums, Cattleyas, and the like. There are great round-flowered forms of O. crispum, superbly-coloured forms of Cattleya Mendeli, Mossiæ, and Warneri, besides a specimen of the rather uncommon C. Aclandiæ, which, by its distinct colours, stands out conspicuous from all the rest. Among the hybrid Odontoglossums are some exquisite forms, but one can scarcely attempt to describe them. Among other choice kinds are the true Oncidium Rogersi, which is at once recognised by the large lips of the flowers over 2 inches across, and of a clear yellow. Mormodes eburneum, with large curiously-shaped ivory-white flowers, is also a noteworthy plant in the group.

The Liverpool Horticultural Company shows a group of Orchids containing numerous uncommon kinds, among them being Vanda Roxburghi, with mauve-coloured lips and beautiful tessellated sepals; Aerides crassifolium, one of the finest species in the genus; Chysis aurea; the true Miltonia Weltoni; an extremely fine form of Odontoglossum nebulosum, one of the finest we have seen, in fact; some great plants of various Cattleyas, including an exceptionally fine form of C. Eldorado with a labellum almost wholly yellow.

Fine-foliaged Plants.

Crotons are unquestionably one of the features of the show, for a finer group than Messrs. Ker, of Liverpool, show has perhaps never been seen in Europe. The group occupies a prominent position at the entrance of the big tent, and therefore gives visitors a good impression of the plant exhibition. Each of these Crotons is from 4 feet to 5 feet through, glorious masses of subtle colouring, from the strongest yellows to the richest crimsons, arranged in a hundred styles of variegation. The finest plant is Mortfontainense, one of the trilobed group, crimson and gold with green veins; Evansianum, Newmanni (both bright carmine-crimson), Countess, Aigburthense, and Interruptum aureum, all being narrow-leaved kinds of high colour; mosaicum, Weismanni, Sinitzianum, with elegant long foliage; Bergmani, a huge mass, with leaves like those of Magnolia grandiflora, yellow mottled with green; and Hawkeri, yellow broadly margined with green, are other remarkable plants in this splendid group. One of the chief points about these plants is the entire absence of sticks, all being vigorous young specimens, the oldest not more than three years. Mr. Cypher shows the second best dozen Crotons, all fine plants, but not nearly so large nor so rich in colour as those from Messrs. Ker. The best among them are those named Frank Selliere, Thompsoni, and Baron James de Rothschild.

CALADIUMS are shown grandly from London, Messrs. Laing, of Forest Hill, having a group of six which, for size and high quality, could scarcely be equalled. The sorts, too, are of the best—perhaps the best half-dozen one could grow. They are, Ornatum, Ferdinand de Lesseps, Mad. Fritz Koechlin, Luddemanni, Leopold, and candidum, the latter a huge mass of silvered foliage.

COLEUSES are admirably shown by Mr. Colton, of Birkdale, who has six specimens, Mushroom-shaped, and each 5 feet across. The sorts are Gloire de Rougemont, bright crimson; Marquis de Nadaillac, Magnificus, Mrs. G. Simpson, Matterhorn, and Mrs. Baxter. A finer group of Coleuses we have rarely seen, and if these plants could be always shown in such fine condition, they would be an important feature of an exhibition.

PITCHER PLANTS are not remarkable, except those from Mr. Schloss, of Bowdon, who shows some half a dozen specimens of Sarracenia purpurea which could scarcely be better, also S. flava and S. Drummondi; but the judges thought these fine specimens inferior to the nine small Nepenthes which they placed first. They are good, healthy plants, but small and poorly pitchered. The classes for Sarracenias and Nepenthes should have been distinct. Groups of fine-foliaged plants from nurseries are shown best by Mr. Cypher, who has some monster Crotons, well coloured, also Palms and Cycads, and a capital plant of the true Cordyline indivisa. There are two classes for Palms, but neither represents any remarkable examples. Among the kinds shown may be seen the new Licuala grandis, the noble Pritchardia grandis, Phœnix rupicola—the latter a most graceful Palm that is likely to supplant others in a similar way. Bromeliads are shown by Messrs. Ker, the only collection in the show, and a very creditable dozen they are.

Ferns.

These are plentiful, there being several classes set apart for them, and their cool-looking foliage helps greatly to produce a fine effect in the great tent, as they tone down the gay colours of such things as Pelargoniums. The best nine plants in the open class come from Mrs. Horsfall's garden at Aigburth, the finest examples being Dictygramma variegata, the best plant we have seen of this extremely elegant Fern which looks like a magnified Pteris cretica. There is also a plant of Davallia bullata a yard across; Adiantum formosum, 5 feet; Davallia Mooreana, 7 feet; Microlepia hirta cristata, and a magnificent plant of Alsophila Moorei, one of the finest of all Tree Ferns. The second nine are remarkable for a large specimen of that most graceful of all Ferns, Goniophlebium subauriculatum, with fronds hanging like a curtain on all sides of the pot, some being quite 6 feet long. The amateurs show some grand specimen Ferns, especially Mr. Schloss, of Bowdon, who has the best half-dozen. These include Gleichenia rupestris, 7 feet through; G. rupestris glaucescens, 6 feet through; G. Mendeli, not much smaller; Cibotium regale, with immense drooping fronds; Brainea insignis, with a central tuft of copper-tinged new fronds. Mr. Barlein, of Didsbury, has in his second group of six some noble Tree Ferns, including the South African Cyathea Burkei, one of the best cool house Tree Ferns one can grow, and a plant of Davallia divaricata, two yards across, a beautiful object, as the stalks of the deep green fronds are of a vinous purple. In other groups the most noteworthy are Adiantum Veitchi, whose young fronds wear such a lovely coppery red tinge when young; Gymnogramma argyophylla, the best silver Fern; Adiantum farleyense, A. Williamsi, the golden Maiden-hair Fern.

HARDY FERNS, so seldom seen at London shows, or, in fact, anywhere in the south, in anything like a creditable condition are here among the most noteworthy plants in the show. There is one large group spread over one of the rising mounds in the large tent which, for the number of kinds represented and their excellent growth, has seldom been equalled—certainly not excelled. The group comes from the noted Fern growers, Messrs. Birkenhead, of Sale. Here one sees plants of all the choicest kinds. The best group of fifteen kinds comes from Mr. Bolton, of Carnforth, who has a wondrously fine collection, consisting of Athyrium Filix-femina plumosum and Stansfieldi, a plant 4 feet high and like a huge mass of ostrich feathers; Trichomanes radicans, 2 feet across; Osmunda regalis cristata, Scolopendrium vulgare crispum, Lastrea Filix-mas grandiceps and ramosissima, Lastrea dilatata grandiceps, Polystichum angulare venustum, and Pateyi. These are the finest specimens of this group, and they could scarcely have been finer. Among the four other collections of hardy Ferns shown there are some exceptionally fine specimens, and one wonders in looking at them that so much variety can exist among hardy Ferns. The Filmy and other Ferns from the York Nurseries are a centre of attraction, which, like the alpines from the same place, are admirably grown and arranged. Among the most noteworthy are Trichomanes exsectum, T. meifolium, T. reniforme, T. Luschnathianum pulchrum, Hymenophyllum pycnocarpum, tamariscifforme, H. cruentum, H. pectinatum, H. dichotomum. One of the most remarkable plants in Messrs. Backhouse's group is a miniature Fern (Rhipidopteris peltata gracillima), an exquisite little plant different from any other Fern. Intermixed with these dew-bedropped Filmy and other Ferns are brilliant flowers of Cattleya gigas and other Orchids, which produce a charming effect.

Stove and Greenhouse Plants.

On account of the late date for the early summer flowering kinds, there are not many collections shown. In the class for twelve, six in flower and six foliage, there are three collections, and the judges had no difficulty in selecting the best, as Mr. Cypher's group is a long way ahead of the rest. All the flowering plants are huge specimens finely flowered, the best being Erica affinis, Allamanda Hendersoni, Dipladenia amabilis, Ixora regina, Erica tricolor Wilsoni, Anthurium Scherzerianum. Among the six fine-foliaged plants are great specimens of Latania borbonica and other Palms, and two grand Crotons, Prince of Wales and Queen Victoria.

The second prize group in this class, from Mr. Mould, contains a well-flowered Bougainvillea glabra; and in the third, from Mr. James, is the beautiful Allamanda grandiflora. In the class for nine, Mr. Cypher is first. He has brilliant Ixora Pilgrimi and Williamsi, Allamanda Hendersoni, Azalea Brilliant, a huge untrained bush 6 feet through, and Anthurium Scherzerianum Cypheri. The class for six plants is best represented, the specimens being fresher and more uniform in quality. The first group, from Mr. Watts, of Wavertree, contains three large Ixoras; and the second lot, from Mr. Schloss, includes a plant of Stephanotis, about 5 feet high, and the pretty Boronia elatior. Mr. Cypher shows the best six Heaths: his group includes the lovely E. Parmentieri, a plant 4 feet through, E. depressa, E. ampullacea, E. ventricosa grandiflora, E. tricolor Wilsoni. Taken altogether, it will be seen that there is absolutely nothing novel about the stove and greenhouse plants—no extraordinary examples of culture.

Hardy Flowers.

Hardy flowers, both alpine and border kinds, are uncommonly well shown, especially compared with what is usually seen at London shows. One sees here great masses of such noble things as Lilies, Pæonies, Irises, Spiræas, Pyrethrums just as vigorous as one sees them in the open border. The two groups of fifty kinds make a fine display and occupy a prominent position—not an out-of-the-way corner, as is usually the case. The first prize group is that from Messrs. James Dickson, of Chester, whose chief plants are Lilium speciosum and candidum, huge specimens covered with bloom; Spiræa Aruncus, Mimulus cardinalis and varieties, Campanulas, Phloxes, Spiræa palmata, Delphinium nudicaule, Irises, bulbous and bearded, large-leaved Funkias, and a host of other things, including Sprekelia formosissima, which we hardly recognise as a hardy flower. An Ixia is also shown; but what of its hardiness at Chester? A brighter, and in our opinion a much finer, group is shown by Mr. Harvey, of Aigburth, who is placed second. He has grand plants of herbaceous Pæonies, reminding one of bushes of Roses, one in particular being like La France. There are also numerous fine plants of Pyrethrums—perhaps too many; Iris sibirica, Mimuluses, Erigeron aurantiacus, Campanula glomerata, azurea, nobilis, Phlox ovata, Ajuga genevensis, Achillea tomentosa, and double Rocket.

Alpine or rock plants are shown best by Messrs. Paul, of Cheshunt, who have a group of fifty, all well-grown plants, representing such beautiful things as Lithospermum petræum, Androsace lanuginosa, Campanula muralis, Erigeron glaucus, Dryas octopetala, Campanula turbinata and pulla, Gypsophila cerastioides, Ramondia pyrenaica.

Messrs. Backhouse show a marvellously fine group of hardy flowers, border and alpine, and contains a selection of the finest kinds, among the most conspicuous being the following: Saxifraga lantoscana superba, a panful 18 inches across; Chrysanthemum Puy de Dome, a large mass;

Lilium tennifolium, about twenty flowers; Gaultheria nummularifolium, 3 feet across; Polypodium vulgare var. trichomanoides; Dianthus cruentus; Gazania longiscapa, G. l. aurea, G. Pavonia major; Cypripedium acaule, three flowers; Linum provinciale, fine; Potentilla nitida var. atrorubens, 12 inches across; Linnæa borealis, large pan in flower; Asplenium marinum var. plumosum, new; Philesia buxifolia, grown as a hardy plant; Silene acaulis, 24 inches across; Saxifraga sancta, Cistus formosus, Pernettya speciosa, covered with white Lily-of-the-Valley-like flowers; Cypripedium spectabile, Rhododendron azalcoides, Aster alpinus albus, Pentstemon ovatus, Darlingtonia californica, Campanula speciosa, fine pan; C. palla, large mass; C. G. F. Wilson; Rosa pyrenaica, a large mass; Achillæa argentea; Athyrium F.-f. Kalothrix; Centaurea nervosa, flower large; Silene petræa, new; Lithospermum graminifolium, deep blue; L. tinctorum; Ourisia coccinea; Azalea Maximowiczi; Saxifraga lingulata, large mass; Hieracium pilosum; Campanula turbinata, pan; C. neglecta, C. alpina; Menziesia bicolor, two-coloured; Anthericum Liliastrum majus.

Tree Carnations from Slough make a pretty group, the plants being quite up to Mr. Turner's high standard of excellent culture. The group consists of about half a hundred of Souvenir de la Malmaison and its lovely pink variety, all big flowers, quite a foot in circumference. Intermixed with these are a few choice sorts of the taller Tree Carnations, the chief of which are the old Prince of Orange, a beautiful large flower, yellow ground edged with carmine. A new white, Lady Rose Molyneux, named after Lord Sefton's daughter, is the finest white yet raised among tree sorts. The flowers are 3 inches across, snow-white, and plentifully produced. A large and very beautiful group of Souvenir de la Malmaison Carnation from Mr. Leopold de Rothschild's garden at Ascott is a great feature in the great tent. About a hundred plants of it are shown, all with flowers about 4 inches across and in rude health. The group as a whole does great credit to Mr. Jennings, the gardener.

Annuals are admirably shown by Messrs. Carter, of High Holborn, who not only take the first prize for twenty-five plants, but also have a large group of brilliantly coloured kinds, such as Tropæolums, Chrysanthemums, Clarkias, Cornflowers, Sweet Peas, Rhodanthes, and Convolvuli. The prize group is a beautifully grown collection, the most remarkable kinds being Phlox Drummondi, Clintonia pulchella, Kaulfussia amelloides, Rhodanthe Manglesi, Candytuft, Silene pendula compacta, Sphenogyne speciosa, Leptosiphons, Schizanthus, and Tagetes—a capital selection for flowering in pots.

New Plants.

We certainly expected to see a fine display of these; but, as it is, there are very few plants shown that are new to us, the majority having been exhibited in London. The chief exhibitors of new plants are Messrs. Veitch, of Chelsea, Mr. B. S. Williams, and Messrs. Ker, of Liverpool Some members of the floral committee met on Wednesday, when the following plants were awarded first-class certificates: From Messrs. Veitch.—Gymnogramma schizophylla gloriosa, Philodendron grandidens, Nephrolepis rufescens, N. tripinnatifida, Pteris tremula foliosa, Rhododendron Aurora. From Messrs. W. and J. Birkenhead.—Nephrodium Sangwelli, Lastrea montana coronans. From Messrs. Kelway and Sons—Pyrethrum (double), Sambouburgh, Gaillardia Ormonde. From Messrs. Ker and Son.—Croton Newmanni, C. Aigburthiense. From Mr. B. S. Williams.—Araucaria Vervaetiana. From Messrs. Backhouse, York—Polypodium vulgare trichomanoides, Asplenium marinum var. plumosum, Chrysanthemum Leucanthemum Puy de Dome, Hymenophyllum pectinatum, Trichomanes meifolium. From Messrs. Cannell, Swanley.—Lobelia King of the Blues. From Mr. E. Claxton.—Tea Rose, Madame Cusin, was commended.

The competition in the class for new and rare plants sent out during the past three years is very limited, and only two local exhibitors represent the class. These are Messrs. R. and P. Ker, who take the first prize for a group including Adiantum cuneatum deflexum, Ficus elastica albo-variegata, Davallia fenienlacea, Anthurium Veitchi, Adiantum rhodophyllum, Croton Aigburthiense, Gymnogramma schizophylla gloriosa, Anthurium carneum, Medinilla Curtisi, Croton ruberrimum, Selaginella viridangula, and Vriesia hieroglyphica. Messrs. W. and J. Birkenhead, Sale, show Adiantum Mariesi, Davallia tenuifolia Veitchi, Nothochlæna Aschenborniana, Pellæa pulchella, Anemia Dregeana, Nephrodium Sangwelli, Nephrolepis Bausei, Cheilanthes leucopoda, Adiantum Neo-Caledoniæ, a species of Pellæa, Adiantum Collisi, and A. digitatum.

Miscellaneous Groups.

These contribute largely to the importance of the plant show; indeed, one of the chief features in the great tent is the extensive mixed groups from Messrs. Ker, Messrs. Veitch, Mr. B. S. Williams, and Messrs. Birkenhead, of Sale, whose group of Ferns is one of the finest we have seen, so well grown and so rich in variety. Messrs. Veitch's group is very handsome, and occupies one of the central positions. It is made up of some of the finest plants in their Chelsea Nurseries, exclusive of Orchids, the most prominent plants being the following: Among Aroids are Anthurium Veitchi, Warocqueanum, Rothschildianum, and ferrierense, Dieffenbachia Jenmanni, Philodendron grandidens, and a pretty new Caladium named minus erubescens. Among the Ferns is the lovely new Nephrolepis rufescens tripinnatifida, one of the best Ferns ever introduced; also Davallia tenuifolia Veitchiana, Gymnogramma schizophylla gloriosa, Osmunda japonica corymbifera, Pteris tremula foliosa, Adiantum Weigandi, and Selaginella Emiliana. A number of the finest kinds of Pitcher plants (Nepenthes) are a conspicuous feature of the group. These include N. Mastersiana, with great pitchers, N. Veitchi, Wrigleyana, intermedia, Sarracenia Swaniana, and melanorrhoda. Among other fine-foliaged plants are Dracæna Lindeni, norwoodensis, Goldieana, Aralia Chabrieri, Tillandsia zebrina, and Phœnix hybrida. A small group of insectivorous plants is interesting to the visitors; it includes Drosera binata, capensis and spathulata, Darlingtonia californica, Cephalotus follicularis. All these are interspersed with flowering plants, such as Gloxinias, of which there are numerous new sorts; Hydrangea paniculata grandiflora in great masses; Hæmanthus hirsutus, Exacum macranthum, and Caraguata angustifolia.

Mr. Williams' group, which also occupies one of the central mounds, is bright with flowering Orchids and other plants interspersed among a large collection of fine-leaved plants, altogether forming a beautiful display. Among the less common Orchids may be seen the rare Cypripedium Druryi, Houlletia odoratissima, a splendid Cattleya Mossiæ named grandis, Oncidium Krameri, O. Jonesianum, Masdevallia Schlimi; while among other flowering plants are the beautiful hybrid Amaryllises of the reticulata section, like Mrs. Lee.

Messrs. Ker's miscellaneous group, which won the first prize for effective arrangement, is made up chiefly of Crotons, which they grow so wonderfully well. These were made to rise from a groundwork of Ferns, and intermixed with groups of flowers like Lilium longiflorum. The group is exceedingly effective, as is also the whole of Messrs. Ker's exhibits, which almost entirely occupy the largest mound in the tent. Messrs. Birkenhead's Fern group, though it lacked brightness, is, nevertheless, very tasteful, and certainly quite novel. There are some very pretty arrangements of groups in the cut-flower tent, which are quite above the ordinary style of plant arrangement by amateur gardeners. Messrs. Dickson also show a mixed group in a prominent position in the large tent.

Trees and shrubs are poorly represented as regards numbers, but finer groups of specimen Conifers and Hollies than those which are shown by Messrs. Barron, of Elvaston, could not be seen. The Conifers, the only group shown, include fine examples of such beautiful kinds as Abies ajanensis, Parryana glauca (8 feet high), concolor, magnifica, lasiocarpa, polita, Douglasi glauca, Tsuga, Pinus parviflora, Golden Yew, Cupressus Lawsoniana intertexta, Cedrus Deodara alba spica, and others. The Hollies include the finest sorts, and one named latifolia nova is particularly noteworthy. The show of ornamental deciduous trees and shrubs is poor, and what there is is put under the large tent, which is perhaps the best place for Japanese Maples, which form the bulk of the two groups shown, and which do not certainly represent the wealth of beauty to be found among trees and shrubs now-a-days.

Bright-coloured flowers, such as Pelargoniums, Begonias, Petunias, and Gloxinias, are plentifully shown, and in most cases in admirable style. We have seldom, if ever, seen finer Gloxinias than those shown by Mr. Agnew, while the tuberous Begonias from Messrs. Laing, of Forest Hill, are equally remarkable, and it need scarcely be said they won the first prize in both classes set apart for these flowers. The show Pelargoniums from Mr. Turner, of Slough, though not so fine as we have seen them earlier in the season, are nevertheless very fine and by far the best in the show, while the zonals are as fine as could be seen. Mr. Turner's small pot Roses are much admired, and likewise the group of miniature kinds like Mignonette and Paquerette, which form a group by themselves, from the Liverpool Horticultural Company's Nursery.

Cut flowers are plentiful, a large number of classes being provided for them. There are cut Orchids, stove and greenhouse plants, hardy florists' flowers and Roses, which are the chief features in this tent, being shown splendidly by the Cranston Nursery and Seed Company, Hereford, who are first in the principal class. Mr. Prince's Tea varieties are unsurpassable, and the amateurs' class is best represented by Mr. Claxton, of Allerton, who is, we think, one of the best Rose growers in Lancashire. His blooms were very fine, particularly a boxful of that lovely newish Tea Rose Madame Cusin, which is finer than we have ever seen it. Hardy flowers are shown admirably, the Pansies from Mr. Forbes, of Hawick, the Violas from Messrs. Laird, of Edinburgh, the Pyrethrums from Messrs. Cocker, of Aberdeen, the Pæonies from Messrs. James Dickson and Sons, of Chester, and the grand display from Messrs. Kelway, all the way from Somerset, being the most remarkable. The bouquets, wreaths, and other floral devices are numerous, but we saw no new feature among any of them. A large collection of flower paintings is to be seen, and among them some are good.

Gold medals were awarded to Messrs. J. Veitch for a miscellaneous group of plants; to Messrs. J. Backhouse for Filmy Ferns and herbaceous plants; to Mr. B. S. Williams for group of plants; silver medals to Mr. Alexander; to Messrs. J. Carter for annuals; to Mr. C. Turner for a group of tree Carnations; silver gilt medals to Mr. Jennings; to Liverpool Horticultural Co.; to Messrs. W. Cutbush and Son for a group of plants; to Messrs. F. and A. Dickson and Sons for group of stove and greenhouse plants; to Mr. F. Sander for a group of Orchids; bronze medals to Mr. E. Bridge for show and fancy Pelargoniums; to Messrs. J. Dickson and Sons for a group of succulents.

A gold medal was also awarded to Messrs. Sutton, of Reading, for their extensive display of garden produce, which included seeds, models of roots, beautifully executed, miniature lawns, illustrating the growth of their lawn Grasses. Besides these there were fine examples of fruits and vegetables, such as Cucumbers, Melons, &c. Messrs. Sutton's exhibition formed quite a feature in the open ground.

Fruit and Vegetables.

A special tent is set apart for these, and a very creditable show they make, considering the sea-

son. The fruit is excellent, and the vegetables could scarcely have been finer. There are a good many classes set apart for them, but the competition is not numerous, and, of course, it cannot bear comparison with the great fruit shows we have seen of late years in September, such as at Edinburgh, Manchester, Dundee, but it may be called a thoroughly representative display. The finest classes are those for Pines, Peaches, Nectarines, and Strawberries. The collections of fruit are few, the best eight kinds being these from Impney Hall, which include, of good Grapes, Black Hamburgh and Foster's, some very fine British Queen Strawberries, Pitmaston Nectarines, and a capital dish of Noblesse Peaches. Lord Normanton's gardener (Mr. Richards) shows the second collection, which contains some first-rate dishes. The smaller collections of six kinds are more numerous, and Lord Cork's gardener (Mr. Iggulden) heads the list with a very creditable display. He has Peaches and Nectarines, Melons and Strawberries, President being noteworthy. The second collection is from Rood Ashton, and the third from Elvaston Castle. The Grape classes are moderate only in quality. Among the eight sets of Black Hamburghs, Lord Harlech's gardener shews the finest bunches, not large, but admirably finished for a midsummer crop. There are some other excellent bunches shown of Black Hamburghs even amongst those net in the prize list. The best Madresfield Court bunches come from The Quinta, Chirk, from which garden Mr. Louden also shows excellent Black Hamburghs. There are no really good Muscats ; none shown are ripe, though fairly good in bunch and berry, and the other white Grapes are not remarkable, except Golden Champion, from Mr. Louden, and some fine bunches of that much-criticised, but handsome Grape, Duke of Buccleuch.

Peaches are first-rate throughout, the most prominent sorts being Stirling Castle and Early Albert, which are the best varieties (from Mr. Divers), Royal George, Grosse Mignonne (second), while Bellegarde, Violette Hâtive, Hale's Early are among other prominent sorts in the class for two dishes. The best among nine single dishes is a fine dish of Crimson Galande, from Mr. Wallis, of Keele Hall, one of the finest dishes in the show. Nectarines, too, are good, the leading sorts being Lord Napier, Elruge, and Violette Hâtive, Pine-apple, and Balgowan, which latter heads the class for single dishes. Among Strawberries there are very fine examples of President, which sort (from Lord Eversley's garden at Heckfield) heads the list in the single dish class. Other prominent sorts are Marguerite, Sir J. Paxton, British Queen, and Sir Charles Napier.

The best Melon among about three dozen is Longleat Perfection, which has a high reputation for fine quality. Other favourite sorts are shown, including some that are new. The Melon competition for Messrs. Sutton's prizes brings out fine examples of their Scarlet Invincible and Imperial Green Flesh, and Hero of Lockinge varieties, all first-rate sorts. Cherries are not numerous, and only standard sorts, such as Black Circassian and Elton, are shown. Some excellent late-keeping Apples are shown from Messrs. Cheal, of Crawley, who also display their excellent styles of cordon fruit trees. One of the most remarkable exhibits in the fruit show is a group of pot fruit trees from Messrs. Rivers, of Sawbridgeworth. The trees are perfect examples of what orchard house trees should be, being loaded with fruit in different stages of ripening. They include Peaches, Nectarines, Cherries, Pears, Apples, and Plums, representing some of the finest sorts and several that are new. Vegetables are shown by some of the best gardeners in the country. The finest collection of eight kinds is that from Mr. Miles, Lord Carington's gardener at Wycombe, so well known as a successful exhibitor. Mr. Richard's second collection from Somerley is a credit to him, and among other collections shown are some uncommonly fine examples, and all are remarkable for the admirable selections of sorts. The classes for Pears are good, and the finest exhibi on varieties are shown grandly. Potatoes, Onions, Cauliflowers, and Tomatoes are good. Another is a good competition for Messrs. Sutton's prizes for collections of vegetables, the most successful exhibitor being Mr. Miles. Further comments upon the fruit and vegetables we must leave for a future number.

Implement Show.

MEDALS AWARDED.

There is a great exhibition of garden structures, appliances, and implements—one of the largest displays that have been brought together by the society. The exhibits occupy nearly the whole of the park, and we imagine that there is scarcely an article that has the remotest connection with horticulture that could not be found. As the exhibits are so numerous, we are only able to give a list of those exhibitors in the various classes who have received awards up to the time of going to press. The gold medal for the largest and best display is taken by Messrs. Foster & Pearson, of Beeston, who occupy a large area with a multitude of structures and appliances. In the class for the best modes of heating a small conservatory, Messrs. Halliday have won the silver medal with their "Perryshire" boiler, while Messrs. Messenger take the bronze medal in the same class. Mr. Watson, of St. Albans, is awarded a certificate for his new gas stove and apparatus. The awards of the larger boilers will not be made until after the boiler trials, which are still taking place. In the class for hot-water piping, modes of fixing it, Messrs. Foster & Pearson win the silver medal, and Messrs. Messenger take the bronze medal. The silver medal for a plant house, vinery, or orchard house is taken by Messrs. Foster & Pearson, the bronze medal in the same class by Messrs. Peel & Sons, Wood Green, London. Another bronze medal is taken by Messrs. Stewart & Jack for their cheap portable plant house, while Messrs. Halliday are commended. The judges selected for a silver medal the ornamental conservatory shown by Messrs. Richardson & Co., Darlington, and a silver medal is also awarded to Messrs. Halliday for their ornamental conservatory. A bronze medal is taken in the same class by Messrs. Wrinch, of Ipswich. In the class for movable plant pits or frames, Messrs. Halliday & Co., of Middleton, are awarded a silver medal for some excellent structures, to which we shall allude in a future number. Messrs. Foster & Pearson and Mr. J. Webster, of Wavertree, also take silver medals ; while bronze medals are taken by Messrs. Crispin, of Bristol, Messrs. Wrinch, and Messrs. Richardson. The silver medal for improvements in glazing is awarded to Mr. S. Deards, of Harlow, for his Victoria Dry Glazing, and Messrs. Crespin take a bronze medal. Lawn mowers are very plentifully shown, but no awards were made in those constructed for horses. Hand mowers are shown by about a dozen exhibitors, a silver medal for lightness of working being awarded to the Chadborn & Coldwell Manufacturing Company for their "Excelsior"; Messrs. Barford and Perkins, Peterborough, take a silver medal also for their new "Godiva" machine ; The Standard Manufacturing Company, Derby, take a bronze medal for cutlery, which includes a great variety of tools. In the class for garden pottery, Mr. Matthews, of Weston-super-Mare, has a large display, and wins a silver medal, and Mr. Crute is also awarded a silver medal for his new "Chrysanthemum pot" and other patterns of pottery. For garden tools, Messrs. Glassey, Liverpool, take a bronze medal, as do also Messrs. Leedham and Heaton, of Leeds ; while Mr. Swete, of Worcester, and Mr. Drummond, of Bridgnorth, are commended, the latter for his patent turf-cutting machine. Messrs. Bramham, of Liverpool, take the silver medal in the class for wirework, and Messrs. Brooks, Manchester, and Messrs. Peake, of Liverpool, win bronze medals in the same class. The silver medal for garden seats is taken by Mr. Cæsar, of Knutsford, and the bronze by Messrs. Wrinch. The only exhibitors of meteorological instruments are Messrs. Joseph Davis and Co., Kennington Park Road, who win a silver medal. A bronze medal for garden engines, &c., is taken by Messrs. Barford and Perkins for their "water ballast" barrows, and Messrs. Crispin are commended for their patent syringe. A bronze medal is awarded to Messrs. Halliday for decorations for conservatories, which consist of ornamental tiles for flooring. Messrs. White, of Edgware Road, take a silver medal for garden tenting, shading material, &c., and Messrs. Richardson are commended for their Parisian greenhouse blinds. Mr. Pinches, of Oxenden Street, London, takes a silver medal for his now well known stamped zinc labels. In the miscellaneous class, bronze medals are awarded to Messrs. Bennett, Liverpool, for wirework, to Mr. Freeman, Stockport, for ornamental rockery stone; while commendations are accorded to Mr. Harkin for teak Orchid baskets, &c.; to Mr. Sydney, Liverpool, for "parcel post" flower boxes; to the Horticultural and Agricultural Chemical Company, Tonbridge, for a new insecticide and syringing stand; to Messrs. Richardson for various exhibits; to Mr. Bloxham, Bletchley, for a new fumigator; to Messrs. Blake & Mackenzie, Liverpool, for postal flower and plant boxes.

A prize list is given in our advertising columns.

ROYAL BOTANIC SOCIETY'S FETE.

The annual fête of the Royal Botanic Society took place on Wednesday evening last, under most favourable auspices. The weather was delightfully fine, and the grounds, conservatory, and marquee were crowded with visitors. The illuminations were never more brilliant, no fewer than 30,000 lamps being brought into use. The exhibits were of the usual character; prizes were offered for the floral decoration of the dinner table (several classes), arrangements of flowers for sideboard and for recesses, hanging baskets, bouquets, &c. In the awarding of the prizes for the arrangement of the dinner table the judges seemed disposed to favour quiet colours; most of the arrangements were neat, though in some cases somewhat crowded. Mr. Peacock, of Sudbury House, Hammersmith, brought together a very fine collection of Orchids (consisting chiefly of Odontoglossums, Masdevallias, and Cattleyas), which received much attention. A similar exhibition was also made by Messrs. Sander, St. Albans, and Mr. William Rumsey, Waltham Cross, showed a nice group of Roses. There was the usual extensive exhibition of vases for the purposes of floral decoration, and some table aquariums attracted a large share of attention.

NOTES OF THE WEEK.

Calanthe natalensis.—This new introduction is now in flower at Kew, where it flowered last year for the first time in Europe, and was figured in the *Botanical Magazine*. It belongs to the same group of the genus as C. masuca, C. veratrifolia, and C. furcata, but is distinguished by its pale violet flowers, which are borne on erect tall spikes springing up with the new foliage. It is a pretty plant, and quite equal in beauty to the above named sorts.

Olearia macrodonta and Veronica Haasti. I send you herewith flowering specimens of these two shrubs. The first was sent to me two years ago by Messrs. Veitch, under the name of Olearia dentata, but I at once saw that it could not be that species, as its foliage in nowise resembled that of the plant figured under that name in vol. xcviii. of the *Botanical Magazine*, t. 5973, and the correct name has been since determined at Kew. My plant produced a single truss of bloom last year, but failed to open properly ; this year, however, it is covered with bloom, and is an exceedingly ornamental shrub, and seems to be perfectly hardy. The little Veronica is from New Zealand, and came to me under the name of V. Colensoi, but I believe Haasti to be its correct name.—W. E. G.

Acineta densa.—This is one of the handsomest of the eight species of Acineta now known, and it is also one of the easiest to keep in health if planted in peat and Sphagnum in a roomy teak basket, and suspended near the glass in a tropical

house. A plant of it at Kew is now bearing two fine drooping spikes of flowers, which are as large as the flowers of the Dove Orchid, but from eighteen to twenty-four flowers are borne on each raceme. The colour is bright yellow, with numerous peppery dots of crimson on the inside, and blood-red blotches on the lobes of the lip. The flowers usually remain fresh on the plant about a month. A remarkable feature in this species is the length of time the flower-spikes take to mature after first appearing, the plant at Kew having pushed the spikes just now expanding as early as last December. The Acinetas, Stanhopeas, Batemannias, and several Peristerias develop their flower-scapes at the extreme base of the pseudobulbs, and they grow downwards; it is, therefore, necessary to grow such plants in open baskets, so that the spikes may grow on unimpeded. When pots or pans are used for these plants it often happens that their flower-scapes are ruined before the discovery is made that they have grown down into the pot.

Oncidium Lanceanum.—There are very good and also very bad varieties of this noble Oncid, but fortunately the former are oftenest seen in gardens. If some one could tell us what it is exactly that this Orchid requires to keep it thriving in this country, what a popular plant it might become, as no one could resist the rich beauty and delicious odour of its flowers. The leaves also are not unattractive, being very large, thick, and leathery, and thickly mottled with purple-brown on a green ground. The flowers have the excellent quality of keeping perfectly fresh on the plant for over a month after they open. A specimen of this species may now be seen in flower at Kew, along with various other handsome-flowered Oncidiums.

Scuticaria Steeli and S. Hadweni are both of that class of Orchids which are peculiar in having long terete foliage growing downwards, and of which these and Oncidium Jonesianum are the most attractive as flowering plants. S. Steeli has a zigzag rhizome, from which spring numerous long flagelliform leaves, their length on strong plants being from 3 feet to 4 feet. The flowers are developed from the base of the ripened growth and are on short scapes, two or three flowers being the usual number on each; they are as large as the flowers of Cattleya intermedia, their colour being cream-yellow with numerous large blotches of reddish brown, except on the labellum, which is striped with deep crimson. S. Hadweni has shorter leaves (about 1½ feet) and one-flowered scapes, the flowers being smaller, darker in colour, whilst the lip is blotched instead of striped. Both species may now be seen in flower at Kew. They are natives of South America, and require an intermediate temperature with a damp atmosphere during early summer when they are in active growth. The plant of S. Steeli at Kew is an exceptionally fine variety.

Griffinia Blumenavia.—There are seven or eight species of this genus of Brazilian bulbous plants, and most of them are in cultivation with us, though one seldom sees them in flower. The best of the lot is the species here named, which has been known for about twenty years, and which flowers freely in midsummer if grown in a stove and kept moist all through the spring, withholding water from September till February, when the plants should be placed on a dry shelf in a temperature of 55° or 60°. It has oblong lanceolate foliage 6 inches long, dark green, the nerves prominent and suggesting the Lattice plant. The flower-scape is erect, shining, brown-red, and bears an umbel of six or eight flowers, which are 2 inches long and wide, Amaryllis-like, except that the lowest petal is smaller than the others; the colour is white, with streaks and veins of purplish rose. The anthers vary in length and are curved upwards at the points. A plant of this species is now in flower in the Begonia house at Kew. G. hyacinthina has blue and white flowers 3 inches across.

Dasylirion acrotrichum.—A specimen of this saw-leaved Mexican Lily is now in flower in the succulent house at Kew. It has a stem 5 feet high, hidden by the persistent dead leaves which hang about it, and bearing a large head of dark green serrated foliage, which is straight as Yucca leaves, and bears upon its tips tufts of brown fibre; hence the name acrotrichum, which signifies bearded tips. The flower-spike is at present 12 feet high and the upper half of it stands above the roof of the house. The flowers are all female and are not unlike the fruit of Rhubarb, being arranged on numerous erect branchlets, and having winged angular ovaries. A plant of the other sex flowered in the same house last year. The growth of the flower-scape is very rapid, careful measurements showing that this specimen now at Kew grew from 5 inches to 6 inches every twenty-four hours.

Thysanotus multiflorus is a pretty flowered plant belonging to the same section of the great Lily family as Arthropodium and Cyanella. There are some score of species of Thysanotus, all of them Australian, and several have been introduced into this country at various times, but have proved unsatisfactory, owing to the fugaciousness of their flowers, which do not expand, except under the influence of bright sunlight, and then last only a few hours. T. multiflorus forms a tuft of linear grassy foliage with a thick keel and about a foot long, and they are clustered in the same way as an ordinary Rush. The flower-scapes are nearly erect, as long as the leaves, and bear crowded tufts of flowers 1 inch across; the petals are broad and spreading like a Marica, and their margins have a deep fringe of soft silky hairs so prettily arranged that the flower seems more like the extravagant work of some milliner than Nature's handiwork. When in flower this plant is a very beautiful object. We saw a fine potful of it at Kew the other day in the Cape house.

Ardisia mamillata.—The only species of Ardisia that may be termed a garden plant at present is A. crenata (generally written crenulata), although a great many other kinds have been introduced at various times, and a few of these, such as A. japonica, a hardy little shrub, with numerous stems and bright red berries, A. polycephala and A. humilis, both tropical Indian plants, which bear black, shining Currant-like fruits, may be met with in a few collections. At Kew, these and other kinds are cultivated, and to the numerous species there represented the above named new species from Hong Kong has lately been added. It grows to a height of about 4 inches, and has an erect stem, clothed with ovate, thick woolly leaves, the surface of which is covered with thousands of raised dots, each crowned with a silky hair. The flowering branches are axillary, as in A. crenata, 3 inches long, with a few small leaves near the end, where the flowers are arranged in umbels; they are bell-shaped, half an inch across, ivory white, with small rose coloured dots, the little pyramid of anthers in the middle being yellow. There is much beauty in the foliage of this plant, and in the flowers, too, which though not large, are prettily formed and coloured. It requires stove treatment.

Clianthus Dampieri (Sturt's Glory Pea).—It is only rarely that this plant flowers in places generally accessible to gardeners, and we therefore note with pleasure a fine flowering specimen of it in the conservatory at Kew. No plant, perhaps, has tantalised cultivators so much as this, for it is apparently easily grown till nearly ready to flower, but there it usually stops and suddenly dies, turning black at the base and perishing at the root in a few hours. No one has yet accounted for this sudden fatality in this plant, but whatever its cause it is obvious that now and then it is avoided, and a beautiful flowering plant is the result. Someone wrote that by grafting this species when in a seedling stage on to a young plant of C. puniceus success in flowering it would be almost certain. The suggestion seems good and worth a trial. C. Dampieri is a native of the desert regions of Australia. It forms an erect herbaceous shrub with pinnate silky leaves and axillary pedunculed of large bright scarlet flowers, with a large shining black boss at the base of the standard. Such a plant is incapable of being seen by means of a description, and to those who have heard of Sturt's Glory Pea, but have not seen it alive, the specimen at Kew would be worth a long journey to see.

Quisqualis indica is a scandent stove shrub with long main branches, from which are developed short branchlets with the leaves arranged opposite in pairs, so that at first sight one would call the plant pinnate-leaved, and not unlike Wistaria. The flowers are in a terminal bunch on these branchlets, and they have long thin tubes with a spreading limb 1 inch across, and formed like Ixoras, but having five instead of four petals. On first opening, the flowers are creamy white, and about half the size of mature ones, which are coloured a beautiful Indian red, margined with orange. A delicious fragrance is given off by the flowers, particularly after they have been cut and placed in water, so that on this account alone they are worth growing. Unfortunately, however, the plant is a shy bloomer in this country, although in India, where it is a common garden plant, it flowers most freely. A large plant in the Palm house at Kew is now blooming, but it is in an exceptionally sunny position, and is never shaded; whereas plants in a less favoured aspect have never borne flowers. The genus is closely allied to the Combretums. Its peculiar habit of changing the colour of its flowers from white to red is remarkable. In India it is known as the Rangoon Creeper.

QUESTIONS.

5505.—**Grey Moss on Rhododendrons.**—Can any of your readers tell me the cause of grey Moss appearing sometimes on the wood of Rhododendrons and hardy Azaleas? What is the best cure for it?—Scotia.

5506.—**Stocks in Hyde Park.**—A lady tells me that when in London last month she saw the gardeners in Hyde Park bedding out in one bed some very strong dwarf purple Stocks, then in flower, mixed with Mignonette plants. I shall thank some of your readers very much if they will tell me what Stocks they were and how they are managed so as to have them in flower at bedding-out time.—R.

5507.—**Runners from "blind" Strawberries.**—I shall be glad if some of your readers could give me an answer to the following query: I made a good plantation of British Queen Strawberries last year, but they were late, as the season was so dry. They have grown well, however, but are throwing up no flower buds. If I take early runners from these blind plants, are such plants likely to become blind themselves?—E. M.

LATE NOTES.

Yellow Scotch Roses (*Mrs. Witham*).—Very beautiful flowers; finer than we have hitherto seen.

Seedling Single Rose (*B. Lodhams*).—Flowers were so withered on arrival, that we could not form an opinion of the variety.

Books (*Mrs. H.*).—We do not know of a work of the description you mention. Johnson's "Gardener's Dictionary" may suit you, but it is much above the price you name.

Seedling Pansy (*A., Clapham*).—Your T. M. Barnes Pansy is bright in colour and large in size, but defective in form—at least, from a florist's standard.

Odontoglossum crispum (*D. B. Crawshay*).—An extremely pretty variety, which may be best described as an edged petaled roseum, the broad white margin being so conspicuous in contrast with the violet-purple body colour. The Odontoglossum seems to be O. Ehrenbergi.

Papaver orientale.—Can some one learned in Poppies set us right as to the nomenclature of the two grand flowered, but undoubtedly distinctive, Poppies grown under the designations of bracteatum and orientale? I call the large orange-scarlet kind bracteatum, and the deep crimson-scarlet orientale, and yet I have doubts as to the correctness of these appellations.—A.

Names of plants.—*W. B. H.*—1, Reseda luteola; 2, Fumaria officinalis; 3, Stellaria Holostea.——*C. H.*—1, Tradescantia virginica; 2, Campanula glomerata; 3, Buddleia globosa; 4, variety of Iris variegata.——*C. C.*—Calycanthus occidentalis.——*W. S.*—Lycaste Deppei.——*M. S.* (*Tenby*).—1, Dicentra eximia; 2, Dimorphotheca pluvialis; 3, Asplenium Adiantum-nigrum; 4, apparently Aira cæspitosa.——*J. W. K.*—Luzula nivea.——*M. Nicholson.*—Eutoca viscida.——*R. V. & S.*—Habenaria chlorantha.——*E. Poole.*—Scilla peruviana.——*St. Patrick.*—Oxalis acetosella.——1, Campanula pusilla; 2, Veronica longifolia var.; 3, species of Achillea; 4, Lysimachia ciliata.——*J. D.* Peony had shed its petals, so could not name.

Died at Stanstead Park, Forest Hill, James Laing, late of Tarbut, Ross-shire, and brother of John Laing, aged 65 years.

Woods & Forests.

PINES FOR PROFITABLE PLANTING.

For between twenty and thirty years now the Corsican Fir has been more or less planted up and down the country, and the testimony of those who have grown it or seen it grown has been almost uniformly in its favour. Both in The Garden and in its contemporaries, too, has this tree been highly praised of late as being the best Fir to plant for timber, and everywhere nurserymen are multiplying their stock of it as fast as they can, and in not a few cases not fast enough, to meet the demand. When, therefore, one reads statements like those of "J. F." (p. 589), to the effect that this Fir "will not compare in quality with the Scotch Pine, except one, and that ornamental only," one is driven to the conclusion that the writer is totally unfamiliar with the qualities of the tree he condemns. So far as I have seen or heard, the Corsican Fir is not more ornamental than the Scotch, for there your correspondent is in error also; but in England, and especially in the midlands, where I am best acquainted with it, it beats the Scotch Fir as a rapid grower in bulk of timber for the same time, and it will grow either in the shelter or exposure as well or better than the Scotch, and this I can prove to anyone who is open to believe the testimony of their own eyes. As to the quality of the timber, it is admittedly superior to the Scotch where used, and its much more resinous habit in a young state in this country indicates that much also. I would like your correspondent, "J. F.," to find, if he can, a Scotch Fir of the same age as the Corsican at Kew (and lately shown in The Garden) and grown under similar conditions that will match it for size and symmetry. I offer also to procure him opportunities of seeing the Corsican Fir on some of the most bleak moorland spots in Yorkshire, not hundreds, but a thousand or more feet above the sea level, where it beats the Scotch Fir, except in one thing, and that is, that it grows so much faster in such situations, that it is sooner blown to one side by the wind, unless planted thickly. I was over our high moorland plantation the other day, and could not help admiring the fine free growth and lustrous foliage of the Corsican Fir, planted alternately with the Scotch, and everyone who has seen our plantations has done the same. I took one of the best known of our nurserymen tree growers over these plantations last year, and he said to me that he, too, had had doubts about the Corsican Fir, but the sight of our plantation had dispelled them for ever, and he writes me that he is doing everything to multiply his stock. I am not so sure that "J. F.'s" fine sounding phrases about "acclimatisation" and "legitimate naturalisation" are worth so much as he would have us believe. I believe I am correct in stating that the oldest and best Larch forests in this country are those that have been acclimatised—that is, raised from foreign seed—while those younger plantations from home-raised seed are the most diseased. It is not the earlier, but the later plantations that are most affected as far as I can learn, and I do not suppose there is any data to show that Firs from home-raised seeds, *i.e.*, legitimately naturalised, are any better, if as good, as those raised from foreign, but more perfectly matured, seed. The testimony of nurserymen goes to prove that good foreign seed of most kinds of trees produces the finest plants for the first few years at least, and there is no evidence to show that they become worse than the others later on. This was told me once when I was remarking on the height and vigour of a quarter of young Oaks from French seed compared to another quarter from English seed, the difference being remarkable; when I afterwards saw a heap of French Acorns lying in a shed in the same nursery and compared them with our own, the explanation was clear, for the French Acorns were very much larger and finer in every way. It does not stand to reason that a starved or debilitated race of trees or animals can produce a healthy offspring, however much they may be naturalised. It is observed by authorities on such subjects that the first generation of transplanted members of the human family are, as a rule, the most vigorous, and that the offspring degenerate afterwards, as witness the European in India and other countries and *vice-versâ*, and in all probability the rule applies also to trees and plants. Yorkshireman.

The time to fell Oak.—"W. B. H." last week, in speaking of Oak bark, indirectly raises a rather important point, viz., the time at which Oak timber should be felled. It is, I presume, pretty generally conceded that the only ground upon which felling Oak late in the spring is carried on is for the sake of the profit to be derived from harvesting the bark. The prices given last week will, I believe, very fairly represent the range of the bark market this season. If so, where is the profit after all expenses have been defrayed? There is something in what "W. B. H." says about giving all the employment possible to the hands on the estate, but if bark-peeling leaves no profit, it would be as well to divert the labour into some other channel. The question is certainly one for consideration. When bark was realising £5 or £6 per ton, it would have been, without doubt, a bad policy to have cut the trees so as to lose it; but now the circumstances are entirely different. The objections to felling in the spring and peeling are, I take to be, that the work is going on when the hands could be employed about other things, and the damage done to the Grass and crops in the field and the young growth in plantations. On the other hand, it will not, I suppose, be disputed that the wood of the winter-felled tree is at least equal in quality to that of the spring-felled one. That the sap-wood of the former is more durable is pretty generally accepted. In addition to these points, horse labour is generally more available in the winter season. When the price of bark rises enough to leave a fair margin, the stripping could be resumed, but at present I fail to see the advantage of continuing the system of spring felling.—D. J. Yeo.

Variety in the Firs.—I see someone is writing elsewhere to further multiply the "varieties" of the Scotch Firs. It has long been believed that there are a red and a white-wooded variety in the north of Scotland, and the red-wooded kind is believed to be the better of the two, but it is doubtful if they are constant. Both sorts are said to come from the seed of either variety. Nurserymen do not select their stock, and in every plantation of Scotch Firs several varieties, as indicated by the foliage and general appearance, may easily be picked out, and if anyone chooses to give them a name, plenty of "varieties" could be found. Mostly all kinds of trees vary considerably, but it is more apparent in some of the Firs than in others, and noted botanical authorities have even discovered as many as three distinct species—*species*, mark you—from examples from one and the same tree, the specimens having been gathered from the top, bottom, and under branches. This happened in the case of the Japanese Fir (Abies firma), dried specimens of which were respectively labelled as distinct species before the explanation was given. Experts might easily be puzzled also by examples of the growth of the Austrian Fir, and even by examples of the trees. We could show half a dozen different varieties of this Pine within sight from almost any one spot in our young plantations, the trees being over 20 feet in height. Some are very dense in habit, short-jointed in the trunk, with a rounded top and distinct foliage, while others more resemble the Corsican Fir, with all shades of difference between. As timber trees, it would certainly pay to select the varieties of this Fir, because while some are comparatively worthless in that respect, being slow growing and knotty, others are tall and clean. The Larch, too, is prolific of varieties in the young state, but such differences to a great extent disappear as the trees grow old, and probably there is not much difference in their timber.—Yorkshireman.

OVER-THINNING IN PLANTATIONS.

I have before dwelt on this subject and pointed out that the main object of foresters should be to plant and establish forests of useful timber, and leave cultural matters like thinning to after consideration, not being of nearly so much importance as some seem to think. There can be no doubt of the fact that plantations of trees of similar habit can be grown to maturity without any thinning at all, and we will even go so far as to assert that in numbers of instances our plantations would have been far better left alone in that respect to thin themselves. I have lately had an opportunity of discussing this subject with Mr. Maries, who has studied to some purpose both the natural and other forests in Japan, produced in a climate like our own, and who has also had even longer experience in India in both the highlands and lowlands there. His opinion is, that we thin our woods far too severely. I said to him, "That is exactly the subject under discussion at present among foresters and of the utmost consequence in the future management of our woods, and I shall be glad if you will, as near as you can, give us an idea how thick the trees stand in a natural forest of mature age." We went into the woods, and coming to a young plantation in which the trees are about 10 feet high and *crowded*, as some good English and Scotch foresters would think, Mr. Maries observed, "That is about as thick as the trees stand. In the natural Fir woods the trunks are perfectly straight, and for 70 feet or 100 feet without a branch or a knot, the tops of foliage bearing but a small proportion to the length of trunk, and so crowded as to form a tangled interlacing mass that makes it almost dark underneath near the ground." Pointing, in another place, to two Oaks with a quarter girth in the middle of 12 inches or more, and about 6 feet asunder, he said, "Firs of these dimensions are never farther apart than that, if as much; in some places trunks are so close you could not squeeze your body through between them, and the ground is a tangled mass of roots." He also informs me that the Japanese foresters imitate Nature, being great tree planters, inasmuch as they plant thickly and do not thin. From all I could gather, there is no reason why our timber trees in this country should not be allowed to stand as thickly on the ground as they do in Japan, the species, climate, and all the conditions being very much alike in both countries. Looking at some tall young Corsican Firs twenty-two years planted, and 3 feet or 4 feet in cubic bulk, I reckoned that at the above rate 1200 could have been accommodated on one acre of ground at least, and at the present low price of Larch their value would have been about £120—not a bad investment on land which, previous to being planted, fetched less than £40 in rental in the same time.

But, whatever these calculations may be worth, the facts related show that some, if not the most, of our plantations are over-thinned in their youth, because the trees are left much further apart than the distances stated above, and hence the need for pruning, that should be obviated altogether. Yorkshireman.

Wood of the Ailanthus.—Of trees introduced into the United States, says an American paper, the Ailanthus is said to be a much more valuable one than is generally admitted. For posts no timber is better suited. The testimony of many farmers shows that it is nearly as good as locust, and for fuel is equal to Oak. It is hardy, grows rapidly, and is said to be well adapted to growth on the prairies in the western United States. In its native county (China) it often attains a height of 175 feet.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SUMMER FOLIAGE TINTS.

AT the end of every summer we generally hear a good deal about autumn tints, but it is not often that the same subject meets with much attention in summer, although tree tints then are quite as interesting as in autumn. I have been watching for the past few weeks the effects of changes of colour on a richly-wooded landscape, and it has been a source of much gratification to witness from day to day the varying hues of the different trees. In Somerset the Larch is the first to herald the approach of spring with its refreshing green. It seems to start into life and beauty with much less effort than many other trees, and it lights up the distant landscape in a way that is quite delightful. The Sycamore and Beech come next, and add depth of colour and importance to their surroundings. The Oak quickly follows, and then day by day the scene changes. The variation in the conditions of the first stage of development in the Oak is somewhat remarkable in different trees. Many of them unfold their leaves with a strong tone of greenish yellow. In others a bronzy aspect is maintained for a time. Taken altogether, no trees differ so much in the early stages of their leafing as Oaks, and this, I may remark, extends thoughout the summer, although in a lesser degree than during spring, according to the character and the nature of the soil in which they are growing. As a matter of fact, I do not know any forest tree whose foliage is so much influenced by soil and season as the English Oak. In the deep sandy ground resting on the red sandstone in this county it is not unusual to see it clothed with light golden foliage, and this occurs more frequently in dry summers than in wet ones. I do not for a moment imply that soil alone makes this difference in the colour of the leaves, but soil and climate together develop it. Trees which partake of this golden character are also perhaps slight variations from the normal type. However that may be, I can point to examples upon the estate from which I write, whose characters are conspicuously different from those of the common variety; and I look upon them as valuable on account of the variety which they afford in the summer landscape. On the Chestnuts there is a wonderful wealth of foliage, that adds considerably to the general effect, especially when viewed against a background of Scotch Fir.

If we turn from plantations to park scenery, or the more immediate surroundings of the pleasure grounds, the materials for observation are not only more numerous, but, owing to the greater care bestowed upon their disposition, their effects are more varied and striking. Intending planters may, therefore, do worse than take a survey of a place noted for its collection of trees, in order to watch their aspects both in spring and summer. A mind capable of receiving impressions will be able to store up much useful information therefrom that should prove valuable for future use. As an example of the kind of impressions I mean, I may instance a beautiful group of trees which I once saw, the effect of which remains indelibly fixed upon my mind. It had in the foregoing a copper Beech, a variegated Sycamore, and a Huntingdon Elm, planted probably about fifty years; therefore they were stately trees, and in perfect health. In the background were a fine green-leaved Beech and a grove of Spanish Chestnut, with an undergrowth of evergreen shrubs of various kinds. The strong contrast which the copper Beech made with the variegated Sycamore against the light green foliage of the other trees in the background is more easily imagined than described. For my own part, I have never seen another instance of ornamental planting that made on me such a lasting impression. So far as I have seen, no place in England contains better examples of park scenery than Knole Park, near Sevenoaks. In that park there are many judicious blendings of trees of fine growth and handsome foliage, well distributed in regard to space; and so much has been made of the various surface undulations, that trees of all forms and hues combine to make it a scene of quiet grandeur. At Beauport, again, may be seen what may be done with such a simple subject as the Silver Birch. There it is planted on the brinks of charming dells, into which its graceful branches dip in a most pleasing manner; and I might go on multiplying instances where pleasing effects and good combinations have been secured by a judicious disposition of suitable subjects; but sufficient has been said to show that good effects invariably follow wise selection and treatment. A tree in itself may be beautiful, but its beauty is further enhanced when its surroundings are such as to render it still more conspicuous. A variegated Sycamore standing alone is only a second-rate object; but, associated with other trees different from it in colour, it becomes strikingly beautiful.

In order to secure a full measure of success in planting for the purpose of creating distinct features in the landscape, it is necessary to know something of the characters of the trees it is desirable to use. I may therefore mention a few groups of trees which, in point of habit of growth and colour of foliage, are capable of creating diverse features. The first I shall mention consists of Ilex, Cedar of Lebanon, Weeping Birch, and English Elm. Whether this group is seen close at hand or in the distance, the subjects of which it consist are of such a diverse character, that they cannot fail to please even the most critical. The Deodar, Turkey Oak, and green Sycamore also make a distinct group. Ilex, Fern-leaved Beech, Picea Nordmanniana, and the English Oak likewise make an imposing group. The Balsam Poplar, Silver Poplar, Horse Chestnut, and scarlet Maple are also interesting trees for this style of planting, the last-named being particularly conspicuous both in spring and autumn. The evergreen Oak, Horse Chestnut, and Huntingdon Elm make a picturesque group, both as regards habit of growth and colour of foliage. The peculiar grey-green which overspreads the Oak is as distinct from other trees as the tree is remarkable in outline. The deviations amongst the forms of trees when judiciously disposed are very striking, and when to that is added diversity of foliage, strong contrasts are the result; and there is no time in the whole year when these are so conspicuous as in the leafy month of June.

The same principles in regard to grouping also apply to low-growing trees and shrubs, and especially to Conifers, which are as diverse in the colour of their foliage as any genus of plants which we possess. One group I may mention is particularly effective, viz., Picea Nordmanniana, with its strong tone of dark olive-green; Pinus excelsa, which has silvery grey leaves; and the handsome Picea nobilis, with its distinct glaucous colour. These and the Weeping Hemlock (which has not inaptly been called the queen of evergreens) have a beauty of their own rarely seen in other trees. These four subjects, if judiciously placed, are capable of making an interesting group. Many more might be mentioned, but I must be content to merely briefly direct attention to a few subjects with golden foliage that cannot be passed over being capable of creating fine effects. Amongst deciduous subjects the most striking are the golden Acacia, golden Elder, Catalpa syringæfolia aurea, and the golden Poplar. In the evergreen class there is a wonderful variety suitable for almost any soil or position. Amongst these may be named the golden form of the Lawson Cypress, Thuja aurea, Retinosporas, Biotas, Hollies, Osmanthus, and Elæagnus. With such a variety of subjects, most of which are of a thoroughly reliable and hardy character, it is clear that our ornamental grounds need not be destitute of summer tints as well as autumnal ones. No one would wish to say a word against deciduous trees, which do so much to beautify the landscape; but the superabundance of them should not preclude the use of others not so well known, but equally valuable for landscape effect. J. C. C.

ROSE GARDEN.

OWN-ROOT ROSES.

"D. T. F." must have misunderstood my statement in reference to this subject. I may now say that last year I destroyed a bed of worked Paul Neyron under glass, and replanted it with plants raised from cuttings. I have also a few plants of Gen. Jacqueminot on Briers in my early Jacqueminot house, but they are never so good as the plants in other parts of the house; the flowers are about the same, but I do not get nearly so many from the same space. I have imported quantities of worked Roses, and also Roses on their own roots, and after making allowance for over-fed plants from a nursery, the plants from cuttings were the most satisfactory. The Manetti stock I detest; it fills the ground with suckers, which one may cut and dig out everlastingly and never be free from them. The Brier stock gets burnt up in hot weather, and will not stand the winter here. I have no doubt that many of the best flowers in England are cut from Roses on the Brier or Dog Rose, a natural circumstance seeing it is a native; but I may also mention that in unusually cold winters without protection the Rose itself gets killed if the stock happens to escape, which it seldom does here. As regards the strong shoots of La France with a number of buds and single flowers on them, I may mention that we tie our shoots of that Rose down; thus treated they break from every eye, and as a rule produce one large flower on each shoot. The large upright shoots I mentioned start from the base and never yield very fine flowers individually, although more in number than on shoots tied down; but as these large Roses here are all required with long stems many buds must be sacrificed.

Roses from cuttings will root as freely as Verbenas, and every eye will make a plant. The young plants can be either grown on in pots or planted out during summer and potted if required, or they can remain in the ground the same as worked plants. As regards the query about Gloire de Dijon, to which I alluded in a previous communication, I may say that some plants of it were standards, probably 5 feet in height, trained on a west wall; others were in a bed with a west exposure, on stocks about a foot high. I believe they were all on Brier stocks, but I only speak from memory.

We have hundreds of acres of Roses here planted under glass, and unless Roses are required in pots for a special purpose, I consider that way of growing them to be waste of time and labour. It also appears strange to us to read the list of varieties recommended in England for forcing. I am aware that some of our large growers for the New York cut flower market have grown some of such kinds as Gloire de Dijon, Reine Marie Henriette, and Madame Falcot, but the trade can get on without

them. Alba rosea is not often seen; Catherine Mermet and The Bride are, of course, indispensable; but of what use in the trade are such varieties as David Pradel, Devoniensis, Etoile de Lyon, Mdme. Lambard, Marie Van Houtte, Perle de Lyon, and Céline Forestier? Niphetos is, of course, indispensable. T. Taplin.

Maywood, New Jersey.

CLIMBING ROSES.

It is unfortunate that so many of our best climbing Roses are of such exuberant growth that they need so much pruning to keep them in order. Even Maréchal Niel, which might be said almost to bloom itself to death, so profusely does it flower, produces wood in such abundance, that probably more plants, especially where they have ample room, suffer more from want of pruning or thinning than from too much of it. But the other day I cut a barrow-load of wood from some strong-growing plants in a cool house, and yet they are now full of new and almost luxuriant growth, showing that not only do the plants like the knife and ample room, but also that more thinning will have to be done later on. Madame Berard, Lamarque, and similar good climbers literally cram a house with wood, so that space cannot be found for it, whilst the quantity of bloom is far from being proportional. I found Reine Marie Henriette, though producing rich, deep-coloured buds early under glass, producing them sparingly proportioned to the wood, and I have cut it out, and indeed all other strong growers, leaving only the Maréchal, which seems to find in these coarse growers admirable stocks. On the other hand, whilst the Maréchal does not thrive well out-doors, even on a south wall, Reine Marie Henriette does admirably, and so well that I shall plant a good quantity of it next autumn. It blooms earlier than most others, has with its flowers nice long stems, fairly free of thorns, plenty of petals in the flowers, and opens well. I wish I could write as highly of the over-praised Niphetos, as some others can. Here, on a warm south wall, it is rather bushy than free, and is exceedingly spiny, so much so, in fact, that it is quite unpleasant to handle. I should say that, planted a foot apart in good soil, plants of this Rose would rival Blackthorn in the formation of fences. Then I find fault with the colour of the outer petals of the flowers, which are so much tinted with colour, that they detract materially from the purity looked for in Niphetos. Would that Rose raisers stopped producing creamy and buff-coloured Roses, of which we have so many, and give us in lieu thereof a pure white Tea, that is of good, robust, yet not absolutely excessive growth, blooms profusely, and has flowers as long enduring and as solid as those of Maréchal Niel. Homère is a capital house Rose, though really not a climber, because it never ceases growth, and no sooner has produced one lot of blooms than it pushes other shoots and a fresh lot of flowers, and so on all through the season. That, with a couple of plants of Catherine Mermet, one of the loveliest of Teas, are all that I tolerate in the Rose house now besides the Maréchal; for where the market has to be regarded, quantity and value must be fully regarded. Safrano, usually so ready to burst to pieces, has in the recent dull weather, on a south wall, been exceedingly well behaved. A. D.

ROSES AT MALVERN.

The first Rose show of the season in the west midlands was held in the new Assembly Rooms, at Great Malvern, on Thursday, the 1st inst., and was well attended. Had the managers of this recently erected building, with its tastefully laid-out grounds, depended upon local growers, their first gathering in honour of the queen of flowers would have been a brilliant success; but when it is borne in mind that the Rose nurseries at Worcester and the famous Rose grounds at King's Acre are within an hour's run by rail, and the redoubtable exhibitor, Mr. Grant, is located on the deep loam of the old red sandstone on the Herefordshire side of the hills, no one will be surprised to hear that flowers of the finest quality were exhibited, and that the famous Vale of Severn once more became the scene of another, but let us hope not the last, battle of the Roses. Rose growers on all hands tell us that the past has been one of the most trying winters for Roses on record; Hybrid Perpetuals as well as tender Teas have suffered terribly. This may be true, but, judging from the size, build, and magnificence of the Hopend and Cranston blooms, one might imagine that it has been peculiarly favourable, or otherwise the plants have been wintered under glass. Such, however, as far as Mr. Grant is concerned, is not the case, for he has no glass, nor does he require it, as he assures us that all his finest Teas are cut from plants clear of walls or hedges in the open ground.

A handsome prize was offered for one hundred blooms in not less than ten varieties, and the class being open to all comers there was a strong contest. Mr. Grant was, however, well to the front with a magnificent exhibit consisting of twenty-five varieties well staged and tastefully arranged. The second prize fell to the King's Acre exhibitors, who had also a grand lot of blooms which must have given the judges some trouble; but when we state that the Rev. Mr. Cam was at the head of the trio, there exists but little doubt as to the righteousness of the decision. In the same open class Mr. Grant was again placed first, with a splendid box of choice Teas, also for a bouquet composed entirely of Rose-buds. In the nurserymen's class all the prizes fell to the King's Acre exhibits, Mr. Grant occupying a similar position at the head of the amateur classes. Messrs. Smith & Co. made a fine display with Roses, Irises, and herbaceous flowers, for which their nursery is now celebrated. Messrs. Rowe had extremely fine blooms of A. K. Williams. Mr. White sent from the Haywood's Nurseries Roses, herbaceous plants, and florists' flowers. Messrs. Lewis and Sons also proved how well the pure Malvern air, combined with skill, suits Roses, Clematises, herbaceous plants and florists' flowers. Equally good was the display of their now well-known Pelargonium, Duchess of Albany, a profuse bloomer, and admirably adapted for forcing and furnishing. Smaller exhibitors came out well with Roses, and the brilliant uniforms worn by their Generals and Marshals proved at a glance how they feed and flourish on the *détritus* of the grand old hills. The new Assembly Rooms and grounds are a great boon to visitors and a credit to those who at great expense have created them. W. C.

Rose Earl of Pembroke.—We have recently cut several fine blooms of this variety, and I am of opinion that it is by far the best I have yet grown of Mr. Bennett's hybrids. It opened its blooms much more quickly than any of the Hybrid Perpetuals placed at the same time in an early Fig house, and we hope to work up a good number of plants for forcing. The blooms, which are freely produced, are large and full, of a rich crimson colour, and sweetly perfumed. It is a vigorous grower. Half-ripened flowering shoots, if taken off with a heel and placed singly in small pots filled with loamy sandy soil, and plunged in a moderately strong bottom heat, will strike root in about a month.—W. I. M.

SHORT NOTES—ROSES.

Diseased Roses (*P. D. D. and A. D.*).—Your Roses are infested with red rust or Orange fungus of gardeners (Coleosporium pingue), an ailment which has been extremely prevalent this year. Infected leaves should be looked after and hand-picked and burnt in the early stage of the fungus growth.—W. G. S.

Standard Roses.—We have a standard Rosa rugosa (Japanese Rose) now in bloom here. It is about 5 feet across the head, and, judging by the remarks made by visitors and the admiration it has excited, this Rose must be less grown as a standard than it deserves to be. It is good in many ways; though the foliage is early, it stands frost well. When in bloom the glossy green leaves contrast well with the bright colour of the flowers, and in autumn the fruit is beautiful. The tree is pruned rather close in spring.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Scotch Roses.—These grow like weeds in this part of Wales. Some planted three years ago are now large bushes, and from the middle of May until the end of June they were covered with their quaint little flowers and miniature buds. Hitherto they have been growing in rows in a border amongst Hybrid Perpetuals, but they do not associate well with these; their right place appears to be by themselves in beds or borders in the pleasure grounds, to which they will be lifted and transferred in October next.—J. Muir, *Margam Park, Glamorganshire.*

NOTES OF THE WEEK.

Olearia dentata.—I take the opportunity to send you a sprig of this beautiful flowering shrub. I got it from the Coombe Wood Nurseries three years ago. It is quite hardy and very sweet.—T. M. Bulkeley-Owen, *Tedsmore Hall, Westfelton.*

*** A beautiful New Zealand shrub, with bold foliage and clusters of Daisy-like flowers.—Ed.

Babiana rubro-cyanea.—This has one of the strangest coloured flowers to be found among Cape bulbs. The blossoms are about the size of a florin, bright purple with a large crimson centre. Three or four flowers are borne on a stem, which is about 6 inches high. It is a beautiful plant, and as easily grown as any of the Cape bulbs. It requires a warm sunny frame, protected during winter. Mr. Kingsmill sends us a flower-spike of it from bulbs he received from the Cape, but it may be bought at bulb shops.

Veronica anomala.—A branch of this shrubby Veronica, sent to us by Mr. Gumbleton from his garden at Belgrove, Queenstown, shows it to be a pretty and very free-flowering shrub, every twig being covered with tiny white flowers. The leaves are small and abundant, somewhat in the way of those of Girdwoodiana. We presume it is hardy with Mr. Gumbleton, though he does not say whether it is under glass or in the open.

Cape bulbs.—Mr. Bartholomew, Park House, Reading, sends us flowers of some pretty bulbous plants, including Sparaxis grandiflora purpurea, with flowers of a deep claret colour; Babiana disticha, with crowded clusters of purple flowers; and Ferraria undulata, a most peculiar flower, more like a Sea Anemone, in fact, than a real flower. The blossoms are star-shaped, about 1½ in. across. The petals are white, heavily blotched with black, and margined with singular wart-like excrescences. The scent, too, is very peculiar.

A pink Ceanothus.—Among a gathering of flowering shrubs, Messrs. Veitch send us from Coombe Wood a pink-flowered Ceanothus named Marie Simon. It has the appearance of the well-known C. Gloire de Versailles, the clusters of flowers being long and feathery, and of a delicate pink. In the gathering there is also Escallonia Philippiana, with multitudes of small white flowers and tiny evergreen leaves. It is a neat growing shrub, and is valuable on account of its flowering now.

Carpenteria californica.—A flower spray of this beautiful new Californian shrub has been sent to us by Messrs. Rodger, McClelland, of Newry, who are under the impression that it has not previously flowered in this country; but we saw it in bloom three years ago, and at the present time it is in bloom at Munstead, Godalming. Messrs. Rodger, McClelland state that they have had plants of this shrub out of doors the whole of last winter; when they showed flowering buds they were lifted and placed in a cool house to flower. We shall shortly give a coloured plate of this shrub in The Garden.

Notes from Knockmullen.—I send you a few flowers of Poppies, but I fear there is no chance of these Poppies reaching you sufficiently fresh to give any idea of their effect. The single white smooth-edged and the single rose-coloured one, Danebrog, are beautiful either when growing or when freely cut, but their beauty seems to last but for a day as cut flowers, all seem to be self-sown seedlings of the double white Flag of Truce and the scarlet and white single Danebrog, both kinds having varied, and I think improved, by their variations. I also send a Delphinium, named Minerva, which is beautiful in colour and desirable on account of the

size of each blossom. Codonopsis ovata as a bog plant (here it is doing well in partial shade) seems worth a place in even a small bog bed, from its curious flowers, for though it may not be a showy plant, the markings inside the bell flowers are pretty and quaint. I also send Erigeron multiradiatus, which I do not think is yet common. It flowers freely on rockwork. Though we have as yet given Convolvulus sericeus the protection of a cold frame in winter, it seems to be a good plant for a sunny wall or rockwork in summer.—C. M. Owen.

*** The Poppies, unfortunately, arrived in a shattered condition, yet sufficient remained to show how beautiful they had been. The Erigeron is one of the best of the genus, and deserves all the praise which Miss Owen has bestowed on it. The Delphinium is beautiful, and so is the Codonopsis—a plant that possesses a peculiar beauty different from that of any other Campanulaceous plant.—Ed.

A new Poppy.—Another brilliant annual Poppy has been added to those already available for garden decoration. Papaver pavoninum (Schrenk), a native of Turkestan, has brilliant flowers of a deep orange-scarlet inclining to blood colour, of a powerfully lustrous quality; the blooms are 2 inches to 2½ inches across, of a rather deep goblet shape. Near the base of the petal is a black ring that shows equally outside and in. The buds are curiously shaped like a crab's claw, each sepal ending in a kind of hook. The plant is about 15 inches high, compact and upright in habit.—G. J.

Genista elata.—This is a tall-growing variety of the common native Genista tinctoria, but is very different in habit of growth, the latter being a low-trailing shrub. G. elata is a useful shrub, as it blooms profusely at this season when few other shrubs are in flower. Every slender twig is covered with a multitude of tiny yellow flowers Some specimens of it have been sent to us by Messrs. Veitch from their Coombe Wood Nurseries, where it is now in bloom.

Clematis coccinea.—It may not be generally known that there are good and bad varieties of this distinct-looking North American Clematis. Those who have seen only the inferior variety have but a poor opinion of it as a garden plant, but the best variety should be seen, such as that which Messrs. Veitch send us from Coombe Wood. The flowers of this variety are over an inch long, of conical shape with spreading sepals, and wholly of a bright blood-red colour. It is a beautiful and most interesting climber and quite hardy. Strictly, it is regarded as a variety of C. Viorna, but in the garden C. coccinea is the best name.

Souvenir de la Malmaison Carnation.—At Alderbrook, Cranleigh, there is just now a grand display made by means of this Carnation. It consists of about 100 specimens, all two-year-old plants, in 9-inch pots, and each plant is producing from five to six blooms perfect in shape and quality. The average size of each bloom is from 4 inches to 5 inches in diameter. There are also about 200 one-year-old plants in 3-inch and 4-inch pots. The young plants in the 4-inch pots produce much larger blooms than older plants, some of them measuring as much as 18 inches in circumference.—P. W. H.

Philadelphus grandiflorus. — Some flower-sprays of this beautiful Mock Orange, the largest flowered of all the species, have been sent to us by Mr. Kingsmill, of Eastcott, Pinner. They are wonderfully fine; indeed, we have never before seen such vigorous shoots or such large flowers—presumably the result of the close system of pruning which Mr. Kingsmill practises. The leaves are over 4 inches broad and the flowers are 2½ inches across, snow white and deliciously scented. It would be difficult to name a lovelier flowering shrub than this, and the hint with regard to pruning may be useful.

Boiler trials at Liverpool.—The following competitors have been successful in obtaining awards at the Royal Horticultural Society's recent show at Liverpool: For a boiler capable of heating 2000 feet: 1, Messrs. F. & J. Mee, Liverpool, silver medal. Heating 1000 feet: 1, Mr. S. Deards, Harlow, silver medal; 2, J. Witherspoon, Durham, bronze medal. Heating 500 feet: 1, Mr. S. Deards, Harlow, silver medal; 2, Mr. J. G. Wagstaff, Manchester, bronze medal; equal 2, Mr. T. Wood, Bristol, bronze medal.

Odontoglossum Alexandræ.—I send you a flower of this Orchid to show you what a fine variety it is. There were two flowers on the spike, the measurement of both being 4⅛ inches across, upper sepal 1¼ inches wide, petal 1½ inches wide, lip 1 inch. The flower was grown at my garden at New-Hall-Hey, Rawtenstall, so it had to travel over 200 miles.—G. W. Law-Schofield.

*** An exceedingly fine variety, as large as we have seen, and perfect in form.—Ed.

FRUITS AT THE LIVERPOOL SHOW.

These were scarcely so good as one would have expected, a circumstance attributable, perhaps, to the early date of the show, but there was also an absence of well-known exhibitors. Only three competed in collections of eight kinds of fruit, and there was not a really conspicuously good dish amongst them. The majority were presentable, but nothing more. In the six varieties there were more competitors, and here the Melons, Strawberries, and Cherries were better than in the preceding class. In Grapes there was not a bunch that would exceed 3½ lb., and the majority were much less. Bunches below medium size and berries of very ordinary type predominated. Black Hamburghs were the most plentiful, eight lots of three bunches were staged. The first prize lot were large in berry, slightly rubbed, and one of them, the middle bunch, very red. The second three were badly formed bunches with berries of various sizes, but black. The third prize three had small berries, too much crowded. Three bunches from The Quinta, Chirk, were of uniform shape, jet black, spotless, green in footstalk, slightly loose, but as near perfection as possible, and yet they were unrewarded, a circumstance freely commented on in the fruit tent. Madresfield Court had a class to itself, and was represented by three bunches. These were well coloured and shown in fine condition. Muscats were poor in quality and deficient in numbers. The first prize lot was quite green and the berries so round as hardly to indicate the Muscat type; none but the judges seemed to know in what their merits consisted. The second prize lot showed more of the Muscat type, but hardly more of a matured character. The third, although somewhat loose, were true Muscats, good in berry and golden in colour—so much so, indeed, that look at them as one would the impression remained that they were undoubtedly the best Muscats in the show. Foster's Seedling was favoured with a class, and was represented by eighteen bunches in six lots. The clusters were not large and the berries were below the average in size, but the winners, especially the first, were beautifully ripened. In the class of any other variety Golden Champion secured the first prize, the bunches of it shown being very good; the berries were unusually large, but they were hardly ripe, and little black spots were visible on some of them. The second prize went to Duke of Buccleuch, the bunches of which were rather small, but the berries large and spotless. The Trebbiano which gained the third prize was small in bunch and unripe; indeed, it was a mistake to show this variety at this time of the year.

Pine-apples were good throughout. The specimens competing in pairs were all Queens. The first prize brace weighed together 9 lb.; the second prize pair would weigh about 3 lb. each; and the third prize lot 10 lb. the two together. These were tall, fine, conical fruit, perfectly fresh and well coloured. How they came to be placed third, and the preceding pair second, was a mystery. We heard one of the judges observe that their crowns did not match, one crown being 3 inches in length and the other 3½ inches. Now a 5 lb. Queen with a crown of either of those dimensions surely merits attention. The first prize fruit in the single Queen class was decayed at the bottom, while the second and third specimens were equally large and without blemish. One fairly good Black Jamaica was the only specimen shown in the "any variety" class.

Peaches numbered twenty dishes, and were very good. In the two dishes Early Albert and Stirling Castle were first, Royal George and Gros Mignonne second, and Royal George and Bellegarde third. All of these were finely ripened and beautifully coloured. In the single dish class very large specimens of Galande were first, and equally fine Violette Hâtive second. Sea Eagle was shown in one instance in the shape of fruits weighing from 13 ounces to 15 ounces each, and very handsome; we do not remember to have before seen this late variety shown at this season of the year. Nectarines were, if anything, better than Peaches. They were very uniform in size and highly coloured. Pine-apple and Lord Napier were first in the two dishes, and Lord Napier and Downton second. Balgowan was first in the single dish class, Violette Hâtive second, and very fine Lord Napier third. This is a very good show variety at this season, but we question if it would figure so highly if judged by flavour.

Strawberries were just in their prime. The finest by a long way in the show was the new variety named Noble. A large dish of single fruits of this kind was shown, and a large trayful of clusters to show its manner of cropping, and in both instances the specimens were very fine. Those shown singly would average about 2 oz. each, quite firm, and very highly coloured. Its flavour is equal to that of President, and in earliness it comes in with Black Prince. As seen here it may be briefly described as one of the earliest, largest, most showy and fertile varieties extant, and it well merited the first-class certificate that was awarded it by the fruit committee. President, Sir J. Paxton, and Marguerite were the winners in the leading class, and a magnificent dish of President, from Heckfield, was first amongst a multitude of single dishes.

Cherries were few, not more than half-a-dozen dishes being shown in two classes. Black Circassian was the most attractive variety, and also one of the best. Figs were more numerous, and chiefly consisted of Brown Turkey, Lee's Prolific, and Negro Largo. Melons were in strong force, and one of the judges stated that he had never tasted so many inferior fruits at a show before, a remark, however, that does not apply to those that gained prizes; on the contrary, the Longleat Perfection, which gained first prize, and Hero of Lockinge, which was second, were exquisite; of the two, the latter is perhaps the best, having a really pleasing flavour, without too much sweetness. The first prize fruits were large and handsome. A collection of last year's Apples shown from Sussex was wonderfully well preserved, the French Crab, Gloria Mundi, and Alfriston being amongst the best.

Notes on this department of the show would not be complete without reference to the magnificent collection of orchard-house trees, in pots, from Sawbridgeworth. They numbered five or six dozen, and consisted of Peaches, Nectarines, Plums, Pears, Oranges, Cherries, Figs, &c. They were all compact trees, the majority not more than 4 feet in height, with strong young wood, clean, healthy leaves, and bearing astonishing crops of ripe fruit. "Oh! how I would like to have an orchard house," exclaimed many, and certainly this unique collection will do more to popularise orchard houses than anything else that could have been shown.

Vegetables.

These were sufficiently numerous in some classes but deficient and poor in others. Potatoes were very much so, hardly one of the tubers being fully grown, and anything but well formed. The Onion class only contained three dishes, and the bulbs were but of medium size. Collections were the strongest in point of quality. Large bundles of Asparagus, more than one could take conveniently between their two hands, figured conspicuously in several of the collections. Carrots were backward,

Cauliflower small, and Kidney Beans well developed; Cucumbers were more varied in form than usual, and all somewhat deficient in form. Telephone, Telegraph, and Stratagem were the leading kinds of prize Peas, all being remarkably well filled. They were so numerous, too, that the judges got confused amongst them, as in the first instance, and until some outsider corrected the mistake, the society's first prize for three dishes of Peas was awarded rightly, then the second was awarded to a special prize group, and the third came back to the proper quarter. This might easily have been avoided by the judges counting the number of dishes in each class before beginning to judge them, and also looking to see if the numbers on the cards corresponded with the class which they were judging before awarding the prize. Tomatoes made a capital show, but although exhibited under a dozen or more names, there were not really more than two or three distinct varieties there, and the only one perfectly distinct was Dedham Favourite. Cambrian.

NOTES ON PLANTAIN LILIES.

During the past few years the different species of Plantain Lilies (Funkias) have gained great popularity with gardeners, owing, in a great measure, to the extensive use made of some of them in the London parks and other places where what is known as subtropical gardening is carried out. This anyone acquainted with the genus will not be surprised at, for to the value of its species as fine-foliaged plants is also added the good quality of being free and handsome-flowering herbaceous plants, all of which produce spikes of bell-shaped flowers. Another point in favour of plants of this kind is that they thrive in almost any soil, although, like many others, they are seen to the greatest advantage when grown in well-drained sandy loam. All the species are easily multiplied by means of division, an operation that may be performed either in spring or in the autumn. One of the most useful and ornamental species of this genus is F. Sieboldi, a plant which is known in gardens under various names, the most common of which are sub-cordata and glauca. It grows from 1 foot to 2 feet in height, and has large, somewhat heart-shaped, glaucous leaves, and bluish or pale lilac flowers. Good sized tufts of this are very imposing in borders or on turf, and beds of it are likewise attractive—a fact proved by some that have been planted in Battersea Park within the past few years. It may also be used advantageously in mixed beds of foliage plants, such as Melianthus major, Acanthus latifolius, the dwarfer Cannas, &c. F. japonica, commonly known in gardens as F. grandiflora, is a species which grows from 12 inches to 18 inches in height, and which produces numerous large, handsome, pure white, sweet-scented flowers in August and September. Its leaves are of a clear pale green, and are much smaller than those of the preceding kind. In some places this species is used as a flowering plant for edgings; but it is seen to the greatest advantage when planted in tufts, in beds or borders, in a well-drained sandy loam. Another desirable kind is that known as F. ovata, which forms a neat tuft from 15 inches to 20 inches high. Its leaves are large, broadly oval in outline, pointed at the tip, and of a dark shining green colour. This makes a useful edging plant for sub-tropical beds or borders. Besides the above, which are all quite distinct, there are numerous variegated kinds that form desirable edging plants. Of these I would recommend the varieties of F. ovata, lancifolia variegata, and albo-marginata. S.

Double-flowered Myrtle indoors.—Everybody acquainted with flowers knows the lovely double-flowered Myrtle, which is a very desirable plant both for bouquet work and for decorative purposes generally. A neat bushy plant of it looks well when in bloom, but its beauty is much enhanced if trained as a standard with a stem about 2 feet high. However, as the double-flowered Myrtle grows rather slowly, it is a good plan to graft it on the common broad-leaved kind (Myrtus communis), of which rooted cuttings, when planted out in suitable soil, make in one season plants fit to be grafted on at the above mentioned height. The best time to perform this operation is in the end of August or beginning of September, when the branches of the Myrtles are sufficiently ripened, and the plants must be kept close until the scion has taken, after which period they may be treated as is commonly the rule to deal with plants in such circumstances, that is to gradually harden them off, to untie the ligatures, and to cut away the branches of the stock. It must be understood that all the branches must not be cut clean off at once, as that would very likely cause the death of the plant, while, on the other hand, these branches assist to strengthen the trunk until the scion has grown sufficiently to consume all the nourishment the roots furnish. Care must be taken to get a well-shaped crown; therefore stopping of the branches must be made in time, and they must be pruned annually in spring. Plants grown in this manner may often be seen in Continental nurseries.—G.

Heather edgings.—Few have any conception of what an effective edging for large beds or borders can be formed of the common Heather, or Ling, as it is often called. The more choice kinds are much used in clumps in shrubberies, but, until the other day, I had no idea that the wild Ling could be effectively employed as an edging plant. A friend of mine has a short drive up to the house, and on the right hand side is a wide border filled with standard Roses and backed by a hedge of the same trained against wires; under the standards are bedding plants, the whole being finished off with a wide border of Heather next the narrow band of Grass which separates the drive from the border. On the left side is the lawn, along the edge of which is a narrow ribbon border about 3 feet wide, along the centre of which is a row of standards. Each side of the band is edged with Heather, next the Heather are Calceolarias, and in the centre a row of single purple Petunias. The effect of this arrangement as a whole is very good. The Heather used in this case was got from a common near at hand, care having been taken to see that it was all of one variety, and that it was cleared of all weeds and Grass.—A. H.

Sedum carneum variegatum.—This pretty Sedum makes a very desirable little drooping plant with which to face the edges of flower-stands in drawing-rooms, ball-rooms, or corridors, and it retains its freshness a long time without requiring to be changed, unless a change should otherwise be desirable. It is also very useful for giving a dressy appearance to, and for hiding the wirework of, hanging baskets filled with plants, whose growth may not have so decided a drooping tendency. Its long elegant growths have a light and pretty effect when used sparingly round the upper tiers of tall glasses either for dinner-table or drawing-room decoration. I have always found the more frequent the changes of materials and style in this class of decoration the more satisfactory it is. Too much repetition of anything, even when tastefully done, palls and satiates. This Sedum, like many others of the same family, also makes a very desirable hardy bedding plant, either for edging on the flat for covering the edges of raised beds, or for furnishing undergrowth for tall succulents or Palms, Dracænas, &c.; and it is also a useful plant in the rock garden. It is easily propagated in heat in spring, when every little bit will strike root freely.—E. H.

Mimuluses in pans best.—The variety of striking colours to be found in the flowers of Mimuluses should be sufficient to recommend them; but if we may judge from the few gardens in which they are found in satisfactory condition, it is evident that they are not so popular as one would imagine plants of such easy culture should be. It is a simple matter to raise a stock of plants from seed in three or four months' time; if a commencement is made in spring, thrifty little specimens may be had that will produce a good number of flowers. They are, properly speaking, spring and early summer flowering plants—seasons at which the flowers not only last longer, but are larger than those produced during the usually hot months of July and August. If an old plant or two have been carefully brought through the winter, plenty of young shoots will be produced by them in February. Many of these may be taken up with roots attached to them, ready for potting. Those who require large specimens should grow them in pans from 6 inches to 8 inches deep, and from 10 inches to 20 inches in diameter, according to convenience. Mimuluses are moisture-loving plants, and therefore a good substantial loam is the best soil for them, and only moderate drainage is required. They are equally well suited for growing in pots, but pans are best for large specimens. People who have young pieces that will form plants should dibble them in 3 inches apart, and then the pans may be placed in an ordinary greenhouse. When they begin to grow they will want plenty of air; if much confined, the growth will be weak and the flowers small. Unless there should be any plants making more growth than ordinary, they require no stopping; but they will be the better for having some neat sticks placed to the strongest stems, as the flowers are often so large and heavy that the stems are unable to support them. They require a rather liberal supply of water when making growth, and they should also be shaded from very bright sunshine. Those who have to raise a stock of plants from seed should be careful to save it from a good strain of flowers, and there are plenty of such in the country. It is best to sow it thinly in a rather large pan of fine sandy soil, so that the plants may have room enough to grow to a good size, as in that case they can be transferred from the seed pans to those in which they are to flower. Seedlings require a little more nursing while young than plants from cuttings; but as soon as they have grown 2 inches high, they may have the same treatment as rooted plants in pans. Three seedlings put into a 5-inch pot make pretty little plants for greenhouse or conservatory decoration.—J. C. C.

Winter-blooming Carnations.—In some places enormous quantities of these flowers are required, and must be supplied. Plants and cut flowers must be had for rooms, the dinner-table must be provided for, and bouquets for button-holes must be abundant. For the latter purpose nothing surpasses these Carnations, of which there are now several fine winter-flowering varieties that everyone ought to grow. Among these I consider the following the best for the winter months, viz.: Monsieur Baldwin, Lady Frances, Garibaldi, Vulcan, Van Houtte, The Bride, Napoleon III., Empress Eugénie, and Miss Joliffe; the last is the best of all. Since I first began growing this variety I have kept yearly increasing my stock of it until now I grow it by the hundred. It is such a profuse flowerer that one may cut an immense quantity of blooms from it daily, flowering, as it does, as freely in pots as the old dark Clove does in the open border. The raiser of this useful variety was Mr. Keen, gardener at Campsey Ash, Wickham Market. To be successful in having a plentiful supply of flowers through the winter, I find it best to get the cuttings rooted in good time; therefore I generally put in a good batch of them early in March, in a gentle bottom-heat; the plan I adopt is to place a couple of hand-lights on a bed filled with leaves in our Rose house where the Roses are plunged, and then put in the hand-lights about 4 inches of sandy soil, which is made quite firm, and the Carnation cuttings inserted. A good watering is then given and no further trouble is required until they begin to root, when air must be admitted by degrees. I have never found this plan fail; the night temperature of the house is about 50°. I use 6-inch and 8½-inch pots for flowering them; if larger pots are employed the plants do not flower so freely.—W. A.

QUESTIONS.

5508.—**White Cucumbers.**—Can any reader of The Garden tell me the cause of Cucumbers coming almost white and very soft? They are watered every day. The temperature is kept at about 90° in the daytime with sun-heat, and at about 70° at night, the bottom-heat being about 80°.—A. N.

5509.—**Premature ripening in Vines.**—I have six Gros Colmar Vines that were struck in January, 1885, and planted in May of that year. During the last few weeks many of the bottom leaves are discolouring—indeed, have become autumn tinted; in fact, some of them have dropped off. The rods were cut back last December to a foot from the ground. They started again in March, and have made canes about 10 feet long, and about the thickness of one's finger. What, I want to know, can have caused the premature ripening? The temperature of the house is kept up to about 80° with sun-heat, and 70° at night. The Vines are syringed every day at 4 o'clock—at least in time to allow the heat to rise up to 90°, when the house is closed.—C. R.

Garden in the House.

BOWL OF MEXICAN ORANGE-FLOWER.

This noble shrub, with its wealth of clusters of Orange-like bloom, yields a bountiful supply of flowers for cutting. The glossy foliage, of great substance, forms a rich setting to the solid white petals and pale gold-coloured anthers. The engraving of a handful of flowering sprays loosely arranged in a glass bowl shows its value as a cut flower, and also the good effect of one distinct flower arranged simply by itself with its own foliage.

Dahlias in a cut state.—Finding Dahlias, especially whites, such as Constance and Little Gem, and scarlets or crimsons, such as Jaurezi, so useful for cutting both earlier and later than they are ordinarily to be had, we last season grew a quantity of young spring-struck plants in pots for late flowering, and as the outdoor supply was cut off very early by frost, they proved to be most useful, keeping well in a cool orchard house until Chrysanthemums came in. They were dried off and cut down just before Christmas, and laid on their sides in a cool place just free from frost until March, when they were again brought out and started into growth. After taking off what cuttings we required the tops were allowed to grow unchecked, and, by gradually hardening them off like ordinary bedding plants, we had fine bushes full of flower-buds by the time it was safe to plant them out. The result has been that, instead of having to wait until August for flowers, we have cut a good many in June, and an abundance is coming on. If planted in good soil and the blooms cut, as soon as they are fit for use there need be little fear of Dahlias ceasing to bloom from exhaustion. During the hottest weather when fragile flowers fade quickly, it is no small boon to have a good supply of Dahlias to fall back upon, and amongst them may be found nearly all shades of colour required.—J. Groom, *Gosport*.

The Mexican Orange-flower (Choisya ternata). From a photograph. Engraved for The Garden

Skeletonised Nepenthes.—In the charming collections of skeletonised leaves and flowers shown at the recent Liverpool exhibition, the Nepenthes were very conspicuous, several very fine pitchers having been successfully subjected to this process. This is the first time in which I have known these pitchers to be skeletonised, and as they show a very close network of fibre and retain their natural shapes, they certainly rank amongst the most desirable of all forms of vegetation for skeletonising. They are remarkably curious and very effective, and all who take a delight in skeletonising should introduce them into their work.—Cambrian.

GARDENING IN THE SOUTH OF FRANCE.

The Blue Gum tree appears likely to prove a good friend to owners of gardens in districts which border the Mediterranean. The great bar to the successful culture of many tender exotics in that sunburnt region has been want of shade and shelter, and this the stronger growing kinds of Eucalyptus can supply. They thrive apace in positions where much difficulty has been found in inducing the production of vegetation having the requisite protective power. In a climate where the thermometer never falls to freezing point and where the summer heat is high it is natural to infer that a large number of exotics which in a more northern latitude require constant protection from cold would be happy. Orchids, amongst other things, are mentioned as having been tried with good results, and as it has been found that a considerable number of species actually enjoy being in the open air in this country during the warmest months of the year, we are justified in assuming that they would do even better where the average summer heat is higher than with us. The experiments that have been made in this direction are sufficiently satisfactory to warrant the hope that the south of France will one day be a happy home for a large number of plants which we are compelled to keep most of the year under cover.

French salads.—Every Frenchman seems to know how to make an appetising salad, probably owing to salads being considered in France to possess considerable nutritive value. I do not exaggerate when I say that a French workman will make a dinner on a salad and a piece of bread and be quite satisfied therewith. This will not appear strange when the amount of oil consumed is taken into account. The quantity of oil that a French workman will eat at a meal would surprise those who are accustomed to a very moderate use thereof. It little matters to a Frenchman whether the basis of his salad is formed of Lettuce, Corn Salad, or Dandelion; only give him plenty of good oil and a variety of herbs, and he will make a differently flavoured, tasty, satisfying salad for each day in the week. The great fault commonly committed in this country is the too free use of vinegar and the absence of herbs, also want of careful preparation of the esculents employed as a basis. It is a curious fact, and one that illustrates the importance attached to salads in France, that they are not eaten with flesh, but always with bread alone. If we were to eat salads for their own sake we should make them better, and in hot summer weather they are certainly more wholesome and palatable than meat. I never cared for salads until I eat them abroad, and I have rarely found them to my liking in this country, principally, I think, because the delicate flavour which a judicious admission of herbs gives is wanting. Cream and Cucumbers have been mentioned as forming ingredients in French salads, but I never saw either used in that way. The utmost care should be taken to secure the purest oil; some kinds of oil sold by grocers in this country are coarse and often rancid, the sufficiently free use of which produces nausea.

Flower shows.—The flower show held in connection with the Agricultural Society of France in February last was remarkable for the variety and high quality of the produce exhibited. The Messrs. Vilmorin obtained the grand prize (*prix d'honneur*), their collection of Cinerarias, Hyacinths, Cyclamens, Violets, and Primulas being extremely fine. M. Truffaut showed cool Orchids. M. Millet, the largest grower of Violets in France, exhibited a collection of this fragrant flower, conspicuous in which were two varieties of his own raising—Madame Millet and Armandine Millet, the latter having variegated foliage. M. Dugourd, of Fontainebleau, had a varied collection of hybrid Hellebores raised by him; and M. Salomon, of Thomèry, who is *facile princeps* among French Grape growers, had a whole glasshouse devoted to his exhibition, consisting of Grapes of the preceding year and Vines in pots bearing ripe fruit. M. Salomon appears to have brought the art of keeping Grapes to perfection, for on more than one occasion he has exhibited Chasselas de Fontainebleau in May as fresh as when first ripened in autumn.

At the exhibition of the French National Horticultural Society M. Bleu's new hybrid Bertolonias were much admired, the best of them being

Mademoiselle de Freycinet, a kind with greenish brown foliage distinctly reticulated and spotted with brilliant metallic carmine; Marguerite Wilson, much veined and spotted with silver on a dark ground; and Alice Van Geert having very large leaves greenish white, with rose-coloured veins. The same exhibitor had also some new hybrid Caladiums of exceptional beauty, as well as a hybrid Begonia of great promise, but cumbrously named villosa argentea purpurata—the result of crossing B. stigmosa with the variety Otto Forster. Messrs. Chantrier's Crotons and Dracænas were of the usual excellence, amongst the former being some good seedlings. A superb specimen of the typical Anthurium Andreanum and a group of its varieties were also exhibited by this firm. M. Paillet had a fine collection of tree Pæonies, of which he makes a speciality; prominent amongst them were Louise Mouchelet, Reine Elizabeth, Zenobia and Athlète. M. Lemoine showed some of his new double Lilacs, such as President Grévy, Horace de Choiseul, and Michel Buchner. M. Salomon staged two lots of Chasselas Grapes, one composed of forced bunches, the other from the crop of the preceding year. As regards freshness and colour, there was little, if anything, to choose between them. The Compagnie Continentale exhibited some fine novelties at the 106th annual exhibition of the Royal Floral Society at Brussels in May last. Noteworthy among them were Alocasia Lindeni, the lively green hue of the foliage of which contrasts agreeably with the white foot-stalks and veins; A. Augustiana, with large green leaves and red foot-stalks striped with red; A. nigrescens, marked with blackish grey on a green ground; and A. regina, exhibited last year for the first time. Amongst new Orchids there were Cattleya Malouiana, having very large flowers, with magenta-rose sepals and petals, and an extremely large and showy lip; and Spathoglottis angustorum, a species with tall stems, which keep blooming continuously for three months at a time. Other plants of special merit exhibited on this occasion were a new Aphelandra from Brazil, one of the most singular of coloured-leaved plants; Cycas tonkinensis and Bellefonti; Sagenia mammillosa, a distinct and curious Fern; Pandanus Kerchovei, and Heliconia albo-striata. M. de Smet, of Ghent, exhibited a variegated form of Areca Baueri, and M. Vervaet had a fine variety of Odontoglossum Pescatorei named Vervaetianum, the flowers of which are strongly marked with large violet-red spots. J. CORNHILL.

NOTES.

IN SUMMER TIME we have green trees and soft fresh turf, Poppies and Roses, Pæonies, Irises, and white Pinks in masses in every garden, and, best of all, hot sunshine and warm showers, giving new life to all things. A bit of good soil works miracles. From the time of Christmas Roses until June it may bear myriads of beautiful blossoms. So rich and effective, indeed, are the flowers of summer, that one forgets the earlier offerings of the garden. Snowdrops and netted Irises and Crocuses of golden beam, the Narcissi, many and varied, and the hundred and one of our earliest blossoms of the year are gone, even if not forgotten. The point in good gardening is never to forget one's bulbs—any plant, indeed—but more especially the bulbs, which, being out of sight for a part of the year, are apt to be also out of mind. Scillas, Chionodoxas, and many kinds of Narcissi may now be taken up and replanted at once with perfect safety, better now, indeed, than at any other time—that is, if their leaves have faded away. There is a whole world of little secrets to be learned in the management of bulbs, but the main point we have to grasp is this: if the bulbs are moved at the rootless and leafless period of their existence, most of them are absolutely the better for replanting every year.

HARDY FLOWERS.—The display of these made at Liverpool last week was remarkable in several ways. Quantity and quality alike were noticeable, and perhaps for the first time were they seen at a flower show in a fairly representative way. No one could look on the great masses of Pæonies and Irises without being brought face to face with the fact that there are hardy blossoms quite as lovely and effective in their own way as are the choicest of hothouse productions. Let all who can grow Orchids and hardy flowers also, but the main point in open-air flower culture is this: the finest of hardy flowers, of Narcissi, Irises, Pæonies, or even Roses, may be grown beside nearly every cottage door in England, and only when so grown and admired will they have become appreciated at their true value. Hardy flowers represent democracy in the garden, and by their aid we can, if we will it so, bring freshness and beauty to the homes of the people. Public parks and people's gardens may do much and are great blessings in towns, but the sense of real ownership is necessary to the full appreciation and best culture of a garden, and for every ten people who own hothouses there are five hundred who can grow hardy flowers.

HOT WEATHER.—What a blaze of colour there is on the borders during these hot, dry days! On the grey walls Clematises and Roses strive for pride of place, and dark-spotted Gum Cistus opens anew its satin petals every morning. English and Spanish Irises, Pæonies, Delphiniums, Stocks, sweet smelling at eventide, and masses of Canterbury Bells, white, pink, lilac, and purple, make a flower show of the garden. How swiftly the flowers throw off their green top-coats; how eagerly they open their petals to the sun. The great Verbascum olympicum, 8 feet high, is like an uprising flame of yellow flowers, and Flax blossoms flutter in the hot breezes like little blue butterflies amongst meadow flowers. Here and there, amid all the colour and flower happiness, there comes an appeal for showers. Primulas especially resent these hot, dry days and sigh for rain; so also the Spiræas and shallow-rooting things generally; but in the garden everything happens for the best, and the hot sun is a boon we appreciate at its true value. It means the full ripeness of buds and of bulbs of all kinds—flowers now and flowers hereafter.

PLANT NAMES.—At the Orchid Conference at Liverpool last week the outcome of the opinions there offered may be summed up as follows: 1. Latin or Greek names are to be confined to wild species or types only, and the same to be applied and explained by a properly authorised botanist. 2. All wild variations or forms, all garden hybrids, seedlings, sports, &c., to be known under English names only, subject to the approval, alteration, or rejection by the Royal Horticultural Society's committees if placed before them for certificates or awards. 3. That it is desirable that a register be kept, that coloured drawings be made, and that actual specimens be dried or otherwise preserved for future reference. Dr. Michael Foster suggested that some idea of the plant or its history should be embodied in its name, and that there should be some distinction made in the construction or termination of the generic and specific names, so as to give some distinguishing mark between wild species and garden hybrids. The proceedings at Liverpool were so amicable and progressive and the tone so healthy, that this important subject should not be allowed to fall into abeyance. Perhaps the best thing now to do would be to appoint a nomenclature committee at South Kensington, the object of which shall be the organisation of a dual system of naming: viz., (*a*) botanical, (*b*) horticultural.

THE TIME OF LILIES.—One of the very finest of all our Lilies now in flower is the ivory-white Martagon, its spire of fifty flowers and buds being borne on a stem nearly 5 feet in height. Several good well-established clumps of L. Szovitzianum have also borne a rich harvest of their canary-yellow bells. L. croceum is now brilliant as red-hot iron, and some large forms of L. Thunbergianum have also been very effective in the sun. L. alutaceum is a quaint little Lily of this group, its solitary, erect, saucer-like flowers being borne on stems only 2 inches or 3 inches above ground level. I see L. Washingtonianum also in bloom in a pot; but, after all, the time of Lilies is yet to come, for is not the heyday of Lilytide when the silvery chalices of the Madonna Lily (L. candidum) expand, followed by L. auratum, L. longiflorum, and L. speciosum of Japan? After all the competition and introduction of new Lilies of late years, what have we finer, for garden uses, than the old white Lily, which was a common flower in the days of Chaucer?

POSIES.—It is pleasant to hear that the Mushroom bouquet is at last to be superseded, and that the old-fashioned poesy or posy—*i.e.*, a poem in garden blossoms instead of in words—is to be welcomed back with all the honours reserved for dear old friends. Time was when no visit was complete, no good-bye at the door perfect without that last sweet gift from old country house gardens, the posy, rich in colour and rich in fragrance also. There is no limit to the fashioning of the posy as a work of art. Unlike the modern bouquet, it need not be circular, nor are paper collars or sham lace collarettes *de rigueur;* all one requires are good flowers and fresh green leaves. A handful of white Pinks, or of Cabbage Roses with their own leaves if well arranged, may make a gift worthy of a queen. The same is true of Irises, Stocks, or Carnations, Cornflowers, Ixias, or Bride Gladiolus with Iris leaves. Hothouse flowers are most acceptable in the dark days of winter time, but the very name of a hothouse is almost unbearable beneath the sunshine of rosy June. Now is the heyday of garden flowers, and it is but meet that the old-fashioned sweet posies should gladden our own hearts, as they did those of our grandfathers' in bygone days.

ENGLISH IRISES.—It cannot be too generally known that these beautiful Irises may be raised from seeds by the hundred, if the seeds be sown as soon as they ripen on the plants after flowering. We commenced growing the ordinary Dutch mixture a few years ago, and have now some very good seedling varieties, their colours ranging from pure white to the darkest of purple and blue shades. On light rich soils these Irises flower the second or third year from seed. The pure white form is a great beauty, figured years ago in the "Jardin du Roy" and other illustrated folios of A.D. 1612 to 1647. As cut in the bud stage and brought indoors to open, no Orchid could well be finer in form or texture. Grouped on the borders along with Gladiolus Colvillei albus these English Irises are very lovely, even although the hot sun is just now making short their time of loveliness. Scarcely any hardy flowers just now in blossom are more useful for big pots or vases indoors if we except the Spanish kinds, which yield us the rich tints of yellow and bronze which these English kinds deny us. Dutch grown roots of both races are cheap enough to buy in quantity, but where seedlings can be raised one has the added chance of novelty as well as of infinite variety.

THE BIG POPPIES.—P. orientale and P. bracteatum are doubtless only geographical varieties of the same plant, although the first is said to have

been introduced from Armenia in 1714, and the second from Siberia as recently as 1817. P. orientale is a spreading plant, both stems and leaves being densely covered with silvery hairs, which give to it a somewhat hoary aspect. The flowers vary in size, and in colour they range from apricot-buff to a vivid scarlet. P. bracteatum is a dark green plant of erect habit, the stems and leaves being less hairy and the flowers of a rich blood-crimson colour. The last is to my mind by far the best garden plant, some of its forms bearing flowers nearly 12 inches across. Like P. orientale, it varies from seed, but I never yet succeeded in raising plants of P. orientale from P. bracteatum or *vice versâ*, as some cultivators are said to have done. The old idea was, that the presence of a bract or two immediately below the flower-bud distinguished P. bracteatum from P. orientale, but if ever this held good, it is useless now-a-days, since one often finds bracts below the buds of P. orientale. The hoary aspect and the decumbent flower-stems at once distinguish the last-named from P. bracteatum, apart altogether from the orange-scarlet (not blood-crimson) blossoms. VERONICA.

FLOWER GARDEN.

ORNAMENTAL RHUBARBS.

In gardens of large dimensions, especially those in which distinct effects are sought, Rheum officinale, planted in bold groups, has a striking appearance. When this plant bursts into leaf in spring, the fresh tender tint of the foliage is very pleasing, and the ornamental effect of the plant is heightened later on by its noble inflorescence, which, in the case of strong well-established specimens rises to a height of 12 feet or more. The only defect which this Rhubarb has is that it quickly feels the summer heat, the foliage by mid-July becoming somewhat yellow and brown at the edge. This tendency to premature decay may be counteracted by planting in moist positions, or, at any rate, where the roots can obtain an unlimited supply of moisture through the summer. This Rhubarb and its congeners would doubtless thrive better close to water than elsewhere, and, therefore, I would recommend those who have water margins thus to embellish them. When thus used, good-sized roots should be set out, as small specimens are likely to be somewhat crippled at first by encroaching neighbours. The species above mentioned and R. Emodi are the two best for forming bold groups or for naturalisation, but if a more moderate growing kind is desired for purposes of isolation on Grass, the best is R. palmatum tanguticum, a kind having deep green foliage, much divided, and which resists dry weather well. For the centre of a large bed this is a good plant. It grows compactly, and in colour it differs from that of other fine-leaved plants. Even the common Rhubarb has claims beyond that of mere utility. When allowed to develop freely, and to produce its flowers at will, it has quite a stately appearance. It is only in this way that Rhubarb is used on the Continent, where it is by no means uncommon to see it occupying a prominent position on the lawn. We shall never probably thus employ it in this country, although I see no reason why it should not be introduced into the wild garden, where it would look quite in place associated with giant Parsnips, Reeds, tall-growing Michaelmas Daisies, Golden Rods, and similar coarse-habited plants. J. CORNHILL.

Spiræa palmata.—This is a plant that loves coolness, moisture, and shade, for although it will grow almost anywhere, it will not flower properly unless the weather be coolish, cloudy, and the ground moist. This season we had the heaviest rainfall in May on record—nearly 7 inches—which was the cause of disastrous floods in the midlands and elsewhere. June was also cool, not to say cold, and we never saw this Spiræa in such fine growth. Then came a dry spell with warmer weather, and the flower-scapes on every plant, and we have many, were speedily ruined. This Spiræa is one of the very finest of herbaceous plants, but it wants coolness, moisture, and partial shade in dry localities.—J. S.

GOOD HARDY CLIMBERS.

Climbing plants should have a little more attention bestowed upon them than they generally get. The uses to which they might be put are many, though, as a rule, they are only employed for covering walls and for forming screens, their fitness for festooning trees and shrubs or rugged places being overlooked. When trained on walls the first consideration is the border in which they are planted. The roots must have good soil. A border 4 feet wide should, if possible, be allowed them, and it should be at least a yard in depth. A border of the size just mentioned well trenched will give newly-planted climbers a good start. After they are planted a good plan is to nail them securely to the wall till the allotted space is covered, and then allow them to grow as they like. In this way stiff artificial formality will be avoided. I have now under observation a stretch of wall covered with Forsythia suspensa that was at first treated in the manner just described, and now, after a lapse of three years without any labour being spent on it, the whole wall is quite a mass of long flexible shoots, many of which droop gracefully down to the ground. So thoroughly is it covered, that even when stripped of its foliage little of it is to be seen, while during the time the leaves are retained it has quite the appearance of a green bank. In the case of these Forsythias, which flower charmingly in spring, many of the shoots have rooted at the tips where they came in contact with the soil, and have quickly grown into good sized plants. This is a mode of increase worth noting by anyone wishing to propagate this Forsythia; all that is needed is to just cover the tips of the shoots with soil and make them firm in their place by means of pegs. In this way most of the Brambles will readily strike root. In planting climbers for covering a neighbouring tree or shrub the roots should, if possible, be outside the radius of the branches of the tree or shrub over which the plants are to climb. By the aid of a neighbouring branch the climbing shoots can soon be led to the head of some tree.

Amongst hardy climbers of a ligneous character few surpass the well-known Virginian Creeper for fast growth and for the rich tints of its decaying leaves in autumn. Ampelopsis Veitchi is more delicate than the common Virginian Creeper during its earlier stages of growth, but afterwards it seems to thrive even in towns equally well as the ordinary kind. It is altogether a weaker-growing plant, but still it possesses one great advantage over the first-named, and that is it clings to walls securely by itself while the other needs attaching to them. The more vigorous kind is, indeed, best fitted for festooning, and Veitch's for covering walls with close, dense foliage. Though its leaves are for the most part small, yet it occasionally produces very large foliage, such as may be seen in the temperate house at Kew, where there is a large plant of this creeper under the name of Vitis tricuspidata. It is a native of Japan, as is also Akebia quinata, a pretty and distinct climber, but one that is rather tender except in the south and west of England. It is a slender twining plant with light green compound leaves and curious claret-coloured blossoms, borne during the early part of the summer. It succeeds best in a warm sunny spot. Aristolochia Sipho (Dutchman's Pipe) belongs to a large genus in which this is by far the most ornamental. When growing vigorously its huge heart-shaped leaves make it a conspicuous and distinct climber, and its brownish blossoms add to its singularity. Celastrus scandens is a comparatively unknown climber in this country, but in the United States it is one of the most popular. The habit of the plant is that of a confirmed twiner, and it is one of free vigorous growth. The reddish fruits which it bears in autumn are very pretty.

The varieties of Clematis are now so numerous, that many shades of colour are represented amongst them; the blossoms vary, too, in other ways. C. Jackmanni, which at one time created such a furore, is still the best of its class, taking into consideration flowers, freedom of blooming, and good constitution. Other species of Clematis, too, are beautiful climbers, and especial mention should be made of C. Flammula and the common Traveller's Joy, a white-flowered kind frequently met with in hedgerows during the summer. The Himalayan C. montana is likewise a beautiful plant, the flowers of which are large, pure white, and are at their best in May before other kinds of Clematis come into bloom. Equally notable as C. montana, owing to its flowering at a season different from the rest, is the yellow C. graveolens, which flowers till its beauty becomes tarnished by autumnal frosts. Nor must C. Viticella, florida, and Viorna be omitted. The last resembles in the shape of its blossom the much-talked-of C. coccinea, which, when represented by a good variety, is a useful small or rather medium sized climber. Ivies are well known to be valuable evergreen climbers that will thrive even in the heart of towns where little else will keep alive. Large numbers of Ivies are catalogued by various nurserymen; therefore, a selection in many cases is necessary. The best and most distinct are Hedera algeriensis and amurensis, H. Rægneriana, a kind with deep green heart-shaped leaves, the Irish Ivy (H. canariensis), and the following varieties of the common kind, viz., digitata, palmata, sagittæfolia, and lucida, the distinctive characters of which are indicated by their respective names. In atropurpurea the leaves are smallish, and acquire a bronzy tint with prominent veins of a lighter hue. This is the variety that supplies the leaves now so much used for button-hole bouquets. H. caenwoodiana is a miniature kind with deeply divided leaves, and forms a pretty climber where only small ones are needed. Among variegated varieties must be mentioned madeiriensis variegata, canariensis, latifolia, maculata, japonica variegata, Helix variegata, and H. argentea.

Of Jasmines I will mention first of all the common white Jasminum officinale, a favourite with everybody, and a kind that will thrive in almost any situation. J. nudiflorum, whose flowers are borne soon after Christmas, is a most valuable early-blooming wall plant; and the somewhat tender J. revolutum, with large golden blossoms, is, where sufficiently hardy, a very ornamental species. The Honeysuckles (Lonicera) are general favourites, the common species of our hedgerows (L. periclymenum) being one of the most fragrant. L. Caprifolium, with its peculiar perfoliate leaves, deserves mention, as do also the scarlet L. sempervirens, a kind particular as to soil and situation; and the Japanese L. brachypoda aurea with bright golden veins. L. japonica, or Halleana, is a free-growing, very fragrant kind. Menispermum canadense (the Canadian Moonseed) forms a stout rootstock whence spring numerous slender twining stems clothed with heart-shaped foliage. It is a climber that, when once planted, takes good care of itself afterwards. Passiflora cærulea is hardy in some parts of England, and where it is so it is a handsome and distinct climber. Periploca græca, a plant with ample deep green foliage and peculiar brownish flowers borne during the summer months, might well be oftener seen than it is. To induce it to flower freely it needs a sunny spot. Roses of various kinds make beautiful climbers, or, more strictly speaking, ramblers, and of these there are a great number of garden varieties to choose from, as well as some species. One of the best for overrunning a good-sized tree is R. Brunoniana, a kind which, when

once established, will grow most vigorously and produce large clusters of single white blossoms in the greatest profusion. Several kinds of Smilax are neat climbers, all having firm glossy foliage; a strong family likeness runs through the whole. S. aspera is for general purposes one of the best. Stauntonia hexaphylla and latifolia are good climbers for the southern parts of the kingdom, but northwards they are liable to be injured during severe winters. Of Vines there several well worth growing, especially the Cut-leaved or Parsley Vine, the purple-leaved Vine, and some of the huge-leaved North American kinds, of which Labrusca and cordifolia may be quoted as examples. No mention of climbers would be complete without noting the Wistarias, of which many kinds are now included in nurserymen's catalogues. W. sinensis is that commonly seen, and besides it we have the North American W. frutescens, altogether a smaller-growing plant than sinensis. Of the latter there are a couple of varieties, viz., alba, in which the blossoms are pure white, but, as far as my experience goes, it does not bloom so freely as the common kind. The second is the double-flowered sort, which I can never induce to open its blossoms properly. W. multijuga is said to bear enormous bunches of flowers, but as far as I am aware it has not yet bloomed in this country. W. multijuga alba is to be found in some catalogues.

Alpha.

BREEDER TULIPS.

I think that were the gardening public more intimately acquainted with the beautiful varieties of the florist's breeder Tulips than they appear to be, many would be inclined to grow them. The best of our self-coloured early flowering Dutch Tulips cannot compare in beauty and refinement with those that can be seen at the Tulip shows in Lancashire, Cheshire, and elsewhere. The superior cultivation given them causes them to throw up strong, tall, straight stems surmounted with self-coloured blooms of varying shades, great numbers of which are of exquisite form, as well as large in size. The Tulip almost always (and the exceptions are very rare) takes the breeder or self-coloured form when it first opens. But from the time of sowing the seed until such time as the plants flower, five or six years pass. Patience, therefore, is a quality needed by Tulip raisers, but anyone who has been at the work for years, and raises seedlings annually, has something coming into flower every season, provided he has been at the work long enough to have seedlings sufficiently matured to bloom. A good many that bloom are thrown away as useless, being deficient in the two requisites in a good breeder Tulip—a fine clear bottom and a cup of good form. The colour of the breeder is of little importance compared with the two requisites just mentioned. Many bad or ugly breeders, as they are termed, break into very fine varieties, provided the base is pure and the form good: on the other hand, good coloured varieties often break into characters that are worthless from the florist's point of view. Breeders are sometimes ten or fifteen years breaking into colours, but these are exceptional cases: the general time may be set down as five or six years. Occasionally, but rarely, a flower takes on the broken form the first time it blooms, and never passes through the breeder state. Really, the Tulip is a curious flower. Why do some varieties of it exist so very long in the breeder state, while others take on the broken form much more quickly? What influences tend to promote the breaking of flowers? and what phenomena operate in or on the petals to disturb the previous arrangement of colours? Why, in the case of broken flowers, are the colours so apt to run in some varieties and be so steady in others? How is the colouring transmitted or developed, and what constitutes the colouring matter? Why are some habitually stained at the base, and some habitually pure? Steady and unsteady? These are questions asked thirty years ago, and they propounded riddles that remain unsolved to this day.

Tulips are divided into three classes—bizarre, byblœmen, and rose. There is a fourth class of selfs, but it is a scarce one, and does not possess the importance attached to the other three. A bizarre breeder always has a yellow base, and it is present also in the broken flowers. The rose and byblœmen breeders have a white base. Bizarre breeders are suffused with brown or brown-red, red, bronze, black-brown, and this deepening to almost black. Rose breeders are suffused with rose, rosy pink, deep rose, cherry colour, deepening almost to scarlet and crimson. Some of these are very lovely. Byblœmen breeders are tinged with grey, greyish lavender, deepening into violet, purple, or black of various shades. The base must be pure if to be regarded as perfect; there must be no stain of black upon it; the anther stems must be pure also. A young flower may sometimes be shaded on the base, but it will bleach out while the flower is maturing. If it does not, then this is a radical defect. The pollen on the anthers may liquify and run down the base of the stamens and stain them, but that is an accident; not an inherent impurity.

At a Tulip show there are classes for breeders as well as for broken flowers. They do not take the same rank as broken flowers, still they have a value of their own. As the raiser of seedling Tulips sows seed only of those that are of fine form, flowers of similar character may be raised from them; but, as before stated, many of the varieties prove worthless. Some beautiful breeder Tulips were shown at the recent exhibition of the National Tulip Society at Manchester. There was a class for six breeder Tulips, and the Rev. F. D. Horner brought from his home in North Yorkshire some beautiful flowers, and he was fortunate in obtaining the first prize in the class for six blooms. The varieties were—bizarres, Dr. Hardy and Sir Joseph Paxton; roses, Thomas Parker and Miss Burdett Coutts; byblœmens, Glory of Stakehill and Alice Grey. The second half-dozen ought, I think, to have given place to the one that was placed fifth, for it contained some charming flowers. A few other good breeder Tulips shown in this class were—bizarres, Excelsior and Horatio; roses, Industry, Mabel, and Mrs. Barlow; byblœmens, Talisman and Glory of Stakehill. Now, a breeder may be ever so good, but be worthless when it breaks into character. Take that most beautiful variety, Mrs. Barlow. This is a seedling raised by the late John Hepworth, of Huddersfield; it is of the best form, pure, and of a lovely rose colour, perfect as a breeder, but it is worthless when it breaks, retaining its colour, but destitute of character. But what a grand border flower this would make so long as it remained in the self character! Alice Grey (byblœmen) is another lovely breeder. This was raised by John Walker, of Winton, as distinguished from another raiser of that name; it is of a very light lavender colour and highly attractive; it breaks into fair character, both feathered and flamed, but cannot be relied upon; and when a premier breeder Tulip is selected at a show, this often bears away the palm. Glory of Stakehill is another byblœmen breeder—perhaps, taking it altogether, the best breeder grown; but it breaks into a weak rosy byblœmen without character, and so it is worthless when it becomes rectified. It is a very tall grower; but I may mention that, as a general rule, when a breeder breaks into character the height at which the plant grows is reduced and the bloom is smaller. This beautiful flower was raised by the late Luke Ashmole. Horatio was raised by the late Mr. Richard Headly, of Cambridge; it also is very fine as a breeder, bright yellow at the base, and of a light orange-red colour. It may be described as a red bizarre, but it is worthless when it becomes rectified. Thomas Parker is a pleasing rose breeder, raised in the Wakefield district, and at present grown by a few only. Mr. James Thurstan, Wolverhampton, exhibited two seedling rose breeders of his own raising of excellent character; one, named Tryphera, is of fine form, the base pure waxy white, the colour bright soft rose; the other, named Tryphosa, another of the same class and of high character. R. D.

VARIEGATED TREE MALLOW.

Those who have not seen this plant grown in a fairly satisfactory manner, and pass through a winter unharmed, cannot be in a position to judge of its merits. Plants of it raised from seed last year and planted out in good soil in a sheltered corner are already very attractive. They are nearly 4 feet in height, and all the young leaves are so irregularly marked with green, grey, and white, that they have a remarkable appearance. The beauty of our plants is doubtless enhanced by the fact that they stand close to a green Box hedge—an admirable background for them. The great merit of this Mallow is the fact that the variegation is constant all over the plant, and instead of reverting to the normal colour, as many variegated plants do when raised from seed, the variegation in this case increases. As the plants get older many of the young leaves are quite white when they first unfold, and what is equally noteworthy is the fact that the variegation does not burn under a hot sun. As it has not been thoroughly tested as to its ability to endure hard frost, it would be premature to recommend it for extensive planting, because it may eventually prove incapable of standing in the open through a severe winter. But as it is clear that the variegation is better the second year than the first, some means of keeping the plant through the winter without running the risk of losing it altogether might be adopted. It has been recommended that it should be lifted in autumn and kept under glass all winter. But seeing that when the seed is sown early in spring, and the plants put out in good soil early in the summer, it gets too large for many of us to find room for it, it seems to me that the better plan will be either to grow a few plants of it in pots, which would be the means of curtailing their over-luxuriance, and thus enable us to afford them space under glass the first year, or else not to sow the seed until midsummer, and thereby make a greater certainty of securing plants of a suitable size to keep under glass. Of course, the larger the plants kept over the winter the more effective they would be; but, from what I have seen of the behaviour of this Mallow, I should say that plants of it raised from seed sown at midsummer, and grown in pots under glass until the following spring, would prove eminently satisfactory for placing in the centres of large beds of fine-foliaged plants. For wide borders in positions exposed to the full sun this Mallow is admirably suited, and as to its merits as a flowering plant opinions no doubt will differ; for my part, I like it better without flowers than with them. J. C. C.

SHORT NOTES.—FLOWER.

Perennial Lupines.—What fine plants these are for mixed borders, and how well they thrive in almost any kind of soil. They are great favourites with cottagers in some parts of Somerset, and in their gardens one may frequently meet with specimens bearing a dozen or more noble spikes of flowers. The way in which these and other fine hardy flowers have been elbowed out of our gardens is matter for surprise. —J. C.

Doronicum austriacum.—This hardy border plant was well in flower with us in the middle of April, and its deep yellow flowers have been particularly bright and valuable, as, except Daffodils, there were at the time but few hardy plants in bloom to cut from. This Doronicum is not only valuable on account of the early time at which it blossoms, but the individual blooms are so perfect that they strike one as possessing a certain amount of refinement. Its erect flower-stems render it a useful plant from which to get cut blooms.—J. C. C.

Cyclamen Coum.—In mild winters I have had this Cyclamen in flower quite early, but I did not think it could open its lovely blossoms in such a long and continuous low temperature as we experienced last winter. Our stock of it is growing close to a south wall in a sheltered corner, where it never fails to flower when other outdoor blossoms are scarce. The plants I find do not increase in size to any appreciable extent. Is that owing to a south aspect being too hot and dry for them in summer?—Somerset.

Romneya Coulteri, sown in March, 1885, came up in the seed pans about six weeks ago. Many who sowed it last year may have turned out the contents of their seed pans as hopeless. Mr. Thompson, of Ipswich, advised me to have patience, and not to expect seedlings for six or eight months. None came within that time, but a fortunate extension of the patience for a few months longer has been rewarded by a fair crop.—G. J.

NOTES ON LILIES.

A week ago, after a month's absence in Scotland, I looked over our Lilies. My friend, Mr. McIntosh, many years ago established the fact that whatever the season may be, L. auratum, and a good many other species, will bloom well year after year if planted among healthy Rhododendrons, the reason, I believe, being that the Rhododendron leaves shelter the young shoots from April and May frosts, and from what is still more dangerous, bright sunshine after them. When gardeners speak to me about difficulties with Lilies, I recommend them to keep to this safe ground, that is when not many dozen plants are required; but as our experiments have for years past been in the direction of growing Lilies more in masses, and as this has been an unusually trying season, I think that you may like to have some of the results at which we have arrived.

Having acquired a strip of wood at our cottage garden near here, we, three years ago, dug out the soil for some large beds about 5 feet deep, made a sheltering bank of the natural soil, filled up the holes with good Lily soil, and planted a number of L. auratum bulbs. These were successful; therefore, the following year we made more similar beds, and planted them with L. auratum, L. speciosum, L. tigrinum, L. elegans, L. Krameri, L. Batemanniæ, and L. longiflorum. These prospering, we, last year, made another large bed, and planted it with L. auratum. In all these beds the Lilies looked as healthy, with the exception of L. longiflorum, as if they had had the advantage of Rhododendron shelter. There is no protection overhead, but the surrounding wood was thick enough to protect the plants from the bright sunshine in May which followed the night frosts.

At Oakwood, Wisley, in two beds in which L. auratum had come up constantly stronger, in one since 1881, the other since 1882, a good many Lilies are damaged; some L. cordifolium, which had fine strong shoots at the beginning of May, were killed to the ground, while L. giganteum, just opposite them, had the leaves, which were then developed, frosted, and looked bad. They have, however, thrown up flower-spikes, and hardly show where they were damaged. I think it may be taken as a fact, from our experience of now a good many years, that L. cordifolium, unless planted where Evergreens will protect it from sun after spring frosts, requires the protection of Fir boughs or similar shading. I had an instance of the efficacy of light protection in the case of two lots of Vallota purpurea planted near the water's edge; over them we placed common wicker coops, with Bracken interlaced; most of the bulbs are all right. Even some of the North American Lilies, pardalinum, &c., have some shoots frosted, though in some beds these Lilies are untouched.

In the narrow field of L. auratum, where the protecting cut-Furze fences are not high, so giving but little protection from weather, most of the Lilies seem to have done better than where they had more, though insufficient shelter. For some years past the weather has not been severe enough to try Lilies fairly, but I think last winter may be taken as above an average one as a test, and I hope to send a few further notes when more of the Lilies have flowered. We planted L. tenuifolium in all sorts of soils and situations; it has bloomed in all, though with different strength; it will require another year on the ground before the best treatment can be ascertained. A few days back I saw a stem of L. Krameri, in one of Mr. McIntosh's Rhododendron beds, with nine flower-buds. It may be remembered that when this Lily was introduced, it was considered one-flowered. I ventured to predict that when it strengthened it would have more flowers, but no one ever dreamed of nine. George F. Wilson.

Heatherbank, Weybridge Heath.

WILLOW GENTIAN OR SWALLOW-WORT.

(Gentiana asclepiadea.)

The species represented in the annexed illustration is, as far as we are aware, the only one in this large genus that can be naturalised in woods and similar places with any degree of success. It is not uncommon to see in gardens now-a-days large patches of this beautiful plant both in beds and flower borders, but it may not be generally known that it also flourishes equally well in uncultivated places, apparently unmindful of the rank Grasses and other weeds with which it may be associated. It is truly herbaceous, dying down out of harm's way in winter and reappearing late in spring when all chance of injury from frost is past, and flowering at a time when bold masses in such situations are most desirable. It is not difficult to raise from seed even in the open; space cleared round the parent plants at seeding time will produce thousands of young plants the following spring, and these will be ready to flower the second year. There is a white-flowered variety of this Gentian, also a very desirable plant, either for growing separately or in company with the blue one. When well intermixed the effect of the two together is most charming, both being about equal in size and habit. Choice of situation is not, however, the least important item as regards its cultivation. It loves shade, in which, if not so dense as to draw and weaken it, it does much better than in places exposed to full sunshine. Attention to watering in dry weather is also essential; it is apparently very susceptible of drought, losing all its lower leaves and becoming unsightly. With us it grows generally from 2 feet to 3 feet in height, but it not unfrequently reaches 4 feet under favourable conditions. It is a useful plant for cutting purposes, its flower-sprays lasting a considerable time in water. It is a native of Southern Europe, and flowers in July and August. K.

Flower-spray of Gentiana asclepiadea.

Hardiness of Eucomis punctata.—Although generally grown as a greenhouse plant, there can be no question as to the hardiness of this Eucomis. We left a quantity of it out in the open ground last winter when the soil was frozen so hard that ordinary kitchen garden tools could not penetrate it for weeks together, and I thought this spring to find the Eucomis dead. All the plants of it left, however, shot up with extraordinary vigour. The long rest seemed to have done them good; their large tufts of foliage now have a fine appearance, and I may add that the fragrance of the tall flower-spike when in bloom in autumn makes this plant a welcome addition to the flower garden.—J. G., *Hants.*

Plants for dry banks.—I am frequently reminded of the suitability of Marigolds for dry banks where the soil is poor, and where little else will grow, by seeing large masses of them at railway stations and similar places. Where these homely plants once get a footing they soon spread and reproduce themselves year after year from seed with but a tithe of the attention which other plants require. Nasturtiums are also especially well suited for similar spots, and some of the most brilliant masses of colour I have ever seen have been produced by Antirrhinums. The latter will even grow on old walls where scarcely any other vegetation besides Wallflowers can exist. In fact, there is abundant material to make any desert spot of this kind blossom as a Rose. The only secret in the matter is getting the plants well established during the moist, rainy months of autumn, and not to attempt any transplantation between May and October.—J. G. H.

Delphinium Cantab.—I have a fine plant of this 7 feet high, more than 3 feet in diameter and carrying about 35 flower-stalks; these, however, have this defect, the blooms are not continuous; some appear at the top, others low down on the stalk with a hiatus between them like that in Osmunda interrupta. Is this defect a peculiarity belonging to this variety? all my other Delphiniums are right as regards this point. I should add that my Cantab is in rich deep soil and in full sun, and what blooms there are are of large size. Last season I attributed this hiatus to the work of slugs or snails, but careful examination satisfies me that the flowers were never formed in the bare parts of the stalks; moreover, the plant made strong growth in March and April while slugs and snails were dormant. I find the best protection for Delphiniums and other hardy plants against these pests to be collars of zinc, either perforated or plain; these apparently slugs and snails will not climb. Much as has been written in The Garden in praise of Delphiniums, not one word more than they deserve has been said. I place them No. 1 amongst herbaceous plants, and of many varieties I have seen, I think that the sterile Belladonna is queen of the race. J. H. Thomas, *Belmont, Carlow.* *** Many think that Cantab is as fine as Belladonna, but it lacks its fine habit.—Ed.

NOTES ON HARDY PLANTS.

Pentstemon nitidus.—This produces large racemes of pale, but effective, blue flowers, a colour which would probably be better liked by many if it had not been inclined to purple; however, from their abundance and brightness this Pentstemon is not likely to want admirers; the stems, which are 1 foot high, are full of blossom from bottom to top. The plant is very dwarf, indeed almost flat, and when not in flower suited for association with the smallest and neatest of alpines. It is more especially a satisfactory species because it is perfectly hardy. It hates stagnant moisture, however, and thrives best on a raised bed of rich soil, or on rockwork.

P. humilis is even dwarfer than the preceding, but the individual flowers are larger and of a lovely shade of sky-blue; they are also more laxly produced on the stems, which are about 6 inches or 9 inches high. I potted a small quantity of this Pentstemon in the same manner and in the same compost as that used for Auriculas, and one could hardly wish for better results. The little pots stood out of doors, but plunged in sand all last winter, a test surely severe enough to indicate its hardiness. There is a disposition now-a-days to overlook Pentstemons owing to their tenderness, but the two kinds just referred to should surely form exceptions.

Wireworms in pots.—It is good practice to closely examine and hand-pick all composts that are to be used in pots; but, careful though we may be, some will escape notice. In about a week after they have got into the pots they work their way to the sides, and there they remain until the ball of soil begins to get consolidated. It is, therefore, only necessary to carefully turn out the ball and examine it well all round, picking off such wireworms as may be seen. Then put on the pot cap-fashion again, and let this examination take place as often as wireworms are suspected to be in the pots. In the case of the Dianthus family, and, I should say, wherever a deal of rather fresh turfy loam is used, every means should be tried to free the plants from this deadly pest. I have invariably found the most marked instances of wireworms at the pot sides in cases where new pots have been employed.

Hippocrepis helvetica.—This is even a more free bloomer than the better-known H. comosa, and, if possible, the flower-stems lie closer to the ground, and being longish a small plant affords a broad gay patch of bright yellow. Its flower-heads are fuller than those of comosa, and altogether this little plant is worth noting by those in search of neat and free-flowering rock plants.

Veronica Lyalli.—This is a newly imported dwarf shrubby Speedwell of doubtful hardiness. I left a number of well-established young plants of it out all last winter; they were plunged in sand early in the previous summer, and their roots had gone down into that material. In spring the plants had the appearance of being dead, but early in May they began to push new shoots through the soil, and in one or two instances from higher up on last year's wood; these growths are now all tipped with lovely lax sprays of flowers. The latter are large, somewhat bell-shaped, and of a pale mauve, prettily veined. We have therefore in this miniature shrub a distinct and beautiful Speedwell, quite as hardy as parviflora, pinguifolia, buxifolia, Traversi, and chathamica, and more hardy, according to my experience, than Hulkeana, epacridea, and anomala.

V. glauco-cærulea.—The leaves of this resemble new lead in colour. I have not tried this Speedwell in the open, but the roots have been frozen hard in a cold frame; there, however, the extra dryness would prevent the frost being so harmful as when they were exposed to all weathers. It must never be forgotten that wet kills many plants when dormant which dry cold would not kill. I assume that all these new New Zealand Speedwells are not hardy in this country until we have thoroughly tested them.

Saxifraga Cotyledon and its varieties.—The form pyramidalis is perhaps more grown and better known than the type, its more symmetrical panicle and larger flowers entitling it to that distinction, and of late years it has come into use pretty generally for conservatory decoration, as well as for borders. Now, however, there begins to be many inquiries for the pure white form, and of course the original plant is coming into favour, as it is without the reddish colour on the petals and a better white; but, as already stated, the panicle is less in size and the flowers fewer in number than those of pyramidalis, and, moreover, the petals are much narrower, all of which detract from the otherwise bold flower-spike. For the improvement in colour, therefore, something will have to be sacrificed. Another charming form of this species, raised and grown by the late Mr. Niven, of Hull, is called S. Cotyledon gracilis. Its rosettes are smaller, the leaves more leathery, of a deep green hue, and without the silvery exudation, except in the regular small round cavities on the edges of the very blunt foliage, and thus situated on dark green they have a distinct effect in the way of an even setting of minute pearls. Its blossoms are pure white, and thickly borne on a stem of from 8 inches to 12 inches, feathered down to the rosette. It is by far the most useful form for rockwork, being dwarf and stout in the flower-stem, and not liable to topple over like pyramidalis. Whether in or out of flower, it is a distinct and desirable Saxifrage. The only drawback which it possesses is the fact that it is rather wanting in hardiness in some soils, and of all the Saxifrages I grow, or ever did grow, it is the most difficult to perpetuate. The best place is under a dry west wall on a thin layer of sandy loam over plenty of dry rubble. So situated, it may be called hardy, but even then it increases very slowly indeed. I have nearly lost it several times within the eight years I have had it. I now give it no other than outdoor treatment.

Grubs and alpine plants.—As I have before pointed out, the smaller alpine Pinks may be lost in a wholesale manner from grubs, which may never be seen, unless sought for. The other night a most noticeable proof of grub ravages was witnessed on a favourite alpine of the same Natural Order, viz., Lychnis Lagascæ. This, I believe, fails to give satisfaction in many gardens, owing to the way in which it is attacked by grubs. I find that grubs also attack alpine Wallflowers and the finer Arabises, such as the variegated lucida. What I saw in the case of the Lychnis was this: looking over a batch of healthy seedlings in the stillness of a warm summer evening, I saw five or six little plants agitated in a box of, say, 100; they moved in jerks and half circles; the cause was at once suspected, from having seen similar movements in the centres of Pinks. There was found in each little plant a brown headed grub one-eighth of an inch long, and very leathery and strong, but there were others not so large and greenish white. Each plant that moved was injured; the leaves and stems had been eaten on one side, then the grubs reached the heart, and the whole plant toppled over. We have sometimes called this damping off. The signs by which the presence of this grub may be known are the disappearance of one side of the plant, the grey skins of the leaves being drawn together towards the crown, and so serving as a sort of covering for the grub. The early action of this grub may be known by brown patches or streaks on the leaves and in the stems of the younger parts as they come into existence. The only remedy I know of is that of hand-picking, removing the leaves entirely where the grubs are seen to be boring between the skins, and poking with a toothpick among the dead material in the heart of the plant for the strong grub which saws off the top parts from the roots. There can be little doubt that these grubs are a chief hindrance to the successful culture of some plants which we have deemed hard to grow.

Silene quadrifida.—This is a little less in all its parts than the favourite S. alpestris, but it has a much more compact habit. This glistening pure white and starry-flowered alpine is worth attention; seen in a pan as kindly sent to me by Dr. Appleton, it strikes one as eminently suited for the exhibition table, and the pale or apple-green herbage further enhances its effectiveness. Among hundreds of other alpine plants this Catchfly stands out as one of the best; it delights in hot sunshine and may be made a good deal of, for it flowers for many weeks.

Genista radiata is not an unknown plant, but considering its pleasing habit, distinct form, and free blooming properties, it is odd that it is not more used on sunny rockeries where it loves to grow than it is. Even where the rockwork is on a small scale it may be used with good effect; it is only needful to strike a few cuttings of it annually; the first year they make neat and graceful plants 9 inches or a foot high and as much in diameter, and the second season they are bright with blossom. They may then be pulled out if getting too large for their places, but so satisfactory will they most likely have proved, that to pull them out in their prime will take a little courage.

J. W.

TREES AND SHRUBS.

TREATMENT OF SHRUBBERIES.

This is a hackneyed subject, but all has not been said, by any means, that can be said about it. As to soil and situation, any ordinary good soil will suit a great variety of shrubs well enough—viz., Rhododendrons, Azaleas, Laurels, Hollies, dwarf Conifers, Yews, Roses, Weigelas, Brooms, Furze, Daphnes, Kalmias, Junipers, Pyracanthas, Pyruses of several sorts, Box, Euonymus, Barberries, Bays, Aucubas, Spiræas, Lilacs, Ribes, tree Pæonies, Syringas, Jasminums, Guelder Roses, Forsythias, Elders, Deutzias, flowering Cherries and Plums, Laburnums, Acers, Laurustinuses, Lavender, Clematis, Honeysuckle, Ivies, Wistarias, Ampelopsis, and Brambles, &c.—nearly fifty species or distinct varieties, without including the numerous fine kinds of Rhododendron and Azalea, both of which should enter largely into any collection of shrubs. All the above, I am certain, grow in ordinary loam, a soil in which mostly all kinds of garden crops succeed. It is not the fault of the soil in many cases that shrubs do not thrive, but the treatment they receive otherwise; and it is a good plan to plant a good variety, as some species are sure to find a suitable home on the spot, and develop accordingly. Presuming that the soil is moderately deep and well drained, it will answer well enough. I do not approve of a deep soil for shrubs that are expected to live long and flower, nor is such a soil needed. It is not depth of soil that is wanted so much as head room and light. All the above will grow strongly in 9 inches of soil, provided it is occasionally mulched on the surface with refuse manure, and that dead leaves are not annually cleared out from under the bushes. But the main point is to give room and light. It is hopeless trying to grow anything successfully under tall shady trees. In such positions they are starved at the root, and killed by drip and darkness at the top. When it is necessary to plant such spots with shrubs, Hollies, common Rhododendrons, Yews, Privets, and common Barberry are sufficient; but it is perfect waste to put select shrubs in such places. All named above will thrive on east, west, and south aspects, or in the open, and make fine specimens individually, but they must have full exposure. They will then ripen their growth, better endure severe winters in consequence, flower more freely, and always look better, because a bush that has plenty of light and air always makes the most even growth and finest foliage.

Planting shrubberies.—A needful preparation for planting is digging the soil; trenching 18 in. deep is preferable, but if the soil is well turned over by a good full-sized spade in the hands of a good digger, that will be enough. A proper digging spade is about 8½ inches wide and 12 inches long, and the nearly straight-handled and bladed Scotch spade is the best. Ground that has never been dug before, although perhaps ploughed, should always be at least dug deeply to make the surface soil of an uniform depth, and a single digging deep and straight will make a nice tilth for planting. Should the soil be heavy, plenty of light leaf mould, manure, or peat should be dug into the surface at the same time. The best time to plant is in October or in November, and the earlier the better. Some shrubs will not be ripe enough to lift at the end of September, but many will, and deciduous shrubs especially may be got and planted then, if the young wood is ripe and firm, no matter if the leaves be green. These will fall off a little earlier from the check, but the bush will make a much more vigorous start in spring than if moved later. All planting should be finished by the middle of November, and if preparations are made in time, it is just as easy to finish then as not. Moderate sized young shrubs are best, and so long as they have good roots, and are not taken up in frosty weather or left long out of the soil exposed to the air, it does not matter about their having balls of soil attached. After planting, it is an excellent plan to mulch the surface with half-decayed leaves, or loose, light, half-rotten manure. It keeps the roots safe from frost—a consideration of some importance the first winter after planting, and it insures good growth the summer following.

Habits of shrubs.—It is necessary to know something of this in order to manage the bushes rightly. Of Rhododendrons and Azaleas little need be said. Both make tall and broad bushes of even outline, filling up densely down to the ground all round when not too thickly planted, and they need no pruning. Rhododendrons, when they encroach on walks and have to be cut back periodically, never flower at that part; hence the best plan is to plant them far enough back at first, so that they will not encroach beyond the desired point. The lower limbs root into the soil, and among the leaves that fall annually and rot on the ground; and such bushes in the course of years attain a large size. The Weigela is another subject that makes a fine specimen by itself under favourable conditions. It throws up strong shoots annually from the root, and the older ones branch out freely, creating a compact bush 6 feet or 7 feet high and as much through, and under ordinary circumstances covered with flower. The plant grows freely north and south, but it flowers best where it has a warm soil and exposure, as it then ripens its wood properly. In June and July Weigelas of different sorts ought to be amongst the most showy and ornamental shrubs in the garden. They should on no account be pruned. Another fine shrub is Berberis Darwini. In a few years a plant from a layer makes a bush about 6 feet high and 8 feet or 10 feet through—a dense, dark green mass in winter or when not in flower, and always covered with a profusion of rich golden flowers in spring. A fine July and August shrub is the comparatively little known Deutzia crenata fl.-pl., which, if planted in any common soil, grows as high as a Currant bush or higher, and produces thousands of fine white double blossoms, which last much longer, either on the bush or in a cut state, than those of the single variety. Plants taken up and potted in autumn force freely, and look even better in pots than outdoors, the foliage and flowers being of a purer colour. It should be freely planted and never pruned, unless it be to remove weak or old branches to make room for the strong shoots that push up annually. All Deutzias, Ribes, Lilacs, Syringas—in fact, we may say most of the species named—should be treated in the same way, as the whole of them only manifest a disposition to flower profusely, or at all, when the strong branches have run out their natural length and become twiggy. Care must be taken to prevent crowding. It is right enough to plant thickly at first, because the thinnings will transplant readily in another two or three years, and be better than newly bought plants for extending shrubberies, but thinning out must be attended to in time. J. H.

SPIRÆAS IN FLOWER.

The most select of these beautiful shrubs in bloom now are the following: Spiræa ariæfolia is a free, bold-growing shrub—indeed, one of the stoutest of the Spiræas. The flowers are, when first expanded, of a creamy white colour, and though they become of a purer tint afterwards, are never thoroughly white. The large feathery terminal panicles in which they are arranged render a specimen of this kind, when in full bloom, a most beautiful and graceful object, and one very different from all other shrubs in flower at the same time. This species has in some places been in blossom for weeks past, while in others it is just now at its best. S. Douglasi forms a mass of closely-packed shoots, each terminated by a dense spike of pretty rose-pink coloured blossoms. It is a most beautiful shrub, and will flower for months together. Of this the different individuals vary a good deal in the colour of the blossoms as well as in the quantity of pubescence on the foliage. S. salicifolia, in general terms, may be said to resemble the last in many particulars, but the foliage is glabrous, and the colour of the flowers varies from whitish to pale pink, never being of so deep a hue as S. Douglasi. What is commonly regarded as a variety of this, under the name of S. salicifolia paniculata, has the blooms arranged in large branching panicles, and their colour is pure white. It is certainly very distinct from the type, and is well worthy of a place among the best. S. trilobata is a neat, compact little shrub, at most reaching a yard in height, and is now covered with small flattened corymbs of pure white blossoms. The habit of S. callosa is that of a somewhat open bush, with pointed foliage and branching corymbs of bright rosy red coloured blossoms. It is very effective from the rich hue of its flowers, which are almost rivalled in colour by the young leaves and shoots. S. sorbifolia is a stout-branched shrub, very prolific in the production of suckers and clothed with pinnate foliage, thus suggesting the name of sorbifolia. The flowers are borne in loose terminal panicles, and are of a whitish hue. There is a variety known as alpina, Pallasi, or grandiflora, which is dwarfer in habit than the species, but with larger flowers, which are pure white in colour. This pinnate-leaved Spiræa and its variety especially need a cool, moist spot, for they are natives of Siberia, and therefore, unless so situated, the hot dry weather generally experienced during summer is apt to try them very much. An extremely pretty Spiræa, and one just now at its best, is S. splendens, which is, I believe, of garden origin. It is of dense bushy growth, reaching a height of about a yard, with terminal clusters of rich reddish pink coloured blossoms. These blooms are borne in dense flattened heads, and in such profusion that a specimen of it presents the appearance of one mass of flowers. H. P.

The Azalea season.—Hardy Azaleas, in my opinion, surpass even the Rhododendron in several ways. Their flowers are more enduring; they are delightfully fragrant, and of rich and varied colour. At this season they are the most conspicuous dwarf flowering shrubs in our long hardy plant borders, and we only wish we had more of them. With the comparatively new Azalea mollis—which, however, is quite scentless we have now crimson, rose, white, purple, light yellow, deep rich yellow, orange, red and white, besides intermediate shades; and when a mass of varieties is in flower together, with the young and tender foliage just bursting the buds at the same time, I question if we have any shrub, or mixture of shrubs, that could produce an equally fine effect. Rhododendron planting has monopolised the gardener's attention hitherto, almost to the exclusion of the Azalea, which I strongly recommend for garden borders and shrubberies. This shrub possesses a value which the Rhododendron does not; it is one of our most ornamental foliaged plants in autumn, its leaves almost rivalling the colours of its flowers in spring; it presents the richest shades of crimson to be found among autumn tints, some varieties assuming the true hue of the Japanese Virginian Creeper, while others are of the richest crimson. To produce an effect, however, either in summer or autumn, a good mass of the different varieties should be planted together, either in beds or clumps. In the trade these Azaleas are known under the name of Ghent and English Azaleas; and the Japanese variety mollis resembles them in every way, except that it has better formed and more varied coloured flowers. All are deciduous, and flower before the leaves push, or contemporaneously with the breaking of the leaf buds. Some of the white varieties produce flowers with the leaves, and all late; they are also amongst the best.—J. S.

Genista elatior.—Every season numbers of large bushes of this Genista, especially in the vicinity of the Pagoda at Kew, are the admiration of everyone, and deservedly so, for they flower so profusely as to be quite a mass of bright yellow blossoms, which seem to light up the Laurels, Rhododendrons, and other subjects with which they are associated. As a flowering shrub, this Genista, indeed, should occupy a prominent place, yet, strange to say, though the specimens under notice have been in their present position for years and are so much admired, it is quite a scarce shrub, and is seldom or never planted for ornamental purposes. Its propagation is of the simplest, as seeds are freely produced, and grow readily enough.—T.

Philadelphus speciosus.—With the long list of Mock Oranges to be found in various catalogues the selection of one or two is rather puzzling, but to anyone needing a thoroughly good form perhaps the best is P. speciosus—at all events it will not prove a source of disappointment, for it forms a handsome bush, is most prolific in bloom, while the individual flowers are large and of the purest white. A specimen of this kind when in bloom points particularly to its value as a lawn shrub, for it is of pleasing outline (in no way stiff or formal) and will thrive in drier spots than many other shrubs. A specimen here of the pretty little P. microphyllus, with small Myrtle-like leaves and flowers about as big as a shilling, is growing with greater freedom than it hitherto promised to do, for shoots nearly a yard in length are pushed up from the base, and the plant is still in full growth. Altogether it is a neat little shrub, and its conspicuous blossoms are just commencing to expand.—H. P.

Calycanthus floridus, or Carolina Allspice, as this is called in North America, is a very ornamental hardy shrub, and one very dissimilar from most of those in cultivation. It forms a rather compact-growing bush, with deep green leathery foliage, and peculiar fleshy flowers borne in the axils of the leaves. The blooms are about 1½ inches in diameter and agreeably scented; indeed, the wood, bark, and leaves all emit a pleasant odour when bruised. The foliage is deciduous, so that it possesses no special attractions during winter; but in summer, from the fragrance of its blossoms and ornamental foliage, it is well worth the attention of planters as a desirable shrub where strong-growing subjects would occupy too much space. A fairly cool, moist spot seems to suit it best, but it is not very particular as to soil or situation. There are several varieties of it, but a strong

family likeness runs through the whole of them therefore, unless for the purpose of forming a collection of them, one or two kinds will suffice. The Carolina Allspice is nearly allied to the sweetly-scented Japanese Chimonanthus fragrans.—T.

LATE-FLOWERING THORNS.

Though the majority of Thorns are now out of flower, some of the latest are still in bloom. The Tansy-leaved Thorn (Cratægus tanacetifolia), of which a coloured plate was given in The Garden last year, is a desirable late-flowering species, which, from the hoary character of its deeply cut leaves, can be readily distinguished from all others. It forms a stiffer-growing tree than the common Hawthorn, and the individual blooms are larger, though borne in rather smaller clusters. They are, however, produced so freely that a tree of this species in bloom is as white as a sheet. The Cockspur Thorn (C. Crus-galli) and its numerous varieties, though rather past their best, are still in flower; the different forms of this Thorn have glossy foliage, which contrasts strikingly with that of the preceding. The varieties of the Cockspur Thorn differ widely from the large bold-growing C. arbutifolia and from the tabuliform-shaped C. linearis. This latter often pushes out its branches in quite a horizontal direction. The Fire Thorn (C. Pyracantha) is now blooming most profusely; indeed, a specimen here raised from a cutting of the variety called Lælandi is quite a mass of white. The North American Heart-shaped Thorn (C. cordata) is a free-growing kind, and forms a handsome small tree with deep shining green foliage, while in autumn the fruits, though small, are very bright. Another American kind now in flower is C. pyrifolia, whose large clusters of white blossoms are now at their best. This forms a medium sized tree, with, especially in the case of young vigorous specimens, unusually large leaves. Of quite a different character from any of the above is C. parvifolia, a much branched bush about a yard high, with dark green ovate leaves and solitary flowers, with which it is thickly studded. In some specimens the flowers are nearly an inch in diameter; their large size and the dwarf habit of the plant render this Cratægus very distinct from any of the others; indeed, it resembles more a dwarf form of Mespilus grandiflora than a Hawthorn. The last I will mention is one that has been in flower a long time, and of which a woodcut illustration recently appeared in The Garden—viz., a variety of the common Hawthorn known as C. Oxyacantha semperflorens. This forms a much-branched dwarf shrub, and flowers more or less continuously throughout the summer months. In miniature gardens it should find a home. H. P.

Magnolia fuscata.—This Chinese Magnolia needs the protection of a greenhouse, or in specially favoured spots the protection of a wall, to enable it to pass through our winters without injury, and, generally speaking, it blooms better under glass than in the open air. The best treatment for it is that which suits Camellias. Its flowers are in no way showy, and being hid, as they are, under the foliage, renders them still more inconspicuous, but their fragrance is such that even a single bloom will fill a whole house with an agreeable odour. The flowers are purplish brown in colour. Another point in favour of this Magnolia is the fact that it will often bloom for months together throughout the summer, and even small bushes of it will flower, especially those propagated by means of cuttings or grafts. Unlike some other Magnolias, this one is not difficult to increase by cuttings, formed of the half-ripened shoots, dibbled firmly into pots in open sandy soil, and kept in a close case till rooted.—H. P.

The Mexican Mock Orange.—This somewhat rare shrub (Philadelphus mexicanus) is well grown by Mr. Walker, of Thame, who lately sent us some flowering sprays of it. It is a good deal like the common P. coronarius, but the flowers are smaller, more numerous, and arranged in less crowded clusters. They are, moreover, devoid of the strong perfume which some think objectionable in the Mock Orange. P. mexicanus is, unfortunately, not hardy, but it makes a pretty greenhouse shrub for flowering in early June. Mr. Walker tells us that he places the pots out of doors during the summer, standing them on bricks or tiles to prevent the roots from protruding to the soil below. About November he takes the plants to the greenhouse, where they never fail to make a beautiful display.

MARKET GARDEN NOTES.

After a vegetable famine of more than ordinary duration, it is cheering to find once more a full supply. Potatoes have, however, been fortunately both good and cheap all through the year. Old kinds are now nearly over, but new ones are already plentiful. The greatest demand at first is for kidneys, especially the Ashleaf, Walnut-leaf, and Myatt's Prolific; these are firmer and have a better flavour than the early American kinds, but the latter fill the baskets quickest; and in towns American Rose, Beauty of Hebron, and similar kinds, if cheap, supersede the kidneys, and are cleared off in time to allow a crop of autumn Cauliflowers or Broccoli to be taken off the ground. Cabbages are now good and realise fair prices, the difficulty of getting plants in spring having prevented planting to such an extent as to cause a glut in the market. Cold frosty winds in March made plants scarce in this locality; they got partially uprooted and withered up.

Lettuces, both Cos and Cabbage, are plentiful and good. The custom of sowing thinly and avoiding transplanting is now very generally followed, the small extra outlay in the way of seed being more than counterbalanced by the saving of labour effected and the quicker turning in of the crops. Paris White Cos and All the Year Round Cabbage Lettuces are good old sorts. Vegetable Marrows are now making rapid progress; they like plenty of heat. I find the Bush Marrow to be hardier than any of the others; where both kinds were put out at the same time plants of the Bush variety are now coming freely into bearing, while the others have made but little progress. Winter Broccoli, Kales, Savoys, &c., are now being planted as fast as ground can be got ready for them; the prospects of another dry season like that of last year make growers anxious to get their plants out before the soil loses its moisture. Sowing of main crops of Cabbages is now claiming attention; Early York, Wheeler's Imperial, Early Rainbow, and Early Fulham are the sorts in most request. James Groom.

Gosport.

Hæmanthus insignis and H. cinnabarinus are beautiful flowering plants which should be grown in every garden where there is a warm greenhouse, both species requiring a little extra heat when making their growth, though during summer an ordinary greenhouse or frame would suit them. H. insignis has about a dozen leaves with folding bases forming a kind of stem or neck. The flower-spike is pushed up near the side of this neck from between the bulb-scales, and it attains a height of about 8 inches, its large spherical head of cinnabar-red flowers measuring 6 inches across. The flowers are packed very closely together and are composed of narrow segments and long stamens, the latter being the attractive part; the anthers are pale yellow. H. cinnabarinus belongs to the same section, but its leaves are broader and longer, and its flowers are not so numerous nor so closely packed on the scape. In these the petals are 1 inch long and a quarter of an inch wide, and the stamens are very thick and curved; their colour is pale scarlet. Both these plants are now in flower at Kew, as also is H. Kalbreyeri, a crimson-flowered tropical species, and H. albiflos, which, as the name signifies, has white flowers.

Phaius bicolor.—This handsome plant is now in fine flowering condition in the Orchid house at Kew, where it has been in cultivation for a long time, but has never attracted the attention of Orchid growers as much as it should. Of the section of the genus represented by the stately P. grandifolius and P. Wallichi it is by far the most desirable kind, its flowers being large in size, numerous on the stout tall scapes, and lasting much longer than those of any other species of Phaius. The spikes are 4 feet long, and bear each a dozen or more flowers; these have the sepals and petals arranged regularly like a fan, and 2 inches in length; their colour is pale green at the back, pale chocolate in front. The lip is cucullate, spreading at the top, and crisp edged, whilst the base is narrowed and formed into a hooked spur. The tubular portion is pale yellow, whilst the spreading part is wholly pale magenta. For its cultivation this species requires the same treatment as its near relatives named above. It is a native of Ceylon. The chief points of interest in this kind are its flowering season—June to October—its lasting character, and the beauty of its colours. Of course, it is not so gorgeous a plant as P. tuberculosus, but it is superior to it in its free and vigorous habit.

Garden Flora.

PLATE 552.

CISTUS LADANIFERUS MACULATUS.*

Of all the species of the genus Cistus—Bentham and Hooker estimate the number of those which are specifically distinct at about a score—C. ladaniferus is one of the most beautiful and bears the largest flowers. The type, which seems by no means common in gardens, has white flowers, each petal being tinged with yellow at its base; in size, too, they are larger than those of the variety here figured. The accompanying plate represents the variety maculatus, which differs principally from the type in each petal being marked at its base with a rich dark brownish crimson or blood-coloured blotch. C. ladaniferus is a native of South-western Europe, and the name was given it by Linnæus under the mistaken impression that the plant yielded the labdanum of commerce, a medicine largely used during the prevalence of plague. Labdanum is in reality obtained from C. creticus and other species from Crete, Cyprus, and the Levant. Most of the Cistuses, or Rock Roses, thrive best in dry sandy soil, and under such conditions withstand much better the severity of English winters than when grown in rich damp soils. Seeds are ripened freely enough in most seasons, but the readiest method of propagation is by cuttings. A somewhat full account of all the species of Cistus in cultivation is given in The Garden, Vol. XXVII., p. 570.

Geo. Nicholson.

Thunia Marshalli.—This easily grown and very free-flowering plant deserves to stand as much in favour as a garden plant as the Calanthes, for it is as beautiful as any of these, though perhaps not quite as lasting. A few roots planted in good turfy loam and manure and placed in a moist stove to start will make stems 2 feet high in about three months, when each stem will bear a large pendent bunch of snow-white flowers with a richly marked yellow lip. After flowering the bulbs should be ripened by exposing them to bright sunshine and fresh air, a frame out of doors being the best place for them; they should then be removed to a dry place in a temperature of about 45° for the winter. They usually show signs of new growth about February, when they should be shaken out of the old soil and repotted. There is another very beautiful Thunia with coloured flowers. This is T. Bensoniæ, which has a habit of growth like that of Marshalli, but its flowers are smaller and of a soft lilac-rose colour.

* Drawn in Dr. Lowe's garden, Woodcote, Wimbledon Park, in July, 1885.

CISTUS LADANIFERUS VAR. MACULATUS

WORK DONE IN WEEK ENDING JULY 6.

June 30 to July 6.

A complication of circumstances having prevented the daily posting up of the diary, our notes of work done must be made from memory. On each and every day of the week the heat has been intense, and watering has been the one great item of labour, for, having a good supply, it has been put on without stint. Peaches, Apricots, Plums, and Pears on walls have had a fair share of it; so have flower-beds and Roses and indoor fruits a full supply. We mulch all borders with long litter or manure, and this aids in the keeping of the soil moist should anything intervene to prevent the application of water at the proper time. The restricted amount of labour has not admitted of our watering vegetable crops, except recently planted winter greens and Broccoli, which work has been compulsory to keep them alive. All these we plant in deep drills, a plan that enables us to water quickly with large-spouted pots, and as soon as well established the soil is filled in to the ground line, and thus forms a mulching that keeps the soil about the roots moist, and which, except in long-continued drought, renders further watering unnecessary. The fierce sunshine scorched a few Vine leaves and berries of Grapes in the latest houses; we therefore deemed it advisable to apply a slight shade of whiting and water, and no further injury in this direction has taken place. Free ventilation in the early morning, increasing it as the day goes on, will, as a rule, prevent scalding, but the conditions—sudden heat after a long sunless time—are this year so exceptional, that shading is no doubt the safest plan, and we have applied it to all houses in which the occupants were deemed likely to suffer from the sudden advent of such tropical weather. On the 3rd inst. we gathered Strawberries in quantity for preserving; a week previous to that date they were so late, that we did not anticipate their being fully ripe for another fortnight: this will indicate how suddenly summer has come upon us, and how necessary it is to take precautionary measures in respect to shading to prevent injury, either from scorching or lack of root moisture. Red and Black Currants, also Raspberries, will a few days hence be quite ready for gathering, and meanwhile we have been compelled to net them over to preserve them from birds. Previous to netting the new growths were partially thinned out to admit of all fruit ripening alike, and to let in daylight to all parts of the bushes, which will aid the ripening of the wood, and at the same time contribute to longer preservation of the Currants should rainy weather set in. As regards Raspberries, we gather all fruit as soon as ripe, and rely for successional supplies on an autumn fruiting variety. Pulled up suckers of these, and only left sufficient new growths to furnish the espalier fence to which the new canes are to be tied next winter. Layering Strawberries; about half our quantity, all Vicomtesse Héricart de Thury, is now finished. They require watering twice a day, for, though the pots are plunged in the soil beside the mother plants, the bulk of soil in pots is so little that it rapidly dries up, and if once it gets very dry, root formation is a very slow process. Cauliflowers have shared alike with fruit in rapidly attaining maturity, and to keep up regular supplies we have lifted some and put them in a cool shed, with their roots in water. Cleared off Lettuces, and exhausted stocks of Peas and Spinach, and the ground, having been hoed and raked, is now ready for sundry kinds of winter greens as soon as rain comes to admit of our planting them out. Staked Dahlias, and pegged down a few of the most branching and dwarfer of the single varieties that we use in the summer bedding arrangements, in which garden, too, we have completed most of the pegging down of the plants that form the framework of designs, and have again clipped all edgings of Herniaria, variegated Thyme, variegated Alyssum, and picked the flowers off Stonecrops and Saxifrages. Sowed under handlights on a south border Brompton and East Lothian Stocks, Pentstemons, Antirrhinums, Canterbury Bells, Delphiniums, and Wallflowers. Made the last sowing of Sweet Peas for this year, and off our earliest batch all the flowers and seed vessels have been picked, also the points out of the haulm, which, combined with the mulching of manure and soaking of water that we hope to apply soon, will give them a new lease of life. Tying out bush Chrysanthemums, potting on winter-flowering Carnations, Bouvardias, and tuberous Begonias have also to be included in the work of the past week.

Hants.

FRUITS UNDER GLASS.

The Orchard House.

When the late Mr. Rivers commenced growing Peaches and Nectarines in pots under the shelter of his hedge orchard houses, he little thought the early varieties he was about the same time raising from kernels would be the first instead of the last to ripen their crops of fruit. Such, it appears, is now the fact, as there are not a few gardens in which the hedge orchard house has been superseded by a light, elegant, efficiently heated structure, from which the earliest fruit of the year is gathered, and the original Peach houses are allowed to come on later and keep up a running supply until the end of October. Where size, colour, and quality must be unsurpassable, the old lean-to or span roof with trellises 16 inches to 18 inches from the glass will always stand first, and few gardeners who know the cost in time and money of erecting and establishing bearing trees in a good lean-to would willingly convert such structures into orchard houses. Modern houses in modern gardens are, however, constantly springing up in different parts of the country, and many good cultivators for two reasons now approve of having at least one house fitted for the culture of Peaches and Nectarines in pots. In the first place, handsome pyramids and bushes of all the leading early kinds can be purchased at a cheap rate ready for starting on the day the house intended for their reception is finished, and ripe fruit in plenty can be gathered from them long before the anniversary of laying the foundation brick comes round. This, when time is of more importance than money, is a great gain and a good reason for embracing pot culture. In the second place, the system enables the fruit grower to keep pace with the times by making himself acquainted with the new varieties whose names are distressingly numerous, and to thoroughly test a great number under pot culture before he condemns or honours them with the chance of a twenty years' lease on the orthodox trellis. Forty years ago our best early Peach was Early Anne; then came Acton Scott, Early Rivers, Early Alfred, Early Albert, Early Beatrice, Early Louise, and others, whose chief recommendation was their extreme earliness. All of these I have grown, but for reasons which it is unnecessary to explain they have been given up, the last to go being Early Louise, and better varieties have been allowed to extend, or in other ways take their places. The next batch included Alexandra Noblesse, Crimson Galande, Doctor Hogg, Magdala, Rivers' Early York, A Bee, Early Grosse Mignonne, Hale's Early, Stirling Castle, and many more, but these I have thoroughly tested, still grow, and should duplicate to any extent if refurnishing. Of recent introductions, we have Amsden June, Alexander, and Waterloo, extra early varieties. The first two I have tried on walls and under glass, but their tendency to become adhesive and their thin watery juice render them useless to me. The third, I am told, is really first-rate, but I have not tested or even purchased it. With me, on a good heavy loam, which grows Roses and Strawberries well, the following new and old varieties are special favourites, and, like the Scotchman's ox, bad to beat: A Bee, Grosse Mignonne, Early Grosse Mignonne, Large Early Mignonne, Belle Beauce, Belle de Doué, Bellegarde, Barrington, Crimson Galande, Doctor Hogg, Dymond, old Noblesse, Alexandra Noblesse, Magdala, Royal George, Sea Eagle, Stirling Castle, the Nectarine Peach, Walburton Late Admirable, Violette Hâtive, Hale's Early makes up an even score, but I have not yet been able to join in the high praise which it has received, as it is greatly inferior to A Bee and the Mignonnes. Nectarines, fortunately, are not so numerous as Peaches, but Sawbridgeworth has swelled the list, and some of the new varieties are very fine and great acquisitions. Taken alphabetically, I can recommend the following: Advance, Albert Victor, Darwin, Elruge, Hardwicke Seedling, Humboldt, Murrey, Pitmaston Orange and its offspring Pine-apple, Lord Napier, known and grown by everybody, Stanwick Elruge, Violette Hâtive, Victoria, under glass. Growers who appreciate the delicious Stanwick flavour should grow the first and last, also Darwin, Improved Downton, Milton, Newton and Spenser. Some, I may say all, of the new race of Nectarines having been raised by crossing older varieties with the Stanwick or Syrian blood, grow to an immense size; some taken from pot trees have weighed 8 ozs. to 10 ozs. each. They are free growers, hardy, rich in the peculiar almond flavour, never crack like the parent, and look like delicate models in wax when grown under glass. Few, very few, private growers cultivate half the varieties enumerated in the preceding list, but having drifted into the giving of names, I have made a selection from which the amateur may again select, or he may grow the whole of them, Peaches and Nectarines, without running the risk of getting a second-rate variety.

Cultural remarks.—Assuming that the amateur has forced a few of the earliest of these Peaches and Nectarines, and the fruit has been gathered, the question is, what is the best treatment to insure a crop from the same trees, not only another, but for the next score of years? Well, the main points for the present are thinning out old fruit-bearing wood to let in light and air, good syringing to keep the foliage healthy and free from insects, and liberal watering with weak liquid to fill up the flower-buds before the leaves fall. If in small pots and a shift is thought desirable it matters little how soon preparations are made for carrying out this operation, as the trees can then be kept under glass, well syringed, and shaded if need be, until the roots have taken to the new compost. When trees are merely shifted out of small pots into others a size or two larger the balls should be well soaked and divested of crocks and straggling roots before the compost, in a somewhat dry state, is firmly rammed about them. This ramming, be it borne in mind, is very important, as loose potting round a firm ball is the deathblow to many a good tree, and why? simply because the loose soil allows water to pass by the solid ball; the latter becomes dry and the tree dies. When firmly potted, a good watering carries the soil home to the roots and a rather close moist atmosphere, produced by light syringing and early closing with solar heat, speedily restores them to a growing condition. All the parts of a healthy tree being active, ten days or a fortnight in a moist, growing atmosphere will set them right, when, lest the prominent buds should start, more air and perhaps more water will be needed until they are fit for placing in the open air. When larger and older trees require reducing as a preliminary to repotting in the pots they have previously occupied, a little more care becomes necessary, as the operation is more severe; but the same rules apply, and, provided they are not over-watered and the house is kept moist, trees whose roots are completely washed free of old compost will speedily start into new root action.

Pots, crocks, compost.—The first and second should be quite clean and perfectly dry when they are taken into use, and a 12-inch pot will not be overcrocked with 2 inches of broken pots, bones, or rough charcoal placed over the drainage apertures. When firmly rammed with the potting stick and a little soot has been introduced to keep back worms, the pots may be set aside until the compost is ready. This may consist of heavy loam—if naturally rich and calcareous, so much the better; old lime rubble one part to five, and bone dust one to ten of the loam. If light and

very poor, marl and well rotted manure may be added, but soils which make good wood without the latter always answer best, as they contain nothing that can become sour or get out of order. It should be used in a dry, rough state, and very firmly rammed into the pots to prevent the possibility of water passing through without entering the old balls.

Fruiting orchard houses.—A most remarkable change having set in within the last few days, 80° in the shade with a cloudless sky, doors and ventilators may be set open to their full extent, and water in abundance through the hose must be spread over the floors and amongst the pots to keep the roots cool and the atmosphere moist. Let all root watering be performed every evening before the trees are syringed, and be guided by the period at which ripe fruit is wanted in shutting up and giving night air. Under any circumstances it is always well to err on the side of safety, as Peaches will now swell and colour to perfection in the open air, while those which are over-forced will be pale and flavourless if they do not ripen up when they ought to be commencing the last swelling. Now is the time to lay on the top-dressing or mulching, as trees in pots will take any amount of liquid food, and constant watering soon carries away not only the essence, but the substance also. As often as this disappears replace it with more from the store shed, and resort to pure water only when the fruit begins to show signs of transparency and a slight aroma is perceived in the house. If the trees in mixed houses are becoming crowded, I would suggest the removal of Cherries, early Plums and Pears to a suitable situation where they can be plunged in the full blaze of the sun in the open air. In a position of this kind they will take more water than would be good for them in a glass structure, as the atmosphere will be constantly drawing on the foliage, but heavy mulchings, which must be moistened with the hose every evening, will keep them clean, cool, and healthy, and the fruit will be perfect in colour and flavour.

Strawberries.

Where a regular system of putting out runners every year is not practised, and old beds are depended upon for stock, the supply for forcing will most likely run short; certainly they will be late, as this dry, hot weather is against old stools, which cannot be expected to perform double duty. A plentiful supply of water is, of course, a great help, but a dripping time is always most favourable to the production of vigorous runners, which root quickly and soon become fit for removal from the parents. Where the old system of layering into 3-inch pots is still in favour, the incessant watering which they will require will dictate the importance of getting them taken off as soon as they are fairly rooted, but why use small pots when much time can be saved and a better stock secured by pegging on the fruiting pots evenly and firmly filled with suitable compost? The transfer of young plants from small to large pots requires a certain amount of skill, as nothing can be more detrimental than loose or strangling potting; but once prepared, handy men or boys can fill the fruiting pots with compost, peg down the runners, and keep them supplied with water. Another advantage which should not be lost sight of is the elevated position, clear of shade, which the 7-inch pot gives over the small one, independently of the fact that a runner which sits on the top of the compost is always furnished with short petioled leaves and firm plump crowns whose colour and appearance give promise of early maturation and successful forcing. Plants in small pots we must have for making new plantations in August, and these can always be secured where Strawberry culture is conducted on the three or, at most, four-year system. The ground for my August planting was broken up two spits deep and manured in June. It is now well pulverised, and will give a successional supply of the finest Cos Lettuce throughout the season. The rows of Lettuce are sown thinly 2 feet 6 inches apart, and thinned to the proper distance when large enough. Deep tilth and manure enable them to set dry seasons at defiance, and they produce a certain amount of moist shade when the Strawberries are turned out between them. These remarks may be considered slightly digressive, but, knowing how difficult it is to keep up a good supply of large, crisp Lettuces in hot, dry seasons, this hint to some may be quite as valuable as a cut-and-dry Strawberry calendar.

Melons.

The weather of late has been all that the most fastidious Melon growers could possibly desire, and the plants in all stages and positions where they can enjoy the full blaze of the sun are making rapid growth and finishing very fine fruit. Where very late fruit is in demand, seeds of suitable varieties may still be sown and the plants grown with every chance of success, always provided they can have plenty of top and bottom heat turned on when the fruit is finishing. Late Melons should always be grown in pots or confined troughs placed immediately above the hot-water pipes for aiding the fermenting material when sharp dry heat becomes necessary. At all other times, especially through the early stages, well-worked Oak leaves, occasionally renovated, will keep the roots progressing, and the moist genial heat which they impart to the atmosphere, aided by early closing, will enable the grower to dispense with fires until the end of August. Melons of late having become so numerous, the choice of varieties adapted to early and late culture is sometimes a difficult matter, the more so as growers who save their own seeds know they cannot keep them true where a number of sorts are tested in the same house or even in the same garden. For many years I depended upon Improved Victory of Bath, a quick grower and a good setter, for my first and last crops, but this is now beaten out of the field in point of earliness, not in quality, by others which I have this season tested by its side. Last season I obtained true stock from Messrs. Veitch of an old friend, Golden Perfection, which I grew more than thirty years ago, and, being much pleased with it, I have again given it a prominent place in all my mixed batches. In my earliest house it was first to ripen, some of the fruits, the colour of virgin gold and beautifully netted, weighing 6 lbs. each, from 12-inch pots plunged in Oak leaves. Highcross Hybrid, a good Melon, but a bad colour, came in a few days later, closely followed by Reading Hero, a very handsome round, slightly flattened Melon in the way of Golden Gem. The netting is, however, broader and heavier, and the plant being a more compact grower and a free setter, its handsome appearance and medium size should secure it a prominent place with market growers. Several plants of these three varieties in my second house having already yielded ripe fruit, whilst Victory of Bath is still green and now netting, I can strongly recommend them for early and late use. For home consumption where quality is the true test of merit, Veitch's Golden Perfection with me carries the palm.

Pits and Frames.

The weather until quite recently has been the reverse of favourable to this mode of culture: indeed, for several years past good crops from frames have been anything but satisfactory. This falling off we now generally attribute to the elements, but it is questionable if a portion of the blame does not rest with the hot-water engineer, who has given us such facilities for the quick growth of Melons from May to December, and Cucumbers all the year round. This advance is a great boon to the majority of fruit growers, who have almost forgotten, if ever they had learned, the art of making up sustaining manure beds, but a few there are who must still plod along in the old groove or give up Melon growing altogether. To these I would say, put in your annual plea for cheap hot water, and if you do not obtain the grant follow up instructions contained in previous papers, and the brilliant weather we are now enjoying will yet lead to success. Do not allow a few fine days to interfere with the slightest detail, but keep up the heat in the linings by renovating the back and front alternately, and mat the lights as soon as the sun leaves them at night. Keep the frames clear of useless spray to give the main leaves and Vines the full benefit of sun-heat and air, fertilise all female flowers until a good set is secured, then pinch at the first leaf beyond the fruit, and be satisfied with fair crops which the plants can carry to maturity. If this fine weather continues, give a little air very early to let out impure gases and superfluous moisture; gradually increase it until a rising thermometer touches 85°. Manipulate and regulate before 4 p.m., and shut up with moisture and sun heat that will run up to 90°. When the fruit has attained the size of hens' eggs, elevate them on inverted pots until they can be seen peeping through the foliage, and feed liberally with diluted liquid by flooding without wetting the collars of the plants or foliage. On non-feeding days syringe freely with water at 80° to 90°, and shut up with full sun heat immediately.

Eastnor Castle, Ledbury. W. Coleman.

Fruit Garden.

GOOD STRAWBERRIES.

Could not someone with plenty of land and time at their disposal get together all the known sorts of Strawberries, whether of English, Continental, or of American origin, and test them thoroughly, especially with regard to the following points:—

1. Vigour or robustness of constitution.
2. Time of flowering, and also time of ripening. This would include also notes as to how the fruit coloured, and whether all the crop ripened equally well, there being a difference in this respect, some kinds ripening all the fruit off of a good size, others leaving a residuum of no particular value.
3. Size, texture, and flavour, these being the most important of all. At present, in many places too much praise is given to mere size. Very often large fruits are soft and flabby and travel badly, the last named point being an important one.

The owner or manager of such a Strawberry garden as this would be would soon become possessed of information that would benefit us all. New varieties might be raised in which the merits of the good old sorts might be blended with the greater size and robustness of constitution that modern kinds possess. Something might also be done to improve our alpine and Hautbois Strawberries.—E. Hobday.

The British Queen.

This would appear to be the most fickle of all known Strawberries, yet so superior is it in point of flavour that all who cultivate Strawberries ought to attempt to bring it to perfection. I have worked in gardens where it proved as profitable as any variety grown, and that, too, without any special treatment; while in the very next situation I held it could not be induced to grow or bear freely, and further experience inclines me to take the same view as "Taunton" does in The Garden (p. 2). In a fertile, deep, loamy soil it ought to thrive, but it does not always do so, and to succeed there would appear to be something special required in almost every garden. For instance, in a Sussex garden in which I was employed only the old plantations of British Queen were at all prolific, and the plants that yielded us most and best fruits were said to be twelve years old. They were kept well thinned out, and received annual rich surfacings of loam and manure, especial care being taken to mould well up to the plants, so as to effectually bury the old stems, which otherwise would soon be-

come exposed to all weathers—a frequent cause of failure with old Strawberry plants of Dr. Hogg and other somewhat weakly growing sorts. Much the same treatment has long been given to Strawberry plantations generally by a friend in Essex, but in this case sewage water is freely distributed among the plants through the winter and spring months, and this would appear to maintain sufficient vigour and to induce the plants to produce some of the finest fruits and heaviest crops in a noted Strawberry-growing district. Liberal treatment of young plants has frequently the effect of causing a heavy growth of foliage, but not much fruit, and those who cannot succeed to their own satisfaction with young plants should try what can be done with them after they have become older and weaker. What at first would appear to be almost incredible is the fact that not only British Queen, but also all other sorts will in some gardens fail completely after the first year, no matter how liberally they may be treated. This proved to be the case in a Middlesex garden of which I had charge for a time. Every season a fresh plantation had to be formed, or no fruit fit to eat would be had. The ground was double dug, care being taken to bring up little or no London clay, which thereabouts was much too near the surface, and after the ground had been well trodden the plants were put out as early in August as possible. Strong layers in pots were planted, and these, being subsequently well attended to, grew to a great size, oftentimes as large as many have them at double the age. Heavy crops of fine fruit were invariably obtained, and are, I believe, to this day under similar conditions, but each time the plants were left to bear a second time nothing but small flavourless fruit was the result. It is the young plantations of British Queen that are also most profitable in the garden now under my charge, and this season the two-year-olds are also particularly well cropped.—W. I., *Somerset.*

Two-year-old Strawberries best.

Strawberries can be grown on nearly any kind of soil, but some kinds need more attention than others. In shallow light soils they require more watering than in deep rich loams, but in any case in order to have very fine fruit thinning must be resorted to, and a good soaking of manure water given two or three times a week. New beds should also be made every two years, two-year-old plants being the best. After that time they begin to deteriorate; the fruits become inferior in quality, and the plants die out here and there. Good fruit may be obtained in one year provided the plants are put out sufficiently early, and the necessary attention is given them in the way of mulching and watering, and keeping them free from weeds. Our earliest Strawberry this season was Dr. Necaisse, which is bearing a good crop and good in flavour. The next was Keen's Seedling, which seems less suited for our ground; it makes too much foliage. Vicomtesse Héricart de Thury does very well, but is rather later than usual. President does well, and is producing a grand crop. Sir Charles Napier does fairly well, but not so well as President. Countess is a Strawberry which I very much admire; it acquires a good useful size, colours well, and is rich in flavour. For forcing, none are better than Keen's Seedling, Vicomtesse Héricart de Thury, and President. Our soil is very harsh and hungry, resting on a clayey subsoil, and in dry weather it cracks badly. The few warm days which we have already had has caused it to crack deeply in places, and so widely that one might nearly get one's foot in the cracks.—W. A. Cook, *Holme Wood.*

Early and Main-crop Strawberries.

Here we only grow four sorts of Strawberries as main-crop varieties, others only being grown in small quantity or on trial. Our first is Black Prince, then come Keen's Seedling, President, and James Veitch. Black Prince is not so much grown as it deserves to be. It is invariably ripe a fortnight before any other variety, and though small compared with President and some others it is an enormous cropper, and in good soils the fruit will average two to the ounce. The colour is deep and rich, and as the flesh is very firm the berries bear transit well. Last year we gathered quantities of it in the open air on June 1, but this season it was not ripe until June 10. As a first crop under glass I know of none to equal it; I prefer it, indeed, to any variety I have tried for forcing. It is the fault of the cultivator, and not that of the sort, if it does not attain a good size and prove in every way satisfactory. Keen's Seedling is a charming Strawberry for home use, but it is too soft when quite ripe to bear transit by rail. It is a second early kind, produces an abundant crop, and invariably attains a good size; its colour, too, and flavour are both good. It forces readily as the days begin to lengthen, and becomes richly flavoured under glass. President is so well known as to require no description, but I consider it inferior in point of flavour to either of the preceding. It bears heavily, and its fruits have always a good appearance. James Veitch is handsomer still, slightly less prolific, and not so high in flavour. It is a robust grower and very hardy. Vicomtesse Héricart de Thury we have discarded, as its fruit never swelled up uniformly, and in flavour only fourth-rate. Dr. Hogg surpasses them all in flavour, but it bears so thinly as to be quite unprofitable. Sir C. Napier, owing to its inferior flavour, we discarded. British Queen has also been discarded, as, although good in flavour, as a rule it is such an uncertain bearer that few would care to grow it extensively. Fortunately, we have just secured our main crop of Strawberries for this year, as the plants are now suffering from drought. In later gardens in Wales than ours three parts of the crop are failing to swell or ripen owing to the drought.—James Muir, *Margam, Glamorganshire.*

PACKING STRAWBERRIES FOR MARKET.

Mr. Coleman's statement that Strawberries for market are gathered before they are quite ripe does not apply to forced fruit. The beauty of a Strawberry lies in that perfect finish and rich colour which distinguish the fruit of the best growers for Covent Garden. This fine appearance is only acquired after the berries are red, so that gathering them then would rob them of much of their market value. Moreover, it too frequently happens that the market grower has no inducement to pick his fruit before it is fully ripe. Holding fruit back a few days will sometimes, especially during May and up to the middle of June, add considerably to its value, as prices about that season are constantly fluctuating. Take this year, for instance; the trade was so bad during the few days preceding and following Whit Monday, that we kept back all the Strawberries we could until the latter end of the week, when better prices were realised. If growers of forced Strawberries did not study to hit the market, but always gathered their fruit as soon as ripe, they would often fail to make the most of it. Packing in layers and wrapping each berry in a leaf is the best mode of packing when small packages of Strawberries have to be sent long distances.

The Strawberry is such a soft fruit that, if loosely packed and subjected to rough treatment, the berries are sure to lose much of their beauty. Market growers, however, in the neighbourhood of London make special arrangements whereby such risks are avoided. At one time we packed according to a system of our own invention. Crates were made of common plasterer's laths and half-inch boards. The latter formed the ends, the laths being nailed to them in the shape of sides and bottoms. Punnets sufficiently deep to allow of the berries to come just below the rim were used; a row of punnets was placed in the bottom and covered with leaves, then two laths were laid along on the top of them; on these another row of punnets was placed, and so on till the crate was filled. Each basket of fruit was enveloped in paper and the crates were made to hold ten pounds. Three laths nailed on the top fixed them in firmly, and stout string made all secure, and formed a handle for carriage. These crates looked rather fragile when filled, but although we have sent nearly half a ton of fruit packed in this way in a season to Covent Garden, only once had we any injured, and that was under exceptional circumstances. We do not pack in this way now, because salesmen said good fruit should not be hidden, as in a measure it was, in the deep baskets which we were obliged to use. We now employ baskets sufficiently shallow to allow the topmost layer of berries to come rather above the rim than below it, and thus the beauty of the fruit is much better seen. The punnets, which are packed in boxes, are not lined with leaves, but two or three are put at the bottom. The boxes are made to contain 12 lb. in half-pound baskets. These are arranged in three layers, the two shelves on which the two top layers are placed resting on pieces of wood nailed on to the inside of the box. Towards the end of each shelf or false bottom there is a hole large enough to put the finger through, and this facilitates removal. On each basket a whole Strawberry leaf with a portion of the stalk attached to it is carelessly laid, and the shelves are so arranged that they gently press on the leaves without crushing or bruising the berries. When the boxes come into the salesman's hands all that he has to do is to take off the lid and remove the leaves, an operation easily and quickly performed, and the fruit is at once exposed to the inspection of the purchaser.

Fruit grown under glass is nearly always put up in half-pound punnets, a size which meets the requirements of the London and suburban fruiterers better than those of large dimensions. The lid is fitted with a narrow piece of wood all round the edge and fits on the box, and a strong cord keeps all firmly in position. The cord is an important item in the arrangement, as it provides an easy means by which the boxes can be lifted carefully. If the lids are nailed or fastened down in some similar way and no cord is used, the box has to be grasped on each side, and is thus often tilted in carrying it to the guard's van at railway stations. At the terminus a porter from the market awaits the arrival of the train, undoes the cord, and examines the top layer of fruit; if any are injured he directs the attention of the authorities thereto, and a claim is made for damages. If the fruit should be spoilt it is left at the terminus, and notice given immediately to the company to that effect. It is, however, rarely that any damage is done; the attendants soon get used to such packages, and where a grower sends a quantity of fruit from a railway station every year his goods are looked for at the proper time, and are carefully used. It is chance packages of fruit to which damage is most likely to occur.

By this system of packing we can gather fifty pounds of Strawberries in a morning, and get them into market as fresh as when gathered by 9 a.m. We begin at break of day, two picking the fruit and one punneting it; we never gather anything but the small fruit over night, and we do not grow much of that. The celerity with which the picking and packing are accomplished depends much upon the quality of the fruit. We endeavour to get ours as large as possible, as the smaller the berries the longer it takes to fill the baskets. A good deal of our

fruit has run this year at the rate of about ten to the half pound, and when one gets berries of this size the work of picking and punneting goes on briskly and pleasantly. Every package should have a label on it, not written, but printed in bold type, and the train by which it has to go should be specified thereon; the date should be added, and the words "to be called for" in a conspicuous position. With little variation the generality of the London Strawberry growers send their fruit to market in the manner here recorded. Byfleet.

PACKING MATERIAL.

It takes a long time to perfect a crop of any kind of fruit, and therefore when sent to a distance it ought always to be carefully packed. Moss as a packing material for Peaches, Nectarines, and Grapes is in great favour with many fruit packers, and where it can be procured, no cheaper material can be had, but I am not so much pleased with it as some of my friends are. Unless it is both soft and springy it is liable to bruise Peaches, especially when these are fully ripe. A well ripened fruit suitable for eating directly it is received is most tender; even its weight alone, if merely wrapped in tissue paper resting on Moss, is almost certain to injure its base. If Moss must be principally used it should not be in a stinted way; instead of placing the fruit on a shallow bed of it the box should be filled with it, and holes formed in it with the hand for the fruit. In this way the surrounding Moss partially supports the weight of the fruit, and bruising it at the base is thereby prevented. As neither market salesmen nor fruiterers care to receive very ripe fruits, these both travelling and keeping badly, consigners should gather such fruits before they are soft, and these may safely be wrapped in tissue paper and packed firmly in Moss. But for immediate use the fruit must be nearly or quite ripe when packed, and for safe carriage we prefer for packing cotton wool to Moss. This we pull into strips, which when folded skin side outwards are rather wider than the fruits are in depth. Each fruit is first wrapped in tissue paper and then the strips of wool are bound somewhat firmly round them. They are then closely packed together, the wool keeping their bases just clear of the bottom of the box, and unless extra deep the lid shuts down tightly on the material without touching the fruits. In this manner the latter are kept quite clear of any hard substance, and, unless very roughly treated indeed, will travel without a bruise. All cannot have boxes made specially for any kind of fruit, and if those employed are too deep, a bed of Moss, or other springy material, may be placed in the bottom and a strip of cotton wool laid on the top, the lid closing down tightly on to this. Nectarines are usually packed similarly to Peaches, but in shallower boxes. Nothing in the shape of divisions for each fruit is advisable, either for these or any other kind of fruits. We have a large number of tin boxes of various sizes and for all kinds of fruit. They are divided according to the size of the respective fruits to be packed, but we find that they are of little use. They are cumbersome and awkward to pack in, and we found that the fruit travelled indifferently in them. Clean deal boxes are best, these being light, yet sufficiently strong, notably the lid, to bear rather rough usage. Plenty of such boxes, suitable for holding a single layer of fruits, whether these be Peaches, Nectarines, Apricots, Figs, Strawberries, or Cherries, can usually be bought from grocers and confectioners. Care, however, should be taken not to use soap boxes, as the scent from these might affect the flavour of the fruit, especially that of Strawberries. We prefer good home-made boxes for sending fruit to the town house, but these are too good for market use, or for sending fruit in as presents to people, who rarely return the boxes. Figs travel badly in spite of careful packing. They should not be over-ripe, or they will be found to be partially rotten on arriving at their destination. We wrap each Fig in a square of soft tissue paper, afterwards in a strip of cotton wool, and they are then laid in thickly in a shallow box.

Strawberries travel better than might be expected, but they pay for being carefully packed. We always send them in single layer, each fruit being enclosed in either a limp Strawberry leaf or a Kidney Bean leaf and packed closely together. They rest on a thin layer of either cotton wool or soft dry grass; over them are placed a few Grape leaves picked from an open wall, finishing off with a strip of cotton wool. The fruits ought to be gathered when quite cool or early in the morning in order to insure freshness, without which their value is diminished. Those gathered in open fields for market are placed direct in the punnets, a few of the best fruits being reserved for the top. The punnets in their turn are packed in airy boxes, either in one or two layers according to the value of the fruit, and in this state are sent hundreds of miles in fairly good condition. I recently saw large quantities thus packed travelling from Saltash to Glasgow, a great distance to send Strawberries; later on the Scotch growers will supply the southern markets. From another south-western district Strawberries are now being sent northward, packed in small cross-handled baskets in which the fruit is well papered over, the baskets being slung in sixes on strong stakes. Another way is packing the fruit in large deep punnets, which are firmly fixed in a large flat lidless basket furnished with a cross handle for convenience of lifting. Railway officials know what these packages contain, and on the whole handle them with as much care as time will permit. For packing Pine-apples, Melons, Tomatoes, Pears, and Apples, paper shavings are most suitable and much cheaper than cotton wool, and the best substitute for either shavings or Moss is short well-dried lawn Grass. That from the mowing machine is usually too dirty; we get ours from banks which are mowed with scythes and not so often as the lawns. If this is well dried it can be stored away in quantity and will be found both soft and springy, surpassing all but the very best Moss. It has the merit of being within the reach of all, whereas Moss cannot be procured in many places. The choicest fruits are first wrapped in squares of tissue paper and then firmly bedded among the Grass in one or more layers, the box being then well filled with smaller fruits, as it is imperative that the lid should close down tightly.

Cut flowers travel badly during hot weather, especially if cut in the daytime and packed in masses. In a few hours they will have heated badly, and when unpacked are quite useless. They ought either to be cut over-night and placed in water, or early while yet cool and laden with dew, and then, if packed closely in a single layer, or at the most in two layers and divided with paper, no room being left between the flowers and the lid, they will usually reach their destination in good condition. Roses, if cut when only about half expanded, can be packed very closely together, and will travel well either by post or rail. Not much packing material is required for these or other fairly robust flowers, and on no account should cotton wool come into contact with them. Last spring I had sent to me a large box of button-hole bouquets to be sold at a bazaar, but instead of these being taken out of the box when received over-night, it was thought they would keep better undisturbed, the consequence being the ruin of the flowers, causing a loss of about £5. Cotton wool was the packing material used, and this robbed the flowers of what little moisture they contained. If it must be used, and it is a difficult matter to pack Eucharises, Stephanotises, and other choice white flowers without it, the stems should rest on damped portions, and in most instances a sheet of tissue paper should be placed between it and the flowers. For Roses and similar flowers we prefer Spinach leaves placed above and below each layer of Roses. If Spinach is scarce, Lettuce leaves with crushed stalks are substituted, either kind serving to preserve the freshness of the flowers. Cardboard boxes are frequently sent by post, but they are not the cheapest or best, simply because they are oftener crushed than light wooden or tin boxes. Moistened flowers or soft fruit, such as Strawberries, are apt to saturate the sides or bottoms of these boxes, and this soon ends in a collapse. I have frequently sent fruit, flowers, and plants by post, and they usually arrive at their destination safely, but then the boxes are always strong enough to stand a fair amount of pressure, will not be softened by moisture from the inside or outside, sufficient packing material is used to keep the contents firm and steady, and the address is always plain, and to a certain extent indestructible. Many seem to think that boxes to be sent either by rail or post will always be kept upright, and pack accordingly; whereas they are often wrong way upwards, or on their ends or sides. A box properly packed may be carried in any position without injuring its contents. W. I.

CROPPING VINES.

Allow me to say a word or two on this subject. Rules have often been laid down on this point, but they are not often applicable to particular cases, for the Vine varies much in its behaviour under different circumstances as regards culture, soil, and situation. I should say no general rule can be laid down for the weight of fruit allowable to the rod, and experience shows that the quantity of crops that may be carried to a good finish can only be ascertained after the capabilities of Vines have been proved. Both strong and weak Vines will ripen Grapes of equal quality as regards colour and flavour if cropped proportionately. Some of the finest coloured Grapes which I have ever seen were all borne by two Vines which filled a small house, all the bunches being perfectly black, well finished, and well flavoured, and the crop good for the Vines, which were weak, the leaves small, but healthy, and retained quite green till the fruit was ripe. The late Mr. Robert Thompson said that some cultivators could grow good Grapes occasionally, but all of them could not grow good leaves—and there is more in this than appears at first sight. I would be disposed to give the following general advice on this point, viz.: grow good leaves on your Vines, and keep them on year after year till they fall naturally, and the crop of fruit, if estimated by the general vigour of the plant, will be sure to be good for many years in succession. I have noticed this in instances well worthy of record. How to take care of the foliage of Vines grown under glass is, however, the rub. Some Vines endure forcing and indoor culture much better than others, but there can be no doubt of the fact, I think, that cultivation under glass is exhaustive to all. All the conditions tend to weaken the vitality of the plant—hot-water pipes, exhaustive evaporation from the leaves at night when they ought to be at rest and covered by dew, and, above all, sudden transitions from dull weather to sunshine, through glass, in a still atmosphere, which exerts a destructive effect upon the tissues. I do not think gardeners ever accurately estimate the effects of these matters. Of course, they understand the necessity of shading, syringing, and damping, &c., but I am speaking of the actual effects produced by the above-mentioned conditions while they last, and which no after-treatment can altogether counteract. The thermometer gives one but a faint idea of the actual conditions in a hothouse. The plants themselves tell us, but it is by the signs of suffering they exhibit, as a rule, after the mischief is done. I was looking, the other day, at some Vine foliage that had been actually burnt up during a blink of fierce sunshine, but did not show it till the following day, when a broad, brown margin round each leaf, as dry and crumpled as a piece of tinder, showed how excessive evaporation had been. My idea is that, although shadings are very apt to be abused, they should be used far oftener than they are. Some cultivators would ridicule the idea of shading Vines, Peaches, or Melons, &c., but such ridicule shows ignorance. The foliage and flowers of none of these are in a condition to stand fierce sunshine, even for half an hour, through glass in

an artificially heated house during May and June, after a spell of dull cold weather during which the leaves have been expanding their thin tissues under a forcing temperature. Hence it is that one so often sees burnt or brown foliage, red spider, and poor or ill-finished crops. The cause is the partial paralysation of the growing functions of the plant. The difficulty with shadings is that they are not graduated sufficiently in texture to suit plants, and are so expensive and troublesome to use, otherwise it would be a good plan to have them on all houses and pits, if only the gardener would learn to use them judiciously. S. W.

SETTING GRAPES WITH THE SYRINGE.

This is doubtless a good way of distributing the pollen of shy-setting Grapes, but is "T. B." (p. 3) not slightly in error with regard to its efficacy in the case of Alnwick Seedling? According to my experience, this variety sets very indifferently when operated on with the syringe alone; in fact, the plan may be said to be a complete failure. Unless the tiny globules of viscid matter are removed from the points of the embryo berries, no amount of pollen will effect a good set, and if we syringe with sufficient force to dislodge them we also wash away every particle of pollen. True, we might substitute foreign pollen, but then the very simplicity of syringe-setting is at once done away with. It is the hand-set bunches that are the most perfect, and we now set them in no other way. We find the blooms to open very irregularly, and therefore have no fixed time for setting, but simply pass the hand lightly over the bunches two or three times a day, or when we notice a considerable number of glistening drops developed. The hand both removes these and distributes the pollen, and this, it should be added, is as potent as that produced by any other Grape. Will "T. B.," or any other reader of The Garden, mention where a good crop of syringe-set Alnwick Seedling is to be seen? There is no disputing the fact that other varieties, notably the Muscat of Alexandria, may be most evenly set by means of the syringe, and even the Black Hamburgh, Alicante, and Madresfield Court will have, other conditions being favourable, more perfectly stoned, and therefore larger, berries than they would have if not syringed when in bloom. At the same time we must not overlook the fact that the syringe is only one important factor in the production of a crop of perfect Grapes, as what may apparently be a good set may yet prove most disappointing. Much depends upon the vigour of the Vines and the composition of the border. Even the very quality of the loam has much to do with the formation first of plenty of good bunches, and subsequently properly stoned berries. We may try all sorts of methods of effecting a good set and yet fail, simply because the Vines are in a weakly state or are too crowded. Strong, well-formed blooms from which clouds of pollen escape are most essential to a good set, and where this is secured a sharp tap on the laterals is frequently all that is necessary. The bunches of Muscats in a crowded house are certain to be much drawn and thinly set, and consequently the rods ought at least to be 4 feet apart, and the laterals not less than 12 inches apart on each side. About half these distances are allowed in many vineries—why I fail to see, as it is possible to grow a much more valuable crop when each rod is given its proper space. In our vineries we have numbers of well set bunches and numbers that are thinly set all under precisely the same treatment. In the former case the Vines are in good order at the roots, while the others are not, and will not be cropped again. "T. B." doubtless knows that various agencies are at work in the production of good examples of shy-setting Grapes, but at present he evidently prefers giving much of the credit to the use of the syringe.—W. I. M.

—— I have proved over and over again that Grapes may be well set by means of the syringe—better, indeed, I think than by the old camel's-hair brush or rabbit's tail which some use. I have set Hamburghs, Muscats, Madresfield Court, Alicante, Muscat Champion, Barbarossa, Lady Downes, and Gros Colmar with the syringe, and with good results in each case. Let those who are afraid to use the syringe just try it upon half-a-dozen bunches and mark the result.—W. A. Cook.

RENOVATING OLD TREES.

In very old trees restorative measures often fail to produce any lasting improvement. But in the case of trees that are still comparatively young, and which may be suffering from neglect of some kind, and are not deficient in vitality, renovating measures are often attended with most satisfactory results. It takes time, however, and patience must be exercised. What has been going wrong, maybe for years, will require a proportionately long period to be put right again, but the progress of improvement will be more rapid every year. This is owing to the peculiarities of tree growth. Improvement always, of course, takes the shape of better growth, healthy foliage, and stronger wood. These in turn deposit fresh layers of tissue, which promote a more active circulation of the juices every season, the effects of which are observable in the more rapid distension of the trunk and limbs, and a proportionate increase in the roots, till, in time, the tree grows out of its debility and recovers. Old fruit trees are oftener operated upon in this way than other subjects, and there are few gardeners who are not familiar with examples of old or feeble Vines or Peaches, &c., that have, so to speak, been made to renew their youth in the course of a few years. Feeble-growing and unhealthy trees are, as a rule, the result of starvation, bad soil, or unfavourable conditions of the atmosphere, climatic or otherwise. When a tree dies from old age the signs are plain enough, and very little can be done to help it, except taking great care of the scant foliage it puts forth each year, and encouraging young growth by every means to sustain the flickering vitality; but in other cases the same signs are observable in young trees, the causes of which may be found and removed. One of the surest signs of debility is the pushing of adventitious growths from the trunk and main branches, and the dying off year by year of the twiggy terminal shoots. The sap does not circulate freely to the extremities, but chiefly about the trunk, putting out a feeble growth on those parts, which grow stronger the nearer they approach the root. Old Laurels often afford very good examples of this. When the tree is healthy the top is luxuriant: when it is weak or old the top dies, or makes little or no growth, and small shoots sprout out all over the trunk. Very often, when such bushes are cut over, they push from the base and do well, and if aided by a good soil put to the roots the result will be all the more satisfactory. In fact, renovating measures may be said to consist in the judicious removal of the feeble decaying tops and branches, and encouraging fresh root action. The trees should be pruned rather late in the spring, when growth is about commencing, and only the really diseased or dead portions should be cut away. This having been done, the roots should be examined, and, if there be reason to suppose that water stagnates about them, the site should be drained thoroughly. In such a case, that of itself will effect a cure. We remember once a case of several young trees that were mysteriously dying off year after year at the extremities of their shoots, a wet soil not being suspected as the cause, because the whole ground had been drained years before. The accidental digging of a pit near where they grew, however, revealed the water standing within 15 inches of the surface, owing to the main drain having been choked up. We need not say the obstruction was removed, and the soil and trees both presented a better appearance afterwards. But it is not so often that want of drainage is the cause of trees dying. In thin indifferent soils the cause is simply want of sufficient nourishment and drought—both bad in themselves; and the cure is a good layer of fresh soil, common manure, leaf mould, and the like laid over the roots, and thorough watering during the summer whenever the ground is the least dry. Only those acquainted with such matters know how dry the soil becomes where the roots of trees abound, and it takes much water to soak it afterwards. The fresh soil and the water will work wonders. The effects will not be very apparent the first season, unless it be in the production of numerous buds and small growths from the older wood; but the next year and years following the progress will be very marked, till the tree quite fills up with young healthy growth again. This is observable in the case of all Evergreens, but especially in Yews, Hollies, and Rhododendrons, &c. Conifers, too, reciprocate such generous treatment, but they must not be allowed to go too far, as it would then be almost as well to plant fresh trees.

At the present time, or perhaps next summer, we need not be surprised to see many trees showing signs of debility, because the soil got too dry last year, and in many places has not yet had sufficient rain to soak it thoroughly. Consequently, unless the rainfall of the coming months is sufficient, deep rooting trees will suffer, not only from drought, but from want of food, because without water the roots cannot avail themselves of the food that is in the soil. We have frequently noticed trees that have shown the first signs of decay the season after a long drought, as in 1868, which was succeeded by dry seasons. For want of sufficient moisture, a tree may starve with its roots in the midst of plenty. No plant affords a more striking example of the effects of renovating measures than the Vine. Old plants that have become bark-bound will, after being lifted at the root and allowed more development at the top, rend their old bark in all directions, and swell up to twice the thickness they were before, and that in two or three years—the leaves and crops augmenting proportionately. We have seen feeble old Vines eighty years old quite restored in this way, and produce fine young wood of greater girth than the old stems, and bear remarkably fine fruit that took prizes at exhibitions. J. S.

Diseased Strawberries.—I shall be much obliged if you can enlighten me as to the constant failure of Strawberries in my garden. My neighbours can grow them, but for years and under every treatment our crop always fails. The ground is clay, and grows other fruits and vegetables to perfection. The plants flower well, and generally fruit well, when, just before the fruits get ripe, they die off like the three samples sent herewith.—E. V. D., *Romsey*.

*** The Strawberry fruits sent are attacked by a fungus named Gloeosporium lœticolor, common on Melons and various succulent fruits and vegetables. The ordinary mildew of Strawberries is Oidium Balsami, common on Sainfoin, Turnip foliage, &c. It is remarkable that whilst your neighbours grow Strawberries successfully yours always fail. Possibly in your garden the fungus is well established on other plants besides Strawberries. Gloeosporium, which is probably an imperfect state of some other fungus, is extremely common this year. It should be burnt wherever seen. Why do correspondents pack succulent objects like Strawberries in wool? It is very easy to wrap them in wool, but extremely difficult to get them out. The wool fibres add greatly to the difficulty of a microscopical examination, without which no answer can be given.—W. G. S.

Vines (*G. C.*).—It is impossible for us to say why some of your canes die at the ends and then push out a lateral, "which grows away well," especially as you say the Vines are "perfectly healthy," and carry a "fair crop." There must be something amiss in the mode of culture, but not being on the spot to see, we cannot say what.—W. G. S.

Cold Peach house.—I am building a cold Peach house, and should much like the opinion of some of your readers as to planting it. It will be 18 feet wide, the back wall will be 11 feet high, and the house will be 38 feet long, with a high glass front. I should grow Tea Roses on the back wall (at least at first), so I should not let the Peaches go to the top of the glass. I intend to have a border all round and a bed in the centre. Could I not plant two rows of trees—low dwarfs against the glass front and the second high standards?—H. W.

Garden Destroyers.

CROP-DESTROYING INSECTS.

Another annual report on injurious insects has recently been published by Miss Ormerod containing the reports of various observations made last year. This is the ninth annual report, and it is quite as interesting and full of information as any of its predecessors. It is not quite so large as that published last year; but that dealt very fully with two noted pests, the Hop aphis and the warble fly; to the latter, however, is devoted several pages of the present report; twenty-five different insects are reported on, no less than nineteen were not reported on last year, and nine have not hitherto been noticed in these reports. In the preface Miss Ormerod says: "The chief features of the insect attacks of the past season have been the great amount of aphides or plant lice which swarmed on most crops in consequence of the long drought being favourable to their increase.' Surface caterpillars also were unusually destructive throughout the autumn, and but for the snow, which in melting brings wet alternately with frost to bear on them (a state of things especially destructive to them), a further visitation was to be expected this spring. Some kinds of injurious crop insects not previously mentioned in these reports have been brought forward, and amongst various notes of habits, means of prevention, &c., which have been reported, I wish particularly to draw attention to the observations at p. 21 on absence of injury from daddy-longleg grubs where the land was thoroughly trampled by animals. The observations of each year show more and more the importance of autumn—measures to destroy in embryo the pests that, if left alone, raise (as a regularly recurring loss and trouble) the various attacks which devastate crops sown after broken up pasture." She also alludes to the rearrangement of the cases of injurious insects at the South Kensington Museum, "which is now in progress, and promises to be of practical service. The insects exhibited are for the most part those which are serious in their ravages, and as far as possible they are shown in their various stages, either by specimens, models, or drawings associated with samples of the injury done by them. The plan now followed of placing the various kinds of insects which attack any individual crop (or kind of fruit, &c.), together with the name of the crop or fruit in plain letters at the top of each case, removes all difficulties as to reference. An inquirer has only to look for the word Apple, Cabbage, Oak, or whatever it may be, at the top of the case, and then may see, or rather will be able to see, when the cases are duly placed, the common kinds of attack, and if he has brought a specimen with him, to name it by comparison." This method of arranging an economic entomological collection I cannot consider a good one. Many insects attack several kinds of plants, and if the specimens, drawings, &c., are given over and over again under each plant which the insect attacks, much expense and a much larger amount of space would be required. There are other disadvantages, too, which cannot now be discussed.

The Bean aphis appears to have been very abundant last year. The Beans seem to have fared best on land which had been previously dressed with gaslime. The difficulty of knowing when and how much gaslime to apply is mentioned, and the following extract from a pamphlet by Dr. Voelcker, which is of considerable interest, is quoted: "With regard to the quantity of gaslime that ought to be put on the land no general rule can be laid down, for the quantity should be regulated by the relative deficiency in calcareous constitutents which different soils exhibit. Speaking generally, however, two tons may be used with safety, and in many instances a heavier dressing will not be amiss. The proper time for application is autumn, or during the winter months when vegetation is at a standstill. On arable land gaslime should be applied to the stubble spread out evenly, and left exposed before ploughing up for three or four weeks; on grass land it should be spread during the months of December or January, or, at any rate, before vegetation is making a fresh start." The next insect which calls for comment is the small or garden swift moth, or, as it is perhaps better known, the common swift moth (Hepialus lupulinus), the grubs of which are no doubt very injurious to the roots of many kinds of plants. Parsnips, Lettuces, Potatoes, Celery, Beans, and Strawberry plants are mentioned. The corn aphis (Siphonophora granaria) seems to have been particularly severe in its attacks; no means at present are known for preserving our corn crops from this insect. The leather-jackets (the grubs of the daddy-longlegs), as usual, were very troublesome. Turning cattle into fields in the autumn as much as possible seems a practicable way of dealing with this pest. A correspondent gives his experience, which is very favourable to this plan. Eating the Grass down short and the trampling of the cattle are apparently most useful in destroying the eggs of this insect, and the shelter which long Grass gives to them, it is also mentioned as a corroborative fact "that the hindland never suffers to the same extent from the fact that it is closer grazed and more trodden in shelter of the fences." Some experiments are quoted which Miss Ormerod instituted to ascertain what effect rape cake had on wireworms. Many persons assert that they will feed on it until they burst, and this fable is again and again brought forward every now and then. These experiments show that the wireworms which had access to the cake were remarkably healthy, and were even longer than usual before they underwent their change to chrysalides (a very far from desirable result). The rape cake undoubtedly draws the wireworms from Oats, for in these experiments two boxes of Oat plants treated exactly in the same way, except that one only had pieces of rape cake in it, fared very differently; in the one in which there was no cake the oats suffered considerably; in the other they were hardly touched. The black Currant gall mite is reported on for the first time. This ery minute creature is the cause of much injury to the bushes which it attacks; it infests the buds and sucks the juices of the young leaves; the buds swell and sometimes open to a certain extent, but the leaves never come to perfection. This pest is usually well established on the bushes before its presence is noticed, for if only a few buds fail to open in the usual manner no suspicion is aroused, and it is not until so many prove abortive that attention is called to the state of the bushes that persons are aware of the attack. In the spring, when the buds are opening, if any fail to do so and become rounded and swollen, they should be at once picked off and burnt, as it is pretty certain that they contain this mite. Close pruning is a good remedy, and certain insecticides are useful, full particulars for the uses of which are given. Another kind of mite is also reported on, but, in this instance, it is a member of a family which is decidedly beneficial; it has been found feeding on the Hop aphides. These mites are small red creatures belonging to the harvest mites, or Trombidiidæ, and should be encouraged in every way. One disadvantage in washing Hops is that the washes which kill the aphides also kill these and other beneficial insects at the same time. It does not appear quite certain to what species the Mangold aphis belong, whether it is the same as the Cabbage aphis, or Bean aphis, or some other species; however, this is of no great moment, except that if all the plants on which a certain species feeds was known, it would be easier to devise means for its destruction.

Miss Ormerod here gives the recipe for an excellent wash for destroying aphides. She would have done better if she had given this and the remarks about gaslime under a heading of "Recipes" or "Remedies," for as placed at present they are not easy to find unless the index is consulted. Millipedes appear to be a pest which is increasing in numbers; little can be done to destroy them after the attack has begun. In gardens they may be trapped by burying slices of vegetables near the plants infested; but in fields this is impossible, and watering with brine seems the best remedy, but much must depend on the nature of the crop, soil, &c. A curious circumstance is reported concerning these creatures: they were noticed in large numbers on a turnpike road, apparently travelling across from a field of Oats towards a piece of pasture land. The night feeding ground beetle (Steropus madidus) is a very common insect, which has hitherto had an untarnished reputation. Curtis, in his well known work on "Farm Insects," speaks of it as decidedly beneficial, and shows most conclusively that it eats wireworms; in fact the whole formation of the insect, its powerful jaws, and rapid movements point to its being a carnivorous insect. Miss Ormerod's correspondent, however, seems to have caught them in the act of attacking Mangold roots in the early morning; in one instance three beetles were found at one root. The injuries to these Mangolds were somewhat peculiar, and had obviously been caused by some insect with powerful jaws; this insect, however, may have only taken to a vegetarian diet from lack of other food. Whatever benefits may arise to the human race by the adoption of vegetarianism, its most ardent apostle would hardly urge its adoption by carnivorous insects. The well known beetle, the black Vine weevil, which is often such a pest in vineries and greenhouses, now stands convicted of attacking Mangolds, and it is suggested that this insect and millipedes are often carried on to the ground in manure heaps.

The common sparrows come in for general abuse from all quarters; not only are they shown to seriously injure certain crops, but to drive away useful birds such as swallows, martens, &c. The American Ornithologists Union has come to the same conclusion as the majority of English agriculturists, that sparrows do more harm than good. Nine of the North American States have laws for the preservation of small birds, but in two the sparrow has lately been exempted; and in another (New Jersey) it is proposed to offer a "bounty per head for sparrows destroyed." If these reports teach one general principle more than another, it is that now-a-days every care should be taken to examine crops frequently, and at once take steps to combat the enemy if any insects are found injuring them. G. S. S.

SHORT NOTE—GARDEN DESTROYERS.

Potato insects (*J. Harris*).—The creatures attacking your Potatoes are the London snake millipedes (Julus londinensis). They are difficult to get rid of. Few insecticides will reach them in sufficient strength to injure them. Watering with a brine of salt and water has been recommended; and a heavy dressing of salt applied to land which is infested in the winter would be very useful, particularly if it was put in after the ground had been slightly broken up. Manures should be examined before it is spread on the land, and if it contains any of these pests it should be treated with gaslime, or salt.—G. S. S.

Slugs.—"T. P. N." recommends trapping slugs with bran, and then sallying out at about 10 p.m., scissors in hand, and executing the captives. A much simpler plan is to use grains from the brewers', scattered lightly in small heaps, and covered over with bits of slate or board. Next morning the slugs will be found quietly reposing under the coverings, and by means of a bit of stick and a pan of salt and water they may be consigned to instant death. A few years ago, when I held my garden as joint tenant with innumerable slugs, as many as fifty or sixty were often found under one bit of slate. One year the gardener kept a reckoning of the numbers captured as far as 40,000, when he ceased counting. The following year there was a perceptible falling off in the supply, and by persevering the pest has been reduced to a mere trifling nuisance. Snails are more easily dealt with than slugs, and can be caught readily on damp evenings or after a slight shower; and the thrushes and blackbirds, whose presence I encourage by giving them a pan of water for drinking and bathing throughout the year, and more substantial refreshment in winter, spend a good deal of their spare time in hunting snails. I have not much faith in quicklime. It is doubtless destructive if it hits the right place in sufficient quantity. One evening, when I found slugs swarming on the lawn, I dusted a certain space with lime and sprinkled another plot with fine salt. Next morning the salted ground was dotted over with the slimy remains of the victims, but there was no vestige of slug where the lime had been sprinkled. I have no doubt they are able to purge themselves of moderate doses of lime, but salt is instantaneously destructive, only it may destroy plants also, and must be used carefully.—G. H. W.

Cabbage grub (*B. W. H.*).—Your Cabbages are attacked by the grubs of a small fly, doubtless Anthomyia radicum, but without seeing the perfect insect it is impossible to be quite sure of the species. This insect has a most unfortunate English name by which it is known by some authors, the root-eating fly; now, the fly itself does not eat roots. However, it should be known as the Cabbage fly, as it is nearly the same as the Cabbage fly (Anthomyia brassicæ). Lime water has been recommended as a remedy. Soak hot lime in water for twenty-four hours, and water with the clear fluid. Remove and burn all plants which are very badly attacked, taking care not to leave any grubs in the ground. A proper rotation of crops would greatly tend to lessen the numbers of this and many other insects.—G. S. S.

Indoor Garden.

PARIS DAISIES IN SMALL POTS.

It is a mistake to shift Paris Daisies on too quickly into large pots, as they will bloom, I find, very freely in 4½-inch and 6-inch pots if well watered and fed during the time they are in flower. For early spring decoration the large-flowered white and the yellow Etoile d'Or are invaluable, but in order to have them in good condition at that time preparation should begin at once. If cuttings are put in now and the young plants are grown along freely they will become fair-sized specimens by the end of the autumn, for Paris Daisies continue to grow until the days get very short. The best results are, however, obtained from cuttings struck in May, and it is just at that time that the wood is most succulent; a month or two later there is some difficulty in obtaining cuttings in proper condition, the tendency of Paris Daisies being then to make short, wiry, bloom-producing shoots. All flower-buds should be picked off until the middle or latter end of September. If the white kinds are required to bloom through the winter they should get a little warmth, but the yellow one will flower quite freely in a cool house. During winter only water should be given, but as soon as the power of the sun stimulates flower production, frequent doses of weak liquid manure should be given, and in hot weather, such as frequently occurs in April and May, the plants should be looked to twice or three times a day according to the position which they occupy. This is essential when Paris Daisies are grown in small pots, as if the soil remains dry only for an hour or two each day the continuous growth of the plant is in a measure stopped, and the blooms come small and often deformed. The fine examples of Paris Daisies seen in Covent Garden are grown in this way. In hot weather they are gone over and watered with weak guano water every hour in the day from the time the sun comes on them till it goes off them in the afternoon. On such plants the blooms are often quite 4 inches across. I have grown Paris Daisies in 4½-inch pots much to my satisfaction, however, by an easier method. I stood the pots when they became root-bound in pans, and by filling the latter up with water in the morning the plants were carried through the heat of the day without further attention. J. C. B.

Lilium davuricum.—The numerous varieties of this Lily frequently cultivated under the name of L. umbellatum are now in bloom, and a goodly show they make; some of the so-called varieties are, however, too much alike, and, moreover, the Dutch growers through whom they are imported into this country every season in considerable numbers do not agree among themselves as to nomenclature. For instance, the short-leaved, upright-flowered variety usually grown as erectum at times does duty for incomparabile. The latter when true is a fine dark velvety-flowered variety, but it seems to be getting scarce. Under whatever name, however, these Lilies may be grown they are most useful, not only when planted in the open ground, but also when grown in pots, and employed for the embellishment of the greenhouse or conservatory. The treatment which we give them is as follows: In autumn we lift some of the clumps of established bulbs and select the best for potting; the others we plant again to furnish a supply at some future time. The bulbs retained are then potted in fairly good soil, enriched with cow manure; they are placed in a well-drained situation, and covered with coal ashes, under which they pass the winter. In spring before growth re-commences the ashes are removed, and the pots being by this time full of roots, young shoots soon begin to come up; they are then plunged in a bed of Cocoa-nut refuse, in which they remain till they flower. The only attention needed during that time is to water them when necessary; they are not troubled with aphides in the way in which some Lilies (auratum and longiflorum, for example) are. A little manure water given as the pots get full of roots will benefit them. A large bulb or three small ones in a 5-inch pot form serviceable little plants, while if desired large clumps or masses can be made by putting several together in a good-sized pot or pan. A selection embracing the most distinct varieties should consist of grandiflorum, bright orange; erectum, a sturdy variety with short leaves and erect brightly coloured cup-shaped flowers; Sappho, a rich brightly tinted variety of dwarf habit; and incomparabile, already alluded to. These constitute the most select of those that I have tried, but, as above stated, their nomenclature is in a very confused state.—Alpha.

SHORT NOTES—INDOOR.

Boiler trials at Liverpool.—I am not inclined to place much faith in these. The piping was erected in the open air; the majority of the pipes were varnished and glistened in the sun, which at mid-day, and indeed during the greater part of the day, was very hot. This in itself would interfere with the genuine work done by any boiler. The open air does not appear to be the proper place in which to test boilers, especially at midsummer.—Cambrian.

Asparagus procumbens (*M. S.*).—This usually loses its stems annually. Cut off all the dying stems from your plant, top-dress with some good soil, water well, and strong healthy new shoots ought to soon show themselves. The species requires a cool greenhouse and plenty of root-room; planted out it always does well.—B.

CONSTRUCTION OF CHEAP GLASSHOUSES.

Economy in the construction of these houses is the order of the day, and probably at no time have prices been so low, and, it may be added, in numerous instances, the wood and workmanship so inferior. Timber is cheap, however, and has been for some time, so that there is less excuse for either the builder or the owner putting up houses with wood of inferior quality. If the wood used is not sound to begin with, much trouble and disappointment will result in a few years. It is a serious matter when a glass structure begins to give way at its knees at all points, and it becomes a question of rebuilding or repairing on an extensive scale. I lately saw a range of fruit houses, fifteen years built, that were all in this condition, and in order to keep them upon their feet the proprietor is now tying the joists together with iron cramps. It is not a question of paint, as some builders insist, but sound timber. Regular painting is of much importance, no doubt, but the quality of the wood is the first consideration. We have old houses standing sound in the rafters, and even in the slender astragals that hold the glass, that will see our new houses ended, although the former have been up eighty years and the latter less than twenty. The difference between the two is due solely to the quality of the wood, which in both cases is red deal, but of very different quality. For the rafters of glasshouses not an inch of "sap" wood or outside wood of the tree should be used, and it is easily detected by its colour and texture, which are white and soft, incipient decay being quite often visible at the edges of the planks in the black streaky fibre. None of this should be used. It is specially important that all the main bearers be sound, and also other portions where any morticing has to be done. Above all, pass no timber that has received the "first coat of paint," which hides most deficiencies, and is usually put on before the timber leaves the works. We have on occasion taken up bar after bar of shelvings in this state, and broken them over the knee, to find the wood of the worst description, and actually so black that the colour shone through the paint.

So much for the quality of the materials, and now for cheapness in the planning. Now-a-days, in houses for the culture of plants and flowers, masonry is dispensed with as far as practicable. The great point is to admit as much light as possible, and this means glass instead of brickwork. Except where there is a back wall, there is really hardly any need for masonry, unless it be in the pillars that support the house, and these are, or should be, out of sight. Dispense with stone paths, curbs, and pillars wherever possible, which only take space that can be better employed. Have few angles, gutters, and gables, and contrive to have the houses all joined to each other for the sake of appearance, convenience, and economy in heating them. A glasshouse with a cold outer end or gable will consume more coal than one which has its ends abutting on other houses, just as inner rooms in dwelling houses are warmer than those having outer walls. As to heating itself, that should be schemed to save needless junctions, valves, and pipes, which increase the cost immensely. The simpler the plan the better. The use of pipes is to heat the air of the house uniformly, to do which they must be distributed in rows over the floor in such a manner as not to interfere with the paths, doorways, or borders. Have the boiler near its work, and as few pipes under ground and in inaccessible positions as possible, and so save a hundred per cent. when repairs become necessary. In glazing the roof, use good broad and long panes, but no outside putty. The warmest roofs are still those in which the glass is bedded in putty, because they keep the cold winds out; but there is no need for putty outside, only one copper sprig on each side at the top and bottom of each pane. Lastly, it is not necessary to use heavy rafters for any sort of glasshouse. He who does such work by contract will not recommend them; but he who does the work by the day, and by measure and value, may. The bearers must be strong enough for their

place, but staying by means of iron rods has now superseded iron posts, pillars, and heavy rafters, thus leaving more space inside, and rendering the house lighter as well as more elegant in appearance. J. S. W.

ALPINE FLOWERS.

WE have just received a letter from a friend travelling in Switzerland, wherein he describes the exquisite beauty of the alpine plants he has met with in flower on the Swiss Alps. At this season the Gentians, he says, dye square yards of rocky cliff with blue, and of the same hue is that little gem, Eritrichium nanum, which we spend so much thought upon in trying to grow freely. Saxifrages are going out of bloom, but some of the Campanulas are in the height of beauty, and so is the curious Phyteuma comosum and the little trailing Toadflax (Linaria alpina), which is the one most commonly met with. The Edelweiss has been in bloom for some time, and another Composite, Leucanthemum alpinum, a near ally of our Ox-eye Daisy, together with the mountain Avens (Geums), are long lasting flowerers. Primulas—those jewels of the Alps—have been profusely in bloom, and the dead flower-stalks of other early flowers show how beautiful the slopes must have been in May. The majority of English tourists miss much of the beauty of alpine flowers by deferring their visits to August and September, when flowers are past and fruits are ripening. Every alpine plant grower should see the Alps in early summer, when they will learn an impressive lesson, which will often assist them in the management of their gardens at home.

A tuft of Saxifrages, Pyrolas, and Veronicas.

KITCHEN GARDEN.

COUNTERACTING DROUGHT.

PEOPLE are now complaining of the heat; but bright warm summers are more enjoyable and more fruitful than those of a dull damp character. We cannot have too much sunshine if we prepare for it aright, but the first and great preparation cannot be improvised: I mean, of course, deep working of the soil, which should be systematically done. If this be neglected, no amount of surface stirring will compensate for depth of soil. Stirring is a valuable expedient when the roots have plenty of room below; but if cramped in their action we have no right to expect a favourable result. Where the soil lacks depth, then mulching is better than earth stirring, as it not only keeps it cool and imparts nourishment, but on deeply worked, well-manured land, the hoe, worked deeply all over the surface, breaking it up to a fine ash-like consistency 2 inches or so deep, will answer the same purpose without robbing the land of solar warmth in the same way as mulching does. Of course the mulch saves labour, and that is an object sometimes; but I have found, with a deep, well-manured soil and a loose surface, the warmth of even our summer days is beneficial rather than otherwise. Mulching on shallow, imperfectly worked land is invaluable—in fact, indispensable to many things. Watering permanent crops is not an unmixed good; it tends to carry off the fertilising matters from the soil if given in sufficient quantity to be of any use, and if the surface only be moistened the roots are kept near the top, where they are alternately parboiled and roasted, instead of striking downwards, which they would have done if left to cater for themselves. The earth is the storehouse of plants, and if a good supply of food be there ready for their use, the result will be more satisfactory than if they are living from hand to mouth on the limited supplies which can be given to them in dry, hot weather in the shape of surface moistening. I have been speaking more especially of vegetables, such as Peas, Cauliflowers, &c., which cannot be had in good condition in a dry, hot summer unless the land be well attended to. A light mulch to fruit trees, especially to those carrying heavy crops, is a great help in keeping the roots near the surface; but we do not want to keep out all solar heat; we have not had too much of it lately; it is the only thing lacking to make our climate perfect for fruit growing, as without it the wood will not ripen, and the whole question of fruit growing hinges on this. No one ought to require to be told that, if we water at all, enough must be given to reach the bulk of the roots. Yet there is generally a want of thoroughness in work of this character that detracts from its value, and, in fact, often renders it worse than useless. E. H.

Sowing Parsley.—If I had to depend upon one sowing in the year for our supply of Parsley, I should sow about the 10th of July in an open situation, thinning the plants to 5 inches or 6 inches apart when large enough to handle, and planting the thinnings on a warm border at the foot of a south wall or a warm thick hedge. One of the advantages of sowing now is the fact that a large proportion of the plants will not run to seed next year. The few that do seed may be drawn out, and still a good Parsley bed will be the result.—E. HOBDAY.

Beet Spinach.—This Beet should be sown some time in the month of June, or at the latest in the first week in July. Those only who have a large demand for green vegetables in early spring will appreciate the merits of this so-called Spinach, as if sown in a sheltered corner it will be available for use when ordinary Spinach is withered up by cold winds and frost. I find it best to sow it rather thickly, and let it remain so all winter, as then the plants shelter each other. In our strong soil we find, if it is sown in drills 1 foot apart and the plants left 3 inches asunder in the rows, that they pass through the winter better than where they have more room. It is very desirable that the bed should be in a position sheltered from east and north winds. If sown in the open, probably it would not prove more hardy than ordinary Spinach. I do not say that this Beet is equal to ordinary Spinach for table purposes, but it is useful when other garden produce is scarce.—J. C. C.

Cropping without digging.—Wishing to sow quickly early in the year, under press of time and a lack of labour just then, a piece of ground some 30 rods in extent with Peas of various kinds, I had some portion prepared by merely forking it up ready for the rows a spit wide at intervals of 3 feet, leaving the intervening space to be dug at some future time. The soil is a stiff clay, and whilst left by the winter's frost after Potatoes were got up last autumn with a fairly friable surface, I found that the bottom came up very stiff and lumpy, rendering the drawing of drills difficult and the proper covering of the seed more so. I therefore allowed the forking to be dispensed with and simply drew the drills on the surface, getting

them a fairly loose soil some 3 inches in depth; the result has been better than if all had been dug. The seed germinated well and the rows throughout proved true and even. All the kinds have made capital growth, quite exceeding my best anticipations, and are even better where the soil was not forked at all than where dug; certainly, some two years ago the ground was half trenched, but still it had since borne crops of runner Beans and Potatoes. Experiments of this kind, when successful, are worth detailing, as it may happen that others similarly plagued with a stiff clay may hesitate to do what sometimes is obviously best, because contrary to common practice. Still, the plan might hardly have been safe had there been no previous trenching.—A. D.

Horn Carrots.—A sowing made now of the Nantes Horn will produce Carrots that will prove useful in winter, sweet young roots being always in demand. The border from which early Potatoes have been lifted will do admirably for Carrots with no other preparation than a sprinkling of soot hoed in and the surface well pulverised before the drills are drawn. Thin the plants from 1 inch to 2 inches apart when large enough to handle.—E. Hobday.

Farly Cabbages.—The best early Cabbage I know of is Early Gem; seeds of it were sown on March 9, their produce was planted out on April 20, and was ready to cut on June 18. It bears small compact heads, and is beautifully green in colour.—W. A. Cook, *Holme Wood*.

Warted Cucumber roots (*E. M. G.*).—Your Cucumber roots seem attacked with a disease very similar to club-root in Cabbages, &c., and is, no doubt, caused by a fungus. Remove all the earth the Cucumbers have grown in, and burn it or bury it deeply.—G. S. S.

Societies and Exhibitions.

THE CRYSTAL PALACE ROSE SHOW.

July 3.

This annual exhibition was not only considerable in extent, but the Roses were in most instances very fine, though the intense heat soon began to tell upon them. The main part of the show was under the central transept, the flowers being arranged on lines of tables in the usual manner. Along the nave Mr. Head had arranged tables of cut Roses, with Palms, &c., in the centre. This broke up the monotonous arrangement usually seen on these occasions, and also distributed the crowd of visitors.

In the nurserymen's class for 72 varieties, Mr. B. R. Cant, nurseryman, Colchester, was first, and Messrs. Paul and Son, Cheshunt, second, and the same exhibitors took similar positions in the class for 48 varieties, 3 trusses of each. In that for 24 varieties, 3 trusses of each, Mr. C. Turner, Slough, was first, and Messrs. G. Cooling and Son, Bath, second. In that for the same number of varieties, single blooms, Mr. G. Prince, Oxford, was first, and Mr. C. Turner second. Of the Hybrid Perpetual Roses, the following were finely shown in these classes: Abel Carrière, Alfred Colomb, A. K. Williams, Baroness Rothschild, Beauty of Waltham, Camille Bernardin, Charles Darwin, Charles Lefebvre, Countess of Rosebery, Dr. Andry, Dr. Sewell, Duc de Rohan, Duchesse de Vallombrosa, Duchess of Connaught, Duke of Teck, Dupuy Jamain, Emily Laxton, Etienne Levet, Ferdinand de Lesseps, Fisher Holmes, François Michelon, Gen. Jacqueminot, Hippolyte Jamain, Horace Vernet, Jean Soupert, J. S. Mill, La France, La Rosière, Le Havre, Louis Van Houtte, Madame Gabriel Luizet, Madame Hippolyte Jamain, Madame Lacharme, Marie Finger, Madame Montet, Madame Victor Verdier, Marie Baumann, Marie Rady, Marquise de Castellane, Maurice Bernardin, Merveille de Lyon, Mons. E. Y. Teas, Mons. Noman, Mrs. Jowitt, Pride of Waltham, Prince Arthur, Prince Camille de Rohan, Reine du Midi, Reynolds Hole, Star of Waltham, Ulrich Brunner, Violette Bouyer, and Xavier Olibo.

Of Tea-scented varieties, Anna Olivier, Belle Lyonnaise, Catherine Mermet, Comtesse de Nadaillac, Devoniensis, Etoile de Lyon, Hon. Edith Giffard, Innocente Pirola, Jean Ducher, La Boule d'Or, Lady Mary Fitzwilliam, Madame Bravy, Madame Hippolyte Jamain, Madame Lambard, Madame de Watteville, Marie Van Houtte, Niphetos, Perle des Jardins, Souvenir d'Elise, Souvenir d'un Ami, and Maréchal Niel.

The class for 18 Tea and Noisette Roses brought some lovely flowers, Mr. George Prince being first, and Mr. G. W. Piper, nurseryman, Uckfield, being second with such fine varieties as Alba rosea, Francisca Kruger, Princess of Wales, La Boule d'Or, Niphetos, Catherine Mermet, Jean Ducher, Marie Van Houtte, Souvenir d'Elise Vardon, Anna Ollivier, Innocente Pirola, and Madame H. Jamain. The class for a collection of yellow Roses was a very attractive one, and all shown were Tea-scented and Noisette varieties. Mr. George Prince was to the fore with beautiful blooms of Jean Ducher, Princess of Wales, Francisca Kruger, Etoile de Lyon, Comtesse de Nadaillac, Perle des Jardins, Madame C. Kuster, Marie Van Houtte, and Amazone. Other good yellow Roses were Anna Ollivier, Boule d'Or, Belle Lyonnaise, and Princess of Wales. In the class for white Roses, Mr. B. R. Cant led the way with Edith Giffard, Niphetos, Devoniensis, Jean Pernet, Madame Lacharme, very fine, and Madame Bravy. Anna Ollivier, Alba rosea, and Innocente Pirola were also shown in this class. Messrs. Paul and Son had the best crimson Roses, setting up fine blooms of Madame G. Luizet, Marguerite de St. Amand, Madame Montet, Madame Hippolyte Jamain, Mensieur Noman, Pride of Waltham, Baroness Rothschild, Catherine Soupert, Princess Beatrice, Julie Touvais, Lady Mary Fitzwilliam, Marie Finger, Duchesse de Vallombrosa, Madame Cusin, &c. Messrs. Paul and Son were first with crimson Roses, chief among them being A. K. Williams, Duke of Edinburgh, Dr. Andry, E. Y. Teas, Gen. Jacqueminot, Duke of Teck, Ulrich Brunner, Comte Raimbaud, Marie Rady, Marie Baumann, Madame Victor Verdier, and Camille Bernardin. Mr. B. R. Cant had the best velvety crimson Roses, showing Duke of Edinburgh, Fisher Holmes, Prince Arthur, Duke of Marlborough, Dr. Sewell, and Maurice Bernardin. Louis Van Houtte, Reynolds Hole, Charles Darwin, and Prince Camille de Rohan were also shown in this class.

And in the classes for varieties, Maréchal Niel was grandly shown by Mr. B. R. Cant and Mr. G. Mount. In the class for any Tea or Noisette Mr. Cant had 18 beautiful blooms of Souvenir d'Elise, Mr. Grant coming next with Marie Van Houtte. The best of the Marie Baumann type was Ferdinand de Lesseps, from Messrs. Keynes and Co.; of the Prince C. de Rohan type, Abel Carrière, from Messrs. Paul and Son; of the François Michelon type, Marquise de Castellane, from Mr. W. J. Grant. Mr. H. Bennett had the best 12 blooms of Lady Mary Fitzwilliam; Mr. Geo. Prince, of A. K. Williams; the Rev. J. H. Pemberton, of W. A. Richardson, finely coloured; and Mr. B. R. Cant, of Niphetos.

Messrs. Paul and Son had the best collection of Rosa Polyantha, having Ma Paquerette, Perle d'Or, Simplex, Mignonette, and Anne Marie de Montravel. Cecile Brunner was also shown in this class. Messrs. Geo. Cooling and Son, of Bath, had the best trusses of Rosa rugosa and its white variety. In the amateurs' classes the leading exhibitors were Mr. T. B. Haywood, Reigate; Mr. A. T. Waterton, Reigate; Mr. J. W. Grant, Ledbury; and the Rev. Dr. King. Messrs. Laing exhibited a group of tuberous-rooted Begonias in flower. Cut flowers of Carnations, Picotees, and Pinks were also limited. The leading prizes were taken by Mr. C. Turner, Mr. J. Douglas, and Mr. H. Hooper. First-class certificates of merit were awarded to Picotees Agnes Chambers and Annie Douglas, two yellow ground varieties shown by Mr. J. Douglas.

A fine collection of Roses, &c., was sent by Messrs. W. Paul and Son, Waltham Cross, who had two seedling varieties, Great Mogul and Silver Queen.

NATIONAL ROSE SOCIETY, SOUTH KENSINGTON.

July 6.

The show of this society held in London is now looked upon as the representative Rose show of the season. It took place in the Royal Horticultural Gardens, the conservatory in which was filled from one end to the other with cut Roses. It was a great gathering, but, as like former shows, as two Potato shows are like each other, the same long lines of boxes, the same exhibitors, the same familiar sorts of Roses. Nobody looks for novelty in a Rose show, and yet no flower shows are so popular. Novel features, however, might be introduced into a Rose show, and particularly into such large shows as the National one is. The only attempt at arrangement occurs in the class for "a basket of Teas or Noisettes," but even in this class the arrangements have long since settled down into such a stereotyped affair that they have become insipid. Who is responsible for this other than those who frame the schedule, wherein it is stated that "all exhibits are to be shown in one uniform wicker flower-stand on legs." How can exhibits be other than monotonous under such conditions. Three or four classes for arrangements of cut Roses could well be substituted for others included in the bewildering number of classes, extra, closed, and open. These open classes, however, represented what seemed to interest the visitors as much or more than the classes for the ordinary Hybrid Perpetuals. Among the classes were some for garden Roses, for Moss and Provence Roses, for Roses suitable for "button-holes," for new Roses, and for Roses of particular colours.

As regards the quality of the blooms throughout the show, it was, according to the general opinion, decidedly below the average. Some very fine blooms were to be seen in the best stands, but the uniformly high quality usually seen at this great London show did not prevail, for even the great trade exhibitors, like the Cants and the Pauls, with their acres to cut from, could not muster large collections of uniform quality. A good many of the blooms in even the prize winning stands were second rate, and the weather being so hot did not tend to improve them.

In the nurserymen's classes, Mr. B. Cant was, as usual, unapproachable. He showed the best six dozen single trusses and the finest stand of four dozen treble trusses among seven, while in the class for two dozen Teas or Noisettes, Mr. Prince, of Oxford, stood out conspicuous from the rest, his blooms being superb. In the smaller classes for nurserymen, the most successful were Messrs. Curtis and Sandford, of Torquay, whose blooms from that mild quarter were of remarkable excellence. Mr. Mount, of Canterbury, also showed well, and the best Teas in this division also came from Oxford, from Mr. Mattock's nursery. There were seven classes set apart exclusively for nurserymen, while the amateurs enjoyed the privilege of competing in thirteen classes in either of the two divisions. On the whole, the amateurs' exhibits we considered superior to the nurserymen's; and though Mr. Pemberton's challenge trophy collection of forty-eight trusses did not represent the high quality which we have seen in former years, when such rosarians as Mr. Baker and Mr. Jowitt competed so spiritedly for the trophy, yet this year's collection was highly creditable. The flowers were large, full, of high colour, and of uniform quality throughout the stand, whilst the selection of sorts was excellent; the light and dark colours, as well as the proportion of Hybrid Perpetuals and Tea varieties, being well balanced.

Among other prominent amateur exhibitors were the Earl of Stanhope's gardener (Mr. Gray), Mr. Grant, the Rev. Dr. King (who showed the finest bloom of a Tea variety in the exhibition, a marvellous Souvenir d'Elise Vardon), Mr. Waterlow, Reigate, and Mr. Claxton, who showed so finely at Liverpool last week. The exhibitors came from widely-separated points, as far north as Liverpool, but the finest blooms came from the gardens in the

home counties, particularly Essex, Kent, Surrey, and Sussex. There must have been thousands of blooms shown, and these were chiefly of popular sorts, there being comparatively few new or uncommon kinds in the collections. Running through the nurserymen's classes, we singled out the following as the most conspicuous: The lovely new Lady Mary Fitzwilliam was shown numerously; every large collection included it; and on the whole it was shown admirably. Its large and finely-formed flowers and their exquisite colour—a delicate blush-pink—captivated everyone. Violette Bouyer, in the way of the old Madame Lacharme, was also finely shown; but a better white Rose, and apparently a greater favourite, is Merveille de Lyon, which was perhaps more plentiful than any other light Rose. Ulrich Brunner is another sort that has rapidly become popular. It has a fine bold flower of a bright crimson-red. Mr. B. Cant had it fine in one of his large collections. Madame Gabriel Luizet, M. Isaac Perrière, and Queen of Queens are now established favourites, and there were some grand blooms of the latter Rose which Mr. W. Paul considers one of the best he has sent out from Waltham Cross. Mons. Fillon was one of the brightest-coloured Roses, the centre of the flower being almost a scarlet. Throughout the show A. K. Williams reigned supreme as a dark Rose. It was a matchless Hybrid Perpetual in the amateurs' classes, and a faultless bloom of it shown by Mr. Pemberton was selected by the judges for a medal. Many consider this the finest Hybrid Perpetual of its colour yet raised. That excellent dark Rose, Reynolds Hole, was in superb form; indeed, we have never before seen so many fine blooms of this Rose at a show before. The present season seems to just suit it, for none of the other dark Roses, such as Abel Carrière, Prince de Rohan, could come up to it. That curious, yet beautiful new sort, Pride of Reigate, recognisable at a glance by its flaked petals, was shown beautifully by several, but finest from the garden at Reigate, where it originated. William Warden and Penelope Mayo, of about the same age, are proving to be fairly good Roses, and so is another named Heinrich Schultheis. Among Tea varieties in the collections, the most noteworthy among the less common sorts were Etoile de Lyon, which is fast rising in popularity, for although there are so many Tea varieties of a similar stamp, it possesses a beauty peculiar to itself, the faint golden glow in the flowers being so beautiful. Peerless among coloured Teas was Madame Cusin, which, though a comparatively new Rose, was plentifully shown. It is undeniably one of the loveliest of all Roses. Its flowers are made up of broad crimply petals of a soft rose-pink, and their fragrance is delicious. The new Madame de Watteville was shown well by several. It is a good addition to Tea Roses, being different from any other, having excellent flowers, both as regards size and colour, while each ivory-white petal blushes with pink. Another similar variety, Princess of Wales—one of Mr. Bennett's seedlings, we think—was shown by one exhibitor in beautiful condition, but we have never seen it so fine since Mr. Bennett showed it first. Other Teas we thought specially noteworthy in the collections were Souvenir de Paul Neyron, Souvenir d'Elise Vardon, Sunset, the new American Rose; Marie Van Houtte, exquisitely coloured; David Pradel, and Madame Hippolyte Jamain. We do not intend now to inflict upon our readers a list of the sorts in each winning stand, so we will pass on to the open classes, which were more interesting.

New Roses were not plentiful, only three collections of twelve being shown. The first prize lot was that from Messrs. Paul, of Cheshunt, who had fairly good blooms of the following, viz., Longfellow, a good dark colour; Pride of Reigate, Ella Gordon, Baroness Nathaniel de Rothschild, Marshall Wilder, in the way of Alfred Colomb; Victor Hugo, a very dark velvety crimson, which will probably come to the front; Madame Julie Gautier, Madame de Watteville, Etendard de Jeanne d'Arc, Madame Norman Neruda, and Grace Darling, the latter, a Tea variety, and one of promising appearance. Messrs. Curtis & Sandford's second prize collection contained President Senelar, in the way of Abel Carrière; Madame Massicault, of a similar stamp to the old La Reine; Madame Norman Neruda, Souvenir de la Reine, Levêque, Alphonse Soupert, bright carmine-crimson; Gloire Lyonnaise, like Niphetos; Caroline Swailes, General Appert, a good dark sort; Madame de Watteville and Baron Nathaniel de Rothschild. Mr. B. Cant's third collection was made up chiefly of the foregoing sorts, besides Prince Bearni and Directeur Alphand. Mr. Girdlestone showed the best six new Roses sent out since 1884. He had for sorts Madame de Watteville, Joseph Matral, Gloire Lyonnaise, Grace Darling, Souvenir de Gabrielle, Drevat, and Lady of the Lake. There was no award made in the class for seedling Roses, but Mr. Turner showed his new dark sort The Colonel. Messrs. Paul & Son had the Grand Mogul, a rich crimson-scarlet, and another called Silver Queen, pale pink.

Garden Roses, as distinct from exhibition Roses, formed a class of themselves. There were several collections, composed of a great diversity of kinds; some had flowers of sorts rejected by exhibitors, and not included in the society's catalogue; others had Rosa rugosa and Polyantha, which presumably come under the term garden Roses. Mr. Pemberton's first prize collection comprised the following: Rosa rugosa, the old China; Paquerette, W. A. Richardson, Maiden's Blush, Rosa Mundi, Aimée Vibert, Félicité Perpetué, Homère, Juno, Jules Margottin, Charles Lawson, Céline Forestier, Captain Ingram, and Gloire de Dijon. It would be well to have a clear definition as to what constitutes a "garden Rose." Are they worthless Roses for the exhibition table, or do they belong to classes other than Hybrid Perpetuals, Teas, or Noisettes?

Moss and Provence Roses were a good feature, and a very fine lot was set up by Messrs Paul, of Cheshunt, who showed a beautiful collection for the first prize. It comprised the following: Baronne de Wassenaer, a beautiful deep rose sort, very mossy, raised about thirty years ago; Blanche Moreau, a rather new white variety; Comtesse de Murinais, white tinged with flesh, a very old sort; James Veitch, deep violet-crimson; Lanei, red; Bath, white tinged with flesh; and White Provence. Messrs. Bunyard showed the next best lot, having Lanei, Reine Blanche, Crested Moss, Blanche Moreau, common Provence, Little Gem, and Selina.

Button-hole Roses were shown by two only—Mr. Mattock and Messrs. Bunyard—both good collections, and many considered that from the latter the best. The sorts included in the stands were W. A. Richardson, Homère, Mad. de Watteville, Perle des Jardins, Mad. Falcot, Comtesse de Nadaillac, Souvenir de Paul Neyron, Caroline Kuster, Marie Van Houtte, Jean Pernet, Niphetos, and Amazone. These were selected as being beautiful in the bud state, and therefore most suitable for button-hole bouquets, but there are scores of other sorts equally suitable.

The classes for Roses of particular colours were interesting. The twelve best blooms of a yellow Rose were shown by Mr. Grant, who had some superb flowers of Marie Van Houtte, while Maréchal Niel won the three next prizes, and was shown by six competitors. The best white Rose was Niphetos, from Mr. B. Cant, while Merveille de Lyon (shown by five) was second, and Niphetos third. Other white or pink Roses shown in this class were Alba rosea, Captain Christy, Duchesse de Vallombrosa and Souvenir de la Malmaison. The crimson Rose which won the first prize was A. K. Williams, from Mr. B. Cant, which was shown by five, and took the second and third prizes also, while Alfred Colomb was fourth. Le Havre was also shown in this class. The best dark crimson was Reynolds Hole, shown splendidly by Messrs. Keynes. Xavier Olibo was second and third, Prince Arthur fourth. Charles Lefebvre, Abel Carrière were also shown in this class. The best twelve trusses of any Rose were shown by Mr. H. Bennett, of Shepperton, who had superb blooms of his new Lady Mary Fitzwilliam, which was shown by six others. Among the sixteen competitors, Ulrich Brunner, from Messrs. Curtis, was second, Souvenir d'Elise Vardon third, and Xavier Olibo fourth. Baroness Rothschild, Xavier Olibo, and Comtesse de Nadaillac were also shown.

The medals for the best blooms in the exhibition were awarded as follows: Among nurserymen, Mr. B. Cant had the best Hybrid Perpetual, a splendid bloom of Boieldieu; and the same exhibitor also showed the finest bloom of a Tea—Souvenir d'Elise Vardon. Among amateurs, Mr. Pemberton showed the best Hybrid Perpetual, a perfect flower of A. K. Williams; while Dr. King had the best Tea—Souvenir d'Elise Vardon.

Full lists of awards of both of the above shows are given in our advertising columns.

Gardeners' Royal Benevolent Institution.—The annual dinner of this institution took place at the Albion Hotel, Aldersgate Street, on Friday evening last. Mr. N. N. Sherwood presided, and there was a large company present. The chairman, in proposing the toast of the evening, gave a brief summary of the history of the institution, the origin of which dates from 1838. It did not prosper at first, but matters began to improve in 1842. The proceeds of the first anniversary dinner in 1843 amounted to £40; since that time they had never retrograded, and at the present moment their income is over £2000 a year, and they have funded the sum of £21,000. There are now 118 pensioners, the men receiving £20 per annum and the women £16. Since its foundation the society has helped 553 persons, at a cost of over £43,000. He commended the institution to the sympathy and support of all interested in horticulture. Gardeners had to do their work in all weathers, in all seasons, in hothouses and out of doors, and therefore were liable to contract ailments that incapacitated them for employment. There were in England more than 21,000 gardeners, and therefore it was easy to imagine how useful such a society could be. He spoke with commendation of the way in which the funds of the society had been looked after. The toast, which was warmly received, was coupled with the name of Mr. John Lee, who was described as the father of the institution. Mr. Lee responded. Several other toasts followed. The subscriptions of the evening amounted to over £1400. Towards this sum the chairman subscribed £105; his three children, each £25; the mayor of Chester (Mr. G. A. Dickson), £105; Mr. R. Tait, Manchester, £74; Messrs. Fisher, Son, and Sibray, Sheffield, £68; and Mr. Williams, of Holloway, £50; Major Lambert, £31 10s.; Baron Schroeder and Sir Trevor Lawrence, £26 5s. each. Mr. Veitch's list amounted to £320.

The Egyptian Lotus.—I am surprised to see in the extract (p. 8) from Mr. W. B. Hemsley's descriptive catalogue of Miss North's drawings at Kew that the pink Nelumbium which we call Lotus, and which has been considered sacred in Japan and China, is the same as the sacred Lotus of the Egyptians! This has been so often contradicted and the error exposed by archæologists of the greatest authority, that it is inconceivable how such a statement should be allowed to pass at Kew. The sacred Lotus of the Egyptians is the blue Nymphæa Lotus, so deliciously sweet that in all the drawings in tombs the gods or their guests are depicted as smelling it; and in no instance can I recollect having seen a pink Nelumbium represented. The discovery of blooms of the blue Nymphæa in the coffin of Amenhotep the First in 1881 shows most conclusively that it was in his early period the "sacred Lotus of the Egyptians."—Edward H. Woodall.

Names of plants.—*W. R.*—1, Chrysanthemum Leucanthemum; 2, species of Ornithogalum; 3, Asphodelus luteus; 4, Campanula latifolia.—*G. Thompson.*—Pittosporum Tobira.—*A. S.*—Habenaria chlorantha; Gymnadenia Conopsea.—*J. B.*—Odontoglossum Lindleyanum.—*A. K.*—Philadelphus microphyllus; Boykinia aconitifolia (ordinary variety); Serapias Lingua (Orchid); Spiræa prunifolia fl.-pl.—*M. F.*—Crassula jasminea. Others next week.

WOODS & FORESTS.

THE USES OF HOME-GROWN TIMBER.

There are certain trees that grow to the greatest perfection in these islands. These are either naturally British, or have become quite acclimatised. Among trees of the highest value in the timber culture of this country, native or naturalised, are the Firs. These include the Larch, Scotch Pine, Silver Fir, and the Spruce. Every county in the kingdom will furnish a soil suitable to the growth of one or other of these Firs; and there are no other trees whose wood comes into such daily demand for all purposes in connection with building. The object of the following remarks is to draw the attention of landowners and timber proprietors to the great value of the timber they possess within their own estates for all useful purposes in building construction, whether this must needs be carried out in the most ornamental, massive, and stable manner, or in the simplest, most rude, and rustic fashion. It irritates one somewhat to read how some writers abuse the produce and use of British timber, and how well they belaud the foreign timber, as if we were more interested in its use and produce than in our own native product. Let us protest against this use of foreign timber to the exclusion and disparagement of our own most excellent timber. Wherefore, indeed, should we be more interested in finding a market to the foreigner, in getting and giving him a big price for his timber rather than try to make the most of and do the best possible with our own production? All obstacles are thrown in the way to prevent the use of home-grown timber in building, in mining, and, in fact, in every other thing connected with the consumption of native timber. In short, British timber in the eyes of some people possesses endless faults, and is of no value compared with the foreign article.

It is difficult now-a-days to understand how so many hindrances arise with regard to the working of home-grown wood into all sizes of scantlings and prepared boardings adapted for every purpose in building construction. Has not machinery reduced the expense of preparing wood? Is not time and labour saved by its use? Is not the work accomplished by it more satisfactory and rapid than when done by hand labour? So we believe. Still, no matter what advantages machinery offers over manual labour in the simplicity of preparing timber for use, there are many persons with antiquated ideas who look upon all machinery with contempt, and regard it as being something which interferes with their living. It is not worth while to discuss this question with these, because they have already made up their minds that the use of machinery is a bad substitute for handwork, and that the use of home wood is likewise a bad substitute for foreign.

However well fitted home-grown wood may be in building, and so forth, yet it ought not to be used indiscriminately. For instance, no young or immature timber, nor should any unseasoned or green timber be used in any structure of permanent importance, for the injudicious use and abuse of such timber has in a way brought the use of home wood into disrepute. House building timber should always be matured and seasoned; and that it should be so is absolutely necessary.

If proprietors would refuse to use foreign wood in buildings they would help to bring about a much needed change in the value and economy of home-grown wood. We are not restricted in the choice of wood; there are a great number of excellent timber trees to choose from, and there is no excuse for using foreign wood in preference to home wood. From the dense wood and beautifully grained Oak to the plain, but handsome, wood of the Scotch Fir, there are ample varieties of wood of British production to select from, which might please even the most fastidious of estate carpenters. J. F.

WASTE PRODUCE OF WOODLANDS*

Many thousand loads of waste forest produce throughout Scotland, in the shape of limbs and branches of trees, worth many thousand pounds, are annually allowed to rot in the woods, and in some cases are gathered into heaps and burned, thereby destroying a large amount of firewood, which might be utilised and contribute not only to the revenue of proprietors of woodlands, but also be a great contribution to the public good, while in the southern counties of England everything is carefully utilised for fuel and made into cordwood and faggots; everything in the woods is turned to account, even the roots and smallest twigs are disposed of, which forms a large amount of revenue to proprietors of woodlands in this part of England.

In treating this subject I shall divide it into three branches: 1, that of the large limbs and branches and roots of all trees into what is termed cordwood for fuel and making charcoal; 2, the smaller branches into what is termed faggots, which is a bundle of wood just as much as a man can pitch on a wagon, these being used for lighting fires and heating bakers' ovens, &c.; 3, the smaller spray is tied into bundles about the size of a sheaf of corn and are termed brush or kiln faggots, and are used for brick-burning in place of coal.

After the trees are felled the branches are all pruned off the trees and cut into lengths of 3 feet each, and piled up 3 feet high and 14 feet long, which is called a cord of wood. This is pruned off the trees and cut and piled up, at the rate of 3s. per cord for soft wood, and 4s. for hard wood; at this rate the men can earn from 3s. 6d. to 4s. per day.

The cordwood is used in its simple form for fuel, which has realised from 20s. to 22s. per cord in the woods, but if delivered to any large town 30s. to 32s. is realised. These have been the current prices for the last four years, when coal has been exceptionally high, but of late, owing to the fall in the price of coal, about 2s. per cord less has been the current prices for last summer.

Charcoal.

Large quantities of this cordwood are made into charcoal for drying Hops by men who make it a trade for the greater part of the year, and go through the country from place to place and burn charcoal at from 5s. 6d. to 6s. per cord, according to the size of the wood, as to whether it requires much splitting or not. Large quantities of charcoal are sent to London, where it realises 1s. per bushel, and is used not only as a common article of fuel and for heating hall stoves, but is extensively used in cooking and boiling preserves; it is also extensively used in the forges of large ironworks. It is also largely used in the arts and manufactories, where it occupies an important place in the making of ivory black, lamp black, and black paint, and in the manufacture of ink. It is also used in combination with other substances for cleaning silver, brass, and copper, and last, though not least, in the manufacture of gun and blasting powder, &c. As Kent is the great Hop growing county of England, every farmer who is a Hop grower requires a certain quantity of charcoal for drying his Hops, which is regulated according to the number of acres he grows, ranging from 5 acres to 200 acres. This explains the great demand for charcoal in this part of England, as nothing but charcoal and the best Welsh coal is fit for drying Hops. For this purpose charcoal has sold for the last four years at 1s. per bushel, but this year 10d. has been the current price, owing to the reduction in the price of coal.

The mode of making charcoal is as follows: A circle is formed from 20 feet to 30 feet in diameter, and made as level, firm, and smooth as possible. In the centre of the circle a round piece of wood tapering at one end is placed with the small end downwards, and the large pieces of wood having been previously all split asunder to the thickness of about 3 inches diameter are placed around this eye-pole. The wood is built in an upright position, slightly slanting towards the centre. In this manner pile after pile and tier after tier is laid till the whole of the wood to be charred is built and finished in the shape of a dome. After which a layer of straw, or litter, or turf is laid over it, and a slight covering of earth or ashes (when turf is not used) laid over all, and firmly and smoothly beaten with the back of a spade. The eye-pole is then withdrawn and the hole filled with burning charcoal; it is then covered up on top, admitting sufficient air to make it burn. Great attention is afterwards necessary both night and day to regulate and secure an equal fire in every part. This is done by inserting the end of a fork handle at equal distances all round, beginning at the top and finishing at the bottom. The object of these holes is to admit air and attract the fire to the apertures thus made, and when the surface falls too much, the holes at that part are closed up and more made at the next highest part. This operation is continued for about three days and nights, till smoke ceases to issue from the holes, when the wood will be found to be sufficiently charred and ready for cooling.

The cooling is the next operation, which is no less important than the burning. After being provided with about nine bucketsful of water, the whole of the covering is carefully and cleanly raked off with long-handled wooden scrapers made on purpose, care being taken to prevent the earth falling among the charcoal. The charcoal is then covered with cool earth about 3 inches thick, to which eight buckets of water is applied, which will make the earth a sort of puddle; this is beat with the back of a spade and then covered with the hot earth just raked off, and allowed to remain for twelve hours, after which insert a few holes and pour in one bucket of water, and let it remain about ten hours, when the whole of the fire will be extinguished or smothered. It is always safest to turn the charcoal carefully over, and allow it to cool before being put into bags; the want of this precaution is the cause of frequent fires resulting from its being too hurriedly put into the bags.

A cord of Oak and Beech cordwood well cut and closely set up and properly burned yields from forty to forty-five bushels of charcoal, which sold for the last four years at 1s. per bushel. Thus a cord of wood made into charcoal would realise 40s., from which, if we deduct the price of cutting at 4s. per cord, and the burning at 6s., would leave 30s. clear profit per cord for the wood.

Since coal has fallen in price from its maximum in 1873-4, during the coal famine, when best house coal realised 42s. per ton in this quarter, a great reaction has taken place in the price of charcoal. While the price in

* Communicated to the "Highland Society's Transactions," by James Duff, forester, Bayham Abbey, Kent, who was awarded the gold medal.

London remains unaltered, only 10d. per bushel is the top price realised for Hop drying, which would leave 23s. 4d. for the charcoal per cord.

Large wood is not so profitable for charcoal as medium sized and small wood, not only because it is dearer in the first instance, but on account of its requiring more labour to cleave it, and also because it does not yield so much charcoal, weight for weight. Nevertheless, a cord of large wood will yield more charcoal than a cord of small wood, because both cords are of equal dimensions, while the weight of the large wood is much greater than the small. Hardwood is more valuable for charcoal than either Pine or Fir, and the hard and close-grained kinds more valuable than the soft and porous. Roots of trees are burned into charcoal in the same manner as that of cordwood. Grubbing is done in winter when labour is more abundant. In many districts the rural population cannot always find employment during winter, and when a piece of woodland is to be grubbed to be replanted with Larch for Hop poles, or for arable or Hop land, labourers frequently solicit permission to grub the coppice and tree roots to sell for fuel. At this job they can earn from 2s 6d. to 3s. per day, and frequently, to my knowledge, woodland has been grubbed spade deep by such labourers having the roots for their labour, and carting the roots for them any reasonable distance. The roots are all split asunder into pieces in the course of grubbing, and piled up 4 feet high and 4 feet wide, and 8 feet long for a cord of roots.

Roots made into charcoal produce about 30 bushels of charcoal per cord of roots, which, if sent to London and sold at 1s. per bushel, would realise 30s., from which deduct the price of burning at 6s., and the grubbing at 9s. per cord, leaves a balance of 15s. per cord of clear profit. The system of grubbing and giving the labourers the roots for their labour does very well when only a small shaw or belt is to be grubbed ; but when a large quantity is to be grubbed, the general system is to pay them from 9s. to 10s. per cord of roots grubbed. By this system the grubbing is soon finished, and the roots sold or charred, and the whole job completed. It will be seen from the foregoing that, owing to the price of fuel here, woodland can be grubbed free of cost for small patches, and when large quantities are grubbed the cost is very trifling, the roots nearly covering the expense of grubbing. This is only effected in winter when work is scarce.

House Faggots.

These are made of the smaller branches, or what is too small for cordwood, and also the crooked and waste wood of the coppices not fit to be cut into Hop poles, hooping Pea boughs, and flower sticks, &c.; they are made 5 feet long and 5 feet round, and bound with a withe in the middle, just about the size of a truss of wheat straw. They are made from the branches of trees at 4s. per hundred, and from the refuse of the coppices at 5s. per hundred, and sold from 20s. to 22s. in the woods. They are chiefly used for fuel, lighting fires, and heating bakers' ovens, &c. Delivered in any large town they realise from 30s. to 32s. per hundred ; the price is regulated by their being of easy access or otherwise, or being near a large town or distant therefrom. All the Hop poles in the Hop gardens that are broken by the wind and otherwise worn out are made into faggots at 5s. 6d. per hundred, and sold in Tunbridge Wells and other towns at 56s. per hundred.

The small spray of the underwoods and of all kinds of trees is tied into bundles about the size of a sheaf of corn, with a withe in the middle. Before the underwood is cut, a man or boy with a handbill brushes or prunes off all the side branches and other rubbish off the coppice as high as he can reach and ties them into these bundles, which are termed brush or kiln faggots for brick-burning. This is done at the rate of 2s. 6d. per hundred ; a smart boy or lad, about 15 years of age, will make a hundred faggots per day. They are put up into lots of 25 or 50 as soon as they are made, where they remain till the month of March or April, when they are quite dry and seasoned (the coppices being all cut in winter—beginning in November just after the fall of the leaf). These faggots are then built into large stacks by the side of the nearest clearing road at 6d. per hundred for stacking, where they remain till required throughout the summer. Delivered at any brickwork, which are very plentiful in this part of England, they realise 5s. 6d. per hundred, as bricks are the principal or nearly sole building material in this quarter. These faggots are in good demand, enabling proprietors of woodlands to utilise even the smallest twig of forest produce, which not only greatly contributes to their income, but the woods are thereby cleared of all branches, spray, and rubbish ; consequently they are kept neat and tidy.

The brick-kiln in which these faggots are burned are in every respect built the same as for coal, only the furnace is on the ground, and the opening to admit the faggots being put in with ease is 2 feet 3 inches wide by 4 feet high. They are thrown into the furnace by a long-handled fork, the lower part of the handle being made of iron to prevent its being burned by the fire.

Being far from the coal-mines here, it will be seen that waste produce of forests and woodlands is of more value in the southern counties (especially Kent) than any part of England where they are near the coal-fields, and more so on account of its being a thickly populated county and in close proximity to London.

Kent, Sussex, Surrey, and Hampshire are the most wooded counties in England, with the exception of Yorkshire. And much more so is waste forest produce more valuable here than in Scotland, not only on account of being far from the coal-fields, but also on account of the acreage of woodland being so much less than in Scotland in proportion to the population.

Seeing that waste forest produce is so valuable and so much utilised in this part of England, could it not be made use of to some extent in Scotland, where so much firewood is allowed to lie and rot in the woods ? In some places it would cost more than it is worth for carriage from the place where it is grown to where it is wanted for fuel ; but in such places where the road is long and bad, the best way would be to have the best of the branches cut and trimmed of all the smaller spray and foliage, which would reduce it to about half the weight (especially Scotch Fir), or have it cut into lengths of 3 feet each and made into charcoal on the spot, which would be the better way and the most profitable.

In cases where a forest of Scotch Fir is cut down, the branches could be cut into lengths of 3 feet long and piled 3 feet high and 14 feet long at the rate of 3s. per cord (such is the price for Scotch Fir in Kent, which sells at 15s. per cord in the woods, or 12s. clear profit for the cordwood), and as charcoal is a very light substance, the carriage would be very small, and if sent to any large town where there is a demand for charcoal, the revenue from waste forest produce would be found very remunerative.

DIFFERENCE OF BULK IN OLD TREES.

In an ancient avenue of Elms I know where all the trees have had an equal chance, so far as can be ascertained from their history, a great difference is observable in the bulk of timber in the different trees, both as regards the thickness of trunk and the quantity and size of the branches. Some of the trees appear to have put forth stronger branches than their neighbours at an early age and usurped the most space, but their is not so much difference in their height. It is the same in an avenue of Spanish Chestnuts of the same age. A more reliable example of difference originating in constitutional vigour and habit is observable in our plantations of Scotch and Austrian Firs, now about seventeen years planted. The difference in the rate of trunk growth is very marked, hardly any two trees showing the same length of node or annual growth, but each tree indicating a uniform rate of growth in itself. Of course, those trees which have made the longest leaders are the giants in this case, but only as regards stature, for the dwarfs having as a rule most branches, have as thick, if not in some cases thicker, trunks. The only two deciduous trees of good age which afford a fair comparison are two rather old Sycamores, o the same age, growing side by side under equal conditions in every way, and one of them contains nearly twice as much timber as the other. The common Sycamore is subject to great variation of habit—some trees assuming a compact pyramidal shape, while others are umbrageous and wide-spreading. In this case the small tree is of the former, and the large one of the latter habit, and the last is much the larger in head and trunk. These trees were planted many years ago to hide buildings, and, so far as anyone can see, the difference between them is due to habit of growth alone. G.

Extraordinary "evidence" on forestry.—The *Timber Trades Journal* in a late number relates what it calls "interesting and valuable evidence" given before Sir John Lubbock's committee—among other items, that "Colonel Pearson, who has had experience in the forest schools of India and at Nancy," stated that "Beech timber could not find a market in England, but was a valuable cultural tree to plant with Larch or Scotch Fir," &c. If this is the kind of evidence tendered and accepted, one hardly knows which are most to be pitied, the committee or the witnesses. If Colonel Pearson really did say that there was no market for Beech in England, it is clear he does not read timber trade papers nor papers on forestry in England, or he would see from both that its uses are legion, and that it is one of the most saleable timbers in the market, hardly a fall of timber ever being set out without it. What the witness meant by saying a tree that has no market in England "was a valuable cultural tree to plant with Larch or Scotch Fir," is more than we can guess, because it is more than useless as a nurse to either, is never employed for such a purpose, and in situations where it does grow it spreads out and smothers the Larch, so that it does not appear very clear where the "cultural value" comes in. We think if the committee was to publish its evidence in an accessible form, it would be to the advantage to all whom it might concern if only for the sake of having the evidence sifted. —Y.

Barking standing Oaks.—In passing through a southerly district in Yorkshire during the past week I saw a wood, composed chiefly of Oaks, in which there were hundreds of trees stripped of their bark, though unfelled. What are the advantages of thus barking standing trees ? Can "Yorkshireman" or any other of your northern correspondents tell us ? If there is an advantage as regards the quality of the timber, by all means we should know of it in the south.—G.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

TEA-SCENTED ROSES.

ANYONE who visits Rose exhibitions will have noted how very popular the beautiful Tea-scented varieties are. People crowd about the stands of them and admire their delicate colouring, sweet scent, and exquisite build. Since Rosa odorata was introduced from China in 1810, and the old yellow Tea-scented Rose in 1824, what a marvellous progeny has sprung from the union of these two. That Tea Roses are tender is well known, but some are hardier than others, and probably we may be getting near the day when we shall have a group of sweetly perfumed Roses that retain their delicate colours and are as hardy as Hybrid Perpetuals. Sweet-scented as many of the latter are, Tea-scented varieties beat them in point of fragrance, a circumstance which makes them such favourites. Moreover, they can be grown in pots, planted in conservatories or against walls; in the last named position, if established in suitable soil, they flower profusely, and among Teas are to be found some of the finest autumn-blooming varieties we possess. They also do well planted in beds, but the tender character referred to makes it needful to give some protection, such as Fern or hay, during winter when the weather is unusually severe. As to soil, they do well in any good loam, but in whatever position they are placed, it should be a warm one, and the soil well drained. The following is a selection of the best varieties made at the Rose shows. They are, Anna Ollivier, rosy flesh; Belle Lyonnaise, a charming yellow of the Gloire de Dijon type; Catherine Mermet, light flesh coloured, one of the most charming of Tea Roses; Comtesse de Nadaillac, a variety that colours in some districts more deeply than in others. At the Longworth Nurseries this variety comes remarkably fine. Devoniensis still maintains its position, but it does not always come large enough to be included in a stand of twelve blooms at a Rose show. Etoile de Lyon, sulphur yellow, deeper in the centre, should be noted as a very fine pot Rose. Hon. Miss Edith Giffard comes almost pure white at times, though in its usual character it is slightly tinted in the centre with salmon-red. Innocente Pirola is at times pure white, at others slightly tinted with pink; a lovely Rose, and one that should certainly be grown for exhibition purposes. Jean Ducher is another most useful and beautiful variety, yellow in colour, shaded with salmon, the centre being sometimes rosy peach; a large full Rose, and good in form. Jules Finger is one of the red class of Tea Roses, distinct and good. La Boule d'Or I regard as the best yellow Tea Rose grown; its flowers are large, double, and in form most exquisite, but to have them in their best condition the plant should have a warm and rather dry situation. Madame Bravy bears grand flowers, large and full; Mr. B. R. Cant invariably shows this beautiful variety in its best character; it is cream coloured, but at Colchester it comes almost pure white. Madame Cusin is a deep pink or pale rose-coloured Tea, the petals of which are suffused with colour, but more deeply towards the edges than elsewhere; the centre is always perfect, but the outer petals curl somewhat; nevertheless it is a beautiful flower and one which is effective on the exhibition table. In Madame Hippolyte Jamain, a charming variety, the circumference of the flower is white, the centre coppery yellow, and the edges of the petals tinged with rose. Madame Lambard is sometimes bright rose and sometimes pale pink; it is changeable in colour, but at all times pleasing. Madame de Watteville is white tinted with salmon, and each petal is bordered with bright rose; a charming flower, but the outer petals curl somewhat. Marie Van Houtte is one of the most lovely of Tea Roses; its colour is pale yellow, rather deeper in the centre than elsewhere, and the outer petals are bordered with bright rose; a dozen blooms of this at the Crystal Palace Rose Show, shown by Mr. Cant, appeared to be as near perfection as they well could be. Moire, rosy fawn, with a deeper shade, is occasionally remarkably good. With Niphetos all of us are well acquainted; in the bud state it is one of the most useful of Tea Roses. Souvenir d'Elise, also one of the most perfectly-formed Tea Roses grown, is creamy white in colour, tinted with delicate rose. Souvenir de Paul Neyron, creamy white shaded with salmon and bordered with rose, is, like the last, large and full; and Souvenir d'un Ami, pale salmon, shaded with rose, is always reliable for show purposes. In the small group of Hybrid Tea and Hybrid Noisette Roses, Lady Mary Fitzwilliam stands at the top. Its flowers are large and globular, and of a bright, yet delicate, flesh colour, and it is a variety that yields a number of finely formed flowers. I have scarcely seen a good bloom of Cheshunt Hybrid or Reine Marie Henriette on a stand this season. Of Noisette Roses properly so-called (for I think the Hybrids will in course of time be absorbed into the Hybrid Perpetuals), there are few that have made a name as exhibition varieties. Is not that most glorious of all the Noisettes—Maréchal Niel—to be found on every stand? Bouquet d'Or is sometimes to be seen in fine condition, with its deep yellow circumference and coppery centre. Next to Maréchal Niel comes Madame Caroline Kuster, a beautiful pale yellow Noisette, large and full, generally finding a place in every dozen Teas and Noisettes. Lamarque is a lovely Rose to grow against a south or south-west wall, where early in the season it will come almost or quite pure white. At Shimdda Hir, Mr. Samuel Barlow's place in North Wales, it does remarkably well, and in the bud state is an almost perfect white Rose.

The seedling Brier is undoubtedly the best stock for Tea-scented Roses; it is the most lasting and reliable. I suppose we shall go on planting standard Roses in forecourt gardens for years to come, but there is no reason why we should not grow Tea Roses more than we do on the walls of our dwellings, or pegged down in beds. Many appear to like a glare of showy red Roses in their gardens, as if this was the only colour Roses afforded. Let them root out some of the standards and plant Teas on the seedling Brier as bush specimens in their places. They may need a little protection in winter, and the exercise of a little more care than is necessary in the case of the more robust Hybrid Perpetuals; but if they succeed, as they are pretty certain to do, no one will regret planting them: and it will be admitted that for making a display in their proper season, for yielding flowers in the autumn, and for use for bouquets and general decorative purposes they are unequalled. R. D.

ROSES FROM CUTTINGS IN SUMMER.

CUTTINGS of Roses are often planted in sandy soil, but that is a mistake. A porous soil requires much water, while all that the cuttings need to insure a good strike is an equable condition as regards moisture. A partially spent hot-bed having a temperature of 76° covered with a frame and lights (it being essential for the cuttings to be kept close) will make a good summer striking bed. On this bed place 6 inches in depth of partially decayed Cocoa-nut fibre and press it down firmly. Where Cocoa-nut fibre cannot be obtained I have used sawdust from hard wood that had lain in a heap for some time exposed to the weather. These substances are easily kept in an even, regular condition without the use of the watering pot. In summer propagation, to which my remarks now refer, the cuttings should be taken when the buds on the young wood are plump and well developed, but not started. They will then be acquiring a certain degree of firmness, and the danger of damping off will thus be diminished. The cuttings may consist of single buds or eyes, with 2 inches or so of wood at the base. If cuttings are plentiful greater length may be allowed, and if convenient they may be taken with a heel of older wood. They may be inserted as thickly in the bed as the foliage will permit. When inserted, the sawdust and fibre should be pressed firmly round them. They must be kept close till signs of growth are visible and shaded from bright sunshine. All the water that will be needed will be a light dewing over with a fine-rosed pot to keep the foliage fresh, and this attention will only be required in very bright weather. A great deal depends upon keeping the leaves left on the cuttings from wilting. If allowed to flag they will prove a source of weakness; but if kept fresh they will be a source of strength, as they encourage the formation of roots. As soon as they have made roots a quarter of an inch long they should be potted into small pots, and be plunged in fibre in another frame till established; then they should be hardened off and planted out. Most of the plants will produce a flower or two in the autumn if the sorts are Perpetuals or Teas. Of late years a great impetus has been given to the culture of Tea Roses. They are delightful for cutting, and with a dozen varieties planted on a warm border well mulched with manure, no one need be without blossoms from early in June till at least November; and, with a warm greenhouse in addition, they may be had, more or less, all the year round. E. H.

Proposed Rose congress.—We learn from M. Sisley, of Lyons, that it is proposed to form a congress of rosarians under the auspices of the Central Horticultural Society of France, its object being to judge all new seedling Roses before they are put into commerce. The project, we hear, is not altogether approved of by the French horticultural press, though, if properly carried out, it would appear to be a step in the right direction.

Licuala Veitchi.—It will be remembered that the beautiful Palm which was first introduced under the name of Pritchardia grandis flowered a year or two back at Kew, where it was re-named and figured in the *Botanical Magazine* as Licuala grandis. About the same time Messrs. Veitch introduced a somewhat similar Palm which they called the true Pritchardia grandis, but this, like the preceding one, was not a Pritchardia at all. A plant of it is now in flower at Kew, and it proves to be an undescribed species of Licuala. No doubt the name under which this most beautiful Palm has already been made known in gardens will be adopted by the authorities at Kew. The flowering specimen referred to is only small, the leaves being about 18 inches in diameter and regularly plaited, the texture being stiffer than in L. grandis.

Stove flowering shrubs.—In the porch of the Water Lily house at Kew are three handsome flowering stove shrubs, all of them old acquaintances, but, perhaps, in most gardens nearly, if not quite, forgotten; they are the large semi-double-flowered scarlet Hibiscus (H. rosa-sinensis fl.-pl.), Lasiandra macrantha, now called Pleroma, and the Indian Lilac, Lagerstræmia indica. The first is so easy to manage and so free flowering, that it requires more skill to keep it in bounds than to make it thrive, whilst its flowers are graceful as well as large and brilliant. True, they are of no value for cutting, but surely we may admire plants and find a use for them, even though their flowers will not live long in water. There is not much difference in taste between a lady who judges flowers by their fitness for adorning her bonnet and a man who values them only when they are useful for cut-flower purposes. Nor can the flowers of Lasiandra be employed in this way, and yet they are among the very choicest of handsome stove flowers. Indian Lilac may be cut and placed in water, where it lasts a good deal longer than our own Lilac; but for our

part we would prefer to see the flowers left on the plant. In an intermediate house, or even a warm greenhouse, these three plants are thoroughly at home and able to take care of themselves, particularly if planted out.

NOTES OF THE WEEK.

A large white Bellflower from Messrs. Backhouse, of York, under the name of Campanula persicifolia alba grandiflora, is an extremely handsome plant, having flowers a good deal larger than usual, snow white and produced on tall stems. It is an excellent border flower.

Strawberry Bothwell Bank.—We have received from a garden in Kent some fruits of this little-known Strawberry which the gardener tells us is the best sort grown there. It is a fine looking dark red fruit of good flavour, though more acid than most others. Perhaps some of our readers can tell us more about it.

Orchis maculata superba.—This is so much finer in every way than the common form of this native Orchis, that it quite merits the name superba. A spike received from the York Nurseries is dense, cylindrical, nearly 6 inches long, and of a very deep and rich purple.

Crimson-flowered Thyme.—A variety of the common Thymus Serpyllum has been sent to us from the York Nurseries. It is a pretty little plant, differing from the type in having flowers of a rich reddish crimson, and must have a beautiful effect in large tufts on a sunny ledge in the rock garden.

Passiflora Constanee Elliott.—We hear a good account of this new variety of the common hardy Passion-flower (P. cærulea) from Mr. Ware, of Tottenham. He says he has a plant of it which has been planted but eight months carrying no fewer than 235 flowers and buds. This speaks much for its floriferous habit. The flowers are said to be white, but there is too much green in the petals to entitle it to be called a white flower.

Roupellia grata, the Cream Fruit of Africa, is now finely in flower in the Palm house at Kew. It is a scandent shrub with succulent dark green leaves, and bears terminal bunches of creamy-white bell-shaped flowers as large as Canterbury Bells, with a ring or corona composed of ten teeth just inside the bell. The flowering of this plant is of rare occurrence, although in tropical countries where it has become naturalised it is a most prolific bloomer.

Iris juncea.—There is such a brilliancy about the yellow of the flowers of this Iris, that it can never be mistaken, even if there are no visible means of identifying it by its elegant and very distinct growth. It is one of the bulbous group (Xiphion) and has flowers as large as our common waterside Flag of deep clear yellow. It is considered not an easy plant to manage, but the New Plant and Bulb Company send us numerous finely developed flowers, but no note accompanies them respecting the conditions under which they have been grown.

Varieties of Cattleya Eldorado.—The different forms of this Cattleya are well known to be numerous; but we have not seen so many of them brought together as have been sent to us by Mr. Thompson from his garden at Ghyllbank, St. Helens. These vary from white to deep purple, and all are remarkable for the large size and deep colour of the yellow blotch on the lip. The finest in the batch is number twelve—a large flower with dark sepals, and an extraordinarily fine lip. The nearest approach to white is number one, while the rest vary between these extremes.

Vallota purpurea magnifiea. Of this grand new variety the New Plant and Bulb Company, Colchester, send us a four-flowered spike, which is quite as fine as those shown last year at South Kensington, when the plant attracted so much attention. It is immeasurably superior in every way to the common Vallota, the flowers being much larger, the colour brighter, and it may be at once recognised by the conspicuous white centre to the flower. A finer greenhouse plant than this bulb does not exist, and we hope to present our readers with a coloured plate of it shortly.

Mesembryanthemums are all aglow with bloom at Kew just now, the bright warm weather affording them just what they require to make them grow and flower freely. The Kew collection is a large one, and, except a few small species, all are placed out-of-doors during the summer months, the pots being plunged in Cocoa-nut fibre and the position being both sheltered and sunny. The flowers of many of the species are large and regular as Ox-eye Daisies, whilst their colours vary from white to yellow, crimson, magenta, purple, pink—almost all shades, in fact. To many of our readers the genus Mesembryanthemum is known only by the tiny trailing variegated kind used for carpet bedding, the annual tricolor, and the Ice plant; but here at Kew there are hundreds of dwarf shrubby sorts, others with thick watery leaves, and others small trailers, spreading and forming large patches, which, when in flower, are most attractive. It would be well worth anyone's while to look up these plants at Kew, and jot down the names of the kinds most desirable. Many of the sorts are most serviceable for greenhouse decoration.

Sweet Williams.—Some very fine sorts of these favourite border flowers from Mr. Caudwell, of Wantage, show what an advance has been made in their improvement of late years. We have now every shade of colour, from pinks to deep crimsons, besides pure whites and "eyed" sorts, and doubles and semi-doubles, so that there is abundant variety and beauty in Sweet Williams alone. We saw at Kew lately a plant representing a cross between Dianthus alpinus and the Sweet William (D. barbatus). It is quite a new break, larger and finer flowers, and a dwarfer and neater habit than ordinary Sweet Williams. Florists should follow in this direction.

Angræcum Leonis from seed.—It is stated in the *Revue Horticole* that M. Loury, of the Paris Botanic Garden, has succeeded in raising seedlings of this new Orchid. It appears that when M. Humblot introduced it, he gave several plants to M. Loury, who found on one of them a pod almost ripe. This being sown on Sphagnum, two little plants came up. This Angræcum has been compared unfavourably with its congener, sesquipedale, but M. Carrière thinks it will prove the more valuable of the two, as the flowers are produced in great abundance, and are, moreover, produced in succession through several months in the year.

Eucomis bicolor is quite as handsome and hardy a bulbous plant as E. punctata, mentioned by "G. J." last week; in fact, all the species of this genus are worth a place in a warm, well-drained border out of doors, and they number some half-dozen. Their flowers are not brilliantly coloured, but they are produced on stout erect spikes, and are arranged in a compact and dense fashion, so that their starry shapes are well seen. Green or yellow-green, with a reddish or brown margin, are the colours of the flowers; whilst the stout succulent scape is shining green and either spotted or peppered with chocolate-brown. The stems and leaves are, of course, only of annual duration, but the large fleshy bulb will keep all right in the ground if merely covered with a cone of ashes during severe weather. All these plants are natives of the Cape.

Erythrina Humei.—A beautiful-flowered shrub under this name is now in flower in the Palm house at Kew. It is about 4 feet high, branching at the base, the stem and leaf characters like those of E. indica, of which E. marmorata is a variety, plus some rather stout prickles on the petioles and stem. The flowers are on erect axillary racemes, about a score on each raceme, and they are as large as those of E. Crista-galli; their colour is a rich velvety crimson, richer and more attractive than any Erythrina known to us, not excepting even the popular Cockscomb Coral Tree (E. Crista-galli). There is a difficulty in making many of these large-growing Erythrinas produce flowers under cultivation, and we suspect that this small specimen now flowering at Kew is exceptional. The treatment recommended is exactly what suits best Allamandas, Bougainvilleas, and such like flowering plants, namely, liberal stove treatment in summer and absolute dryness and a low temperature with plenty of light in winter. An important point to be remembered is that the plants must not be cut back or pruned in any way in spring. E. Humei is a native of South Africa, and is probably the plant figured in the *Botanical Magazine* as E. caffra, which is the Kaffirboom of the Dutch.

Gentiana Olivieri.—Under this name Mr. Kingsmill sends us a rare Gentian. Its proper name is G. Fetisowi, figured and described in the *Gartenflora*. It differs from the true G. Olivieri in the calyx being inflated and in having short teeth on the top, while G. Olivieri has the sepals linear and free to the bottom. The habit of both is nearly alike. G. Fetisowi, like most other Gentians, loves a shady position; the leaves are tufted and the flower-stem procumbent, but it rises again at the point on which the flowers are collected in a loose head. They are of a pretty blue, but not so deep as that of G. verna. It is likely to become popular on account of the ease with which it may be grown and flowered.

Philadelphus mexicanus.—In your notice of this plant (page 30) from Mr. Walker's garden, the description does not apply to it as grown by me. I enclose two or three flowers of it, not in shape like Philadelphus coronarius, but more like a Hypericum or a small Rose, much larger also than P. coronarius. My plant has stood ten or twelve years against the house, facing south-east, and flowers freely. I enclose also a flower of Codonopsis ovata—rather an old introduction, but not much grown, I believe.—T. H. Archer-Hind, *South Devon.*

*** The flowers sent were too much withered for examination, and we should much like to see another specimen. If packed in damp Moss in a tin box it would, no doubt, reach us in a fresh condition.—Ed.

People's flower show in South London.—The Duchess of Teck has, we understand, consented to open a large People's Flower Show and Industrial Exhibition in South Lambeth on July 19. The exhibition is to be held at the Manor House, Priory Road, Wandsworth Road, and the promoters are desirous that it shall be in every way a success. Its object is to encourage the poor of that sadly overcrowded neighbourhood to grow flowers, and to teach them to cultivate that industry in which they take a special interest. About 200 money prizes are offered, amongst which are special prizes given by the Duke of Westminster, the Lady Emily Cavendish, Sir Donald Currie, and others. The entrance money is very small, and all competitors receive a free ticket for the distribution of prizes on Wednesday, the 21st July.

Veronica Kirki and V. salicornioides.—The first-named and larger-flowered of these two Veronicas came to me some seven or eight years ago from the late Rev. Harpur Crewe, and is now blooming for the first time with me. I think the violet anthers form a pretty contrast to the greyish petals on the first opening of the flower. It forms a neat bushy shrub, and is quite hardy here. The second named species is a curious little plant, of low-growing and spreading habit of growth, well suited for the adornment of a rockery, and in foliage most unlike nearly every other member of the family known to me, resembling more one of the smaller Cypresses than a Veronica. It came to me some four or five years ago from the Edinburgh Botanic Garden, and was, I believe, one of the many rare plants introduced by the late Mr. J. Anderson-Henry. It is very slow growing, seems perfectly hardy, and is now blooming here for the first time.—W. E. Gumbleton.

*** The flower-spray of V. Kirki sent with this note is extremely graceful and pretty, the dense racemes of white flowers being some 4 inches or 5 inches long, and the violet-tipped stamens Mr. Gumbleton alludes to add to their beauty. The foliage is intermediate between that of V. speciosa and V. salicifolia. Ed.

Indoor Garden.

THE GENUS ATACCIA.

(WITH A FIGURE OF A. CRISTATA.)

The very remarkable plant represented in the accompanying figure is usually known as Ataccia cristata, under which name it has been cultivated in English gardens since about 1840, when it was introduced from India to Kew, and under this name it was figured in the *Botanical Magazine* eleven years afterwards. But the name Ataccia is now sunk under Tacca, of which eight or nine species are known, and which, along with another genus, viz., Schizocapsa, form a separate Natural Order, with Amaryllids and Dioscoreas for its near neighbours. We only know of three species of Tacca in gardens, namely, T. artocarpifolia, T. pinnatifida, and that here figured, and although the two former are noble and well marked plants, they are not so strikingly ornamental as T. cristata is when grown as here represented. The characters of the genus Tacca, and particularly those of the flowers, are so singular as to be worth a word or two here. If we take the inflorescence of a Crinum or Pancratium, we find it composed of an erect leafless scape, bearing on its apex an umbel of flowers rising from between two usually large membranous bracts or sheaths, which fall off or shrivel before the flowers are over. In the genus Tacca these bracts usually number four or more; they are large in comparison with the flowers, and they are persistent—that is, they remain fresh as long as the flowers, or even longer. They are also handsomely coloured or variegated. Springing from the bases of these bracts are the numerous flowers, each on a short stalk; and in addition to these stalks with flowers upon them there are numerous others, which, however, do not bear flowers, but are sterile or abortive, and modified into long drooping filaments, 6 inches or more long and variously coloured. In the umbel of a Pancratium it often happens that numbers of the flower-buds never develop, but remain at the base of the others as tiny buds; but in the flowers of the Tacca these abortive flowers are made to add very considerably to the attractiveness of the plant. The perfect flowers have a shallow tube, six reflexed calyx-lobes, no petals, a ring round the mouth of the tube, inside which are the six short stamens and a short, thick, six-furrowed stigma. These characters show some affinity to the Amaryllis Order, although there is a very marked difference between the two in general appearance. On the other hand, they show that the Taccas have nothing to do with Aroids, with which they are usually classed in garden books. The homes of the Taccas are in the Malay Peninsula, India, Madagascar, and Tropical America, the three garden kinds being natives of the Malay regions. They all require moist tropical treatment.

Ataccia cristata. Grown at Belmont, Taunton. Engraved for The Garden from a photograph.

T. CRISTATA has a fleshy rhizome, from which spring the dark purplish green foliage, the blade being about a foot long, and the petiole about 4 inches. The flower-scape is erect, longer than the foliage, stout, angled, dark purple, smooth, and the bracts are arranged, one in front and one behind the flowers, these two being boat-shaped and without stalks; the other pair are placed side by side behind the flowers, and stand straight up, like the dorsal sepal of a Cypripedium; they are purple-brown below, green above, and their length is about 5 inches. The flowers are 1 inch across and coloured dark purple, the abortive ones, or filaments, being purple at the base and yellowish above.

T. ARTOCARPIFOLIA has a large tuberous rootstock bearing tall erect foliage; the petioles, which are over 2 feet long, are slender, brown, and bear a large blade of three divisions, which are pinnatisect, or like what may be seen in the well-known Amorphophallus. The flower-scape is about 6 ft. high, as thick as the little finger and brown; the flowers are very numerous, round, nut-like, green and brown, on drooping stalks 2 inches long, the filamentous ones being nearly 12 inches long and as thick as whipcord. The bracts are arranged in two series, three or four being narrow, lanceolate, 4 inches long, dark green, and hanging downwards, and three standing erect or forming a sort of canopy over the flowers; their length is 6 inches, width 2 inches, narrowing towards each end; colour deep green with streaks of purple-brown. It is impossible for this plant when in flower to fail in attraction, even for the most casual observer; its noble foliage and the tall stalked flower-heads, with their long, graceful filaments, drooping flowers, and singular bracts, are very uncommon. This and the following species may be seen flowering annually at Kew.

T. PINNATIFIDA.—This has a rootstock often as large as a child's head, and is cultivated in Malayan countries for the sake of the beautiful flour obtained from it by boiling, &c. The leaf-stalks are erect, about 3 feet high, grooved, purplish, and the blade is something like that of the last-mentioned species, except that the three divisions, instead of being simply pinnatifid, are divided again and again into irregular segments. The flower-scapes are 6 feet long and striped green and whitish; the flowers, filaments, and bracts are similar to those of T. artocarpifolia, but the bracts are more numerous and beautifully marked with pale purple veins. The three species here described flower in summer; during winter the two last should be kept almost dry and in a lower temperature, as they are thus induced to cast their leaves and go to rest, which has the result of making them throw up fine foliage and strong flower-scapes when they are again started in heat. Whilst growing they require liberal supplies of water.

CULTURE.—Mr. Lucas, the grower of the plant here illustrated, writes as follows concerning its

cultivation: The plant, which is growing in a 16-inch pot, measures nearly 3 feet across. When purchased a few years ago it was but a very small plant. As regards soil, it likes a compost consisting of good rough fibrous peat two-thirds and one-third of Sphagnum Moss, with plenty of charcoal and crocks and a good sprinkling of silver sand to keep it porous. As to temperature, it was grown in a house in which the day heat varied from 75° to 85° in summer, and it stood in the shady side of the house. It had plenty of overhead moisture, and plenty of water at the roots while growing. In winter it was kept drier at the roots, and the temperature ranged from 60° to 65°. Under the above treatment and after a good rest we find it to flower freely. W.

FREESIA REFRACTA ALBA.

I DO not know what the experience of others may be with regard to imported bulbs of Freesias, but I find that home-grown bulbs are much the largest, and consequently the best flowerers, the variety with yellow flowers being no exception to this rule. It appears to me that, like many other bulbous plants, these are weakened if kept too long out of the soil, and that no doubt is the reason why imported bulbs are weaker than home-grown ones. Our stock of bulbs, which were in flower in February in an intermediate house, were allowed to complete their growth in the same house, and by the middle of May, after standing in the open air for a fortnight, the leaves were quite yellow, and parted readily from the roots. I should, perhaps, mention that we made no attempt to hurry them to rest by withholding water; they had, indeed, as much water as was required to keep the soil moist. Under these conditions they went to rest at their own time, and the result is a greatly increased number of large plump bulbs; in fact, they must have increased at the rate of twenty-five per cent.; but this is not surprising, seeing that the strongest stems produced one or more bulbs in the axils of the leaves, while others ripened several pods of perfect seeds. Taken altogether, I do not know many plants which can be increased at such a rate as Freesias. On turning out our stock, I found that they had made a greater number of roots than I had supposed. They are not large, but very numerous. For the future I shall confine the number of large bulbs to eight for 6-inch pots. These will make neat specimens for table decoration or for vases, &c. I find the fragrance of these Freesias is much liked. The flowers also open well in rooms, and a plant will last in presentable condition for more than a week. On a limited scale we have proved that Freesias make capital specimens when grown in pans, with the flower-spikes neatly tied out, and we hope to increase their number by selecting pans about 14 inches in diameter and 6 inches deep. In these the bulbs will be distributed 2 inches apart all over the pan. In the matter of soil, Freesias are not very particular. With us they grow vigorously in good turfy loam in which there is a fair sprinkle of sharp sand. When potted, ours are placed in a cold pit, where they remain until the middle of October, when they will be introduced into a house heated about 10° higher than an ordinary greenhouse, and there they will remain until they come into flower.

TAUNTON.

SHORT NOTES—INDOOR.

Scarlet Geraniums for cutting in winter.—Henri Jacoby is one of the best varieties for the production of blossoms for cutting in winter. Cuttings rooted now will form bushy material that will produce a bright effect next winter. H. Jacoby is also an excellent bedding variety, having a compact habit and large well-formed lasting trusses of crimson-scarlet flowers. If plants of it are lifted in autumn and helped to regain their root action by genial warmth, they will begin flowering almost immediately.—E. H.

The Oak-leaved Geranium planted in a conservatory against a pillar or a wall, no matter how lofty it may be, is very pretty. It commences at the very base, and then inch by inch and foot by foot ascends, filling in all the space as it proceeds until the pillar or wall against which it has been placed has been completely covered with its leaves. Its flowers, too, in summer are sweet and useful in a cut state.

A MOIST BOTTOM FOR POT PLANTS.

THE progress that plants of most kinds that are grown in pots make when placed during the growing season on some kind of material that will hold moisture is such that it seems strange that the practice of placing them on moist surfaces is not more generally adopted than it hitherto has been. The saving thus effected of labour in watering alone is worth taking into account; but of even more importance is the influence that the moisture, which is continually rising from a damp surface beneath the pots, exerts on the growth, especially that of young stock. Dry air favours red spider and thrips but where there is moisture rising so as to condense on the under sides of the leaves, they seldom put in an appearance. The benefits that follow the adoption of a moist standing-ground are not confined to any particular section of plants; on the contrary, they apply to the various kinds of flowering and fine-leaved occupants of the stove, to Ferns and Palms, as well as to most of the hard and also soft-wooded greenhouse kinds, with the exception of such things as Epiphyllums, Agaves, and others of a succulent character that thrive in a dry atmosphere. Even Pelargoniums that succeed in a drier air than most plants make better progress if stood during summer on a medium that contains moisture than when on dry shelves or open stages, composed of strips of wood that admit of a current of air passing through them. Amongst those engaged in plant-growing there are none who are better acquainted with the advantages of keeping pot plants on a moist bottom than those who cultivate for the London market; with them it is now a rare occurrence to meet with anything on dry stages, and the plants which they grow in little pots are marvels of skilful cultivation alike for their healthy foliage and for the quantity of the flowers which they produce. T. B.

BASKETS AND VASES.

THESE should always form a part of the furniture of a conservatory, as they appropriately fit any style of house. Plain circular baskets, with no ornamental work projecting from the sides or bottom, are the easiest to fill, and look best when the plants have filled them, which they will do quickly, so as to completely hide all the wirework. The size of the baskets should bear some proportion to the size of the house, and although of plain outline, yet they should be strongly made, as thin wire soon rusts through when exposed to almost constant damp. Plants for baskets should be grown on in pots till they are strong and well established, and then they will feel no check, but will commence work at once. Ferns make excellent basket plants, especially those of drooping habit or which have creeping roots. In some cases it is an advantage to use a contrasting plant for the base of the basket. To make my meaning plainer, let me give an illustration. Polypodium aureum forms a striking plant in a basket. It has wide arching fronds of deep green, which keep their colour well in a greenhouse temperature, and may, if required, be taken into the house and hung up in the hall for several days at a time without suffering any injury. Asplenium flaccidum is equally effective, though distinct in character, but the effect in both cases is much enhanced if the base of the basket is covered with some creeping growth which will conceal the Moss and wires. There are many plants adapted for this, but my present purpose will be served if I only mention one, which is the hardy Sedum carneum variegatum. It is a very rapid grower, and will require pegging round the ball at starting, and it may then be permitted to grow as it pleases, hanging about gracefully in all directions. In filling a basket, I always provide a lot of this Sedum and similar things in small pots. I first line the bottom of the basket with Moss, and work in the little Sedums as the work proceeds at intervals up the sides. There is no occasion to place any in the bottom, as after the plants begin to grow they may be pegged to cover the bottom. Vases of different heights may often be usefully employed in an architectural conservatory to fill up centres, or to place in conspicuous positions where there is space for one handsome specimen plant, but it is quite possible to overdo it, as I think vases should be used sparingly. E. H.

NOTES.

SUMMER RAIN.—Gone are the weeks of hot, dry weather and vivid sunshine and dust, and now most welcome to the parched flowers is the soft, gentle rain which we are now getting. Everything seems grateful for it, and there is a general revival among the drooping leaves. Late and cold as the season has been, it has not been so deficient in flowers as one might have anticipated. Roses have been finer than usual, the bright, hot sun coming on the heels of a dripping spring time having brought out their flowers in abundance. Then a hot, dry time in early summer enables one to overtake the mowing and to deal death to the weeds. On hot, dry soils, or on hard caked lands which crack in the sunshine, this gentle rain will be welcomed heartily, and for a time at least the creaking rattle of the water-barrow is silenced by the coming of the showers. To-day (July 12) the soil is reeking with heat and moisture like a hotbed, and one result of this rain will be a rush of leafy growth of all kinds. Once more planting can begin again of all such seedlings or rooted cuttings that were safer left alone during the drought. Pipings of Pinks, Carnations, &c., may also now be made; indeed, there is no time so good for outdoor propagating as is the showery weather following on the heels of a period of hot, dry weather.

MUTISIA DECURRENS.—In habit this plant is somewhat like a Lathyrus, bearing Gazania like flowers, and climbing Marigold is a by no means inexpressive popular name for it to bear. The simple, strap-shaped glaucous leaves are decurrent, each terminating in a tendril at its apex. We have just now a strong plant of this species which has been planted outside for a year or more, and it is now showing twenty or thirty buds and flowers. It is in a warm and dry position in front of a greenhouse, a bundle of Fir branches affording it the means of climbing to a height of 6 feet or more. All the strongest growths of last autumn are now set with flower-buds, and it promises to be a showy garden plant, apart altogether from its botanical interest. Some difficulty in its propagation has always prevented this plant becoming common in even the best of gardens. Cuttings of the young growth will root under a handlight, and good seed germinates freely, but it is not very easy to procure. There are a dozen or more species of this genus for the most part confined to Chili and Peru, and they are related to Barnardesia rosea, another plant rather rare in collections generally. So far it seems Mutisia decurrens is the best of the whole set, and it has been figured in colour in THE GARDEN.

SWEET WILLIAMS.—There are many less enjoyable sights in even the best of gardens than a good broad belt or mass of seedling Sweet Williams. In the sunshine they are most bright and showy, and if you bend your face down among the clusters you feel them to be soft and warm, and their fragrance is delicious beyond mere words. They are of all colours, from white to deep velvety crimson, and the last named are, as I think, most effective, either in the open air or as cut and brought indoors for large bowls or vases. The Sweet William is so sweet and showy that it deserves to become again popular, and a packet of good seed sown now will not cost much for seed or for labour, and may afford much pleasure in days to come. This old-fashioned plant is not particular as to soil or situation if it has full exposure to the sun. I

saw a big bed of these flowers yesterday in an old cottage garden amid the hum of bees, and with butterflies fluttering all around them. The seed had been sown thinly, and the young plants were allowed to flower without having been transplanted. The bed was edged with a band of white Pinks, and I need scarcely say that the effect was good or that the fragrance was enjoyable.

Eryngium Oliverianum.—This is a good, strong-habited herbaceous plant well worth a place in all good gardens where it does not already exist. In good strong soil it grows a yard or more in height, and is now very effective, as its bracts are changing from grey to a steel-blue colour, whence, no doubt, originated its older name of Eryngium amethystinum. As seen in good strong clumps or masses it is a very attractive plant, and if its stems be cut before their fullest development they dry well and are by no means to be despised as arranged along with Typha rods, Pampas Grass, or other dried Grasses in winter vases indoors. It is a plant very readily increased by division, even thick bits of its fleshy roots forming young plants. Another species, E. giganteum, is also worth growing for the same purpose or for skeletonising. Seeds of this last sown as soon as they ripen in September form strong little plants, and flower where sown during the following season; and as the plant is bold and distinct in all its phases of growth, it is worth culture. It has also the merit of drying well if cut just before it flowers in June or July.

Canterbury Bells.—Will anyone be so good as to tell us why the numerous seedling varieties of Campanula Medium are commonly called Canterbury Bells? Just at the present time these biennials are very effective in the garden, especially where the partial shade of adjacent trees has prevented their big balloon-shaped blossoms becoming blistered by the hot sun. They vary in colour from pure white to deep purple, but none are prettier than the soft rosy or lilac kinds. Some of these new rosy shades are very beautiful, as are also the best of the Calycanthema or cup-and-saucer forms. Parkinson, writing in 1629, calls these plants Canterbury Bells, and also speaks of Coventry Bells, but does not enlighten us as to his reason for so doing. After the hot dry weather of the past few weeks, the present is a good time to sow seeds of these and other biennials in open-air beds. If sown on the approach of rain, the earth is now so warm and genial, that they readily germinate and soon make vigorous young plants for transplanting. The main point to observe is to sow very thinly, so as to allow ample room for after-development. As a general rule all annuals and biennials are sown much too thickly, and the result is wasteful of growth-force in all ways.

Wild Thyme.—This wild plant is now very pretty on dry sandy banks or rocky declivities, especially near the sea. It forms lovely carpets of soft, rosy lilac flowers here and there on dry banks, and seems to have a liking for stony places. In the midland counties of England, and notably in Leicestershire, the wild Thyme affects the little hills or mounds raised by ants. We all know Shakespeare's allusion in the "Midsummer Night's Dream"—"I know a bank whereon the wild Thyme grows," and, remembering the fact of its growth on ant-hills, Bacon's directions for its culture in gardens have an extra interest for us. "I like," says he, "also little heaps in the nature of mole-hills (such as are on wild heaths) to be set, some with wild Thyme, some with Pinks, some with Germander." Whenever I read this quaint conceit of Bacon's, my thoughts wander to the garden near the cottage at Weybridge, wherein the little hillocks are covered in the way above advised, if not with wild Thyme and Pinks, at least with Vinca, Woodruff, Acæna, Cerastium, Linnæa, and other interesting plants which seem to enjoy having a little raised mound, or hillock, all to themselves. I only once saw a good mass of wild Thyme in a garden, and that was on a heap of road scrapings. To grow this and many other beautiful wild plants well a little judicious starvation is necessary.

Morina longifolia.—A fresh green plant of Acanthus-like habit, just now bearing stout erect spikes of soft rosy or pink flowers which somehow irresistibly remind one of the Dresden china once so popular in high places. The plant was long ago introduced from the Levant, as mentioned by Miller in his "Gardeners' Dictionary," but it does not appear ever to have become a favourite in gardens generally. It grows best among stones, or planted near the foot of a wall, so that its spires of rosy blossoms lean out gracefully over the dark green Thistle-like leaves. The plant is quite easily raised from seeds, or old clumps may be carefully broken up and divided during wet weather. A good strong mass of this plant is always a sightly object, and its glossy foliage serves to set off any other flowers beside its own. Thus a few bulbs of Gladiolus The Bride planted near this plant, or the common Acanthus, have quite an added charm when the soft white flowers are seen near the Morina leaves. Once well planted this Morina thrives even in poor stony soil, or in waste sunny places where shallow-rooting plants do not luxuriate.

Lælia majalis.—This beautiful Mexican species is now flowering with us for the first time in a warm greenhouse. We have had the plant several years, but it never flowered before, although it has always grown freely. It is a good sized mass on a block of Apple wood, but two years ago quite a small plant bloomed in a neighbouring garden. This is the Mayflower of the Mexicans, and has with us been subjected to a very cool and airy climate. After its growth is made in autumn the plant is kept dry all the winter until young growth commences in April of the following year. Our plant has become stronger, although during winter air is freely admitted, and actual frost only is excluded from the house. A former plant absolutely died in the temperature of an ordinary plant stove. It is one of the most easily grown of all Orchids in the full sunshine of an ordinary airy greenhouse. Our plant is suspended near the glass, and bears one great rosy lilac flower of wax-like texture about 6 inches in length by 5 inches across. Plenty of water and sun-heat only when growing and absolute rest in winter seem to suit this shy-flowering species, and if more generally so grown, perhaps we should hear of its flowering regularly every year.

Fragaria indica.—This golden-flowered Indian Strawberry is very pretty as grown in wire baskets for greenhouse decoration. Its stolons droop on all sides, and as it has the habit of growing, flowering, and fruiting all the year round, it deserves notice as an easily grown plant, and one which is sure to prove attractive in most gardens. In some localities it is perfectly hardy, and is used in rock gardening for draping jutting boulders, but it is as a cool greenhouse or window plant that it shows to greatest advantage. This yellow-flowered Strawberry is, by Grant Allen, supposed to be a reversion towards the golden-flowered Potentillas, but, when writing on the subject of Strawberries in *Longman's Magazine*, 1883 (p. 314), he had overlooked this plant altogether, and on my drawing his attention to it, he dovetailed it into the article as republished in "Flowers and their Pedigrees" (pp. 98, 99), a book in which he tried to persuade his readers that "Wheat, by descent, ranks as a degenerate and degraded Lily!" We have now, however, to deal with what is, and not what was or what may be, and there is no doubt that, really well grown in a hanging basket, Fragaria indica is one of the prettiest and most interesting of all trailing plants that may be so used.

Alstrœmeria aurantiaca.—Wherever this plant is growing in clumps or masses, and flowering in the sun, there the garden seems to be on fire. No other plant is of such a fiery orange colour, if we except Lilium croceum, and for cutting this Alstrœmeria is to be preferred to the Lily. All the Alstrœmerias are very beautiful as seen well grown, but they are a little capricious, and so do not always succeed where planted. One way to establish this great orange-flowered kind is to sow its seeds as soon as ripe in positions where it is to remain, or its masses of thick white thong-like roots may be planted deeply in sand and stones with every chance of success. A dry, warm, and sunny position is essential to them, and they are grateful if a few coal ashes are spread over their crowns during the winter months. All the kinds are very useful for supplying good flowers for cutting when at their best, but lovely as are some of the other kinds, none grow so strongly or afford such a brilliant outdoor display as does this vivid orange-flowered kind.

Kniphofia (Tritoma) caulescens.—All the Torch Lilies are beautiful when well grown, and this is one of the finest of all in habit, with its broad glaucous leaves, almost Yucca-like in breadth and substance, above which towers its stout scapes of red buds and pale yellow flowers. It is with us one of the earliest of all the species to flower, for although T. media is more or less always in bloom, its flowers are more a survival of the late autumnal inflorescence than genuine products of the early springtime. Here we grow this plant at the foot of a sunny wall just in front of a heated greenhouse, its rootstock and collar being, during winter, protected by stones, filled in with dry sand. Thus grown it so far seems the most distinct of all the so-called species, and one that is worthy of a little extra attention. Can anyone tell us of the true T. pumila, as figured in the *Botanical Magazine* nearly a century ago? T. media often does duty for it in modern gardens, but as figured by Curtis it seems a most distinct and effective plant, and one quite different from any other Tritoma known to me.

John Rea's "Flora" (A.D. 1665).—I obtained the third impression of this curious old book (1702) the other day, and although the author tells us he has seriously considered Mr. Parkinson's garden of pleasant flowers, yet he does not sympathise much with that favourite old author. Rea deprecates the woodcuts in the "Paradisus," for, says he, "did his flowers appear no fairer on their stalks in the garden than they do on the leaves of his book, few ladies would be in love with them much more than they are with his lovely picture." This latter allusion is to the woodcut portrait of Parkinson as affixed to the first, or 1629, edition of his "Paradisus" before alluded to. Hence it would seem that the horticultural critic is not a mushroom upstart of to-day, but existed at least a century ago. Rea seems to have been a good practical gardener, since he alludes to the double Narcissus poeticus and its habit of failing to flower well, which, he says, it will do if transplanted every second year. He recommends it to be dug up in June or July and replanted in September. Rea seems to have been a little in advance of the garden art of his time, since he

tells us that he has seen "many gardens of the new model in the hands of unskilful persons, with good walls, walks, and grass-plots, but in the most essential adornments so deficient that a green meadow is a more delightful object." Again he says, "noble fountains, grottos, statues, &c., are excellent ornaments and marks of magnificence, but that all such dead works in gardens ill done are little better than blocks in the way to intercept the light, but not at all to satisfy the understanding. A choice collection of living beauties, rare plants, flowers, and fruits is indeed the wealth, glory, and delight of a garden." This old work of Rea's is rich in gossip and poetical allusions, and is worthy of a place among curious old books of the garden.

Senecio japonicus.—This big Groundsel from Japan possesses a twofold chord of interest, for it is distinct and effective in flower and in foliage alike. Its great palmate or deep-cut leaves are borne on fluted stalks 2 feet or more in height, while its flowers are like big Daisies of a rich old gold colour. Planted out in deep rich soil and in a sheltered situation it grows most vigorously, and is so distinct in habit that it rarely fails to attract the attention, even if not the admiration, of visitors. Another fine composite plant now in full beauty is Inula glandulosa, one of the finest of all border plants where it does well. It bears yellow flowers 5 inches across, the ray florets being narrow and rather thickly set together, and being more or less twisted they remind one of gold lace or fringe. Another fine Groundsel, viz., Senecio pulcher, is not quite so happy this year as usual, the hot, dry weather having been against its luxuriance so far, although, as a rule, it is one of the best of all our autumnal border plants, its rich lake-purple Daisies continuing to open until absolutely cut down by the first sharp frosts of winter.

Lathyrus tuberosus.—This is a gracefully habited Everlasting Pea, flowering after L. Sibthorpi with L. grandiflorus, and before L. latifolius and its beautiful white variety come into full flower. Planted at the foot of a hedge or a fence, this pretty little species scrambles over and about it in a pretty way, or, like the other Everlasting Peas, it may be planted in a bed on the Grass and allowed to arrange itself in its own way, which is sure and certain to be a pretty one. Growing here near a Holly bush it scrambles up its outer branches, and also twines very gracefully about the uprising leafy stems of the King's Signet or Solomon's Seal. Its slender stems bear axillary clusters of small, but shapely, red flowers, somewhat midway between pink and terra-cotta-red. L. grandiflorus is one of the most robust of the whole family, and just the thing to plant at the foot of a rough Hawthorn hedge or an open bush of any kind as a support. All are good as affording flowers in quantity, but none are more welcome in this way than is the white Everlasting Pea, which yields shapely white clusters of long-enduring blossoms.

Rubus odoratus.—A tall-growing large-leaved Raspberry with odorous palmate leaves and rosy flowers as large as those of a wild Rose. It is a vigorous-habited plant, taller growing than R. nutkanus, and as it extends itself rapidly by underground stolons, it is well adapted for naturalising in the open parts of woods and plantations, especially in positions near walks, drives, or roads. The golden-leaved and double-flowered varieties of the common Blackberry may also be grouped with them effectively for the sake of variety. As seen vigorous and healthy, R. odoratus is an effective shrub at all seasons, either as leafy in spring, flowery in summer and autumn, or as its warm brown stems stand up in the sunshine of a winter's day, with those of the white-washed Bramble for company. A good group or two of these strong-growing ornamental Brambles and Raspberries, if well arranged along copse margins, or even in out-of-the-way corners, now too often sacred to weeds, might really become a pleasant feature to have near a country house.

Linaria pallida.—This plant is either a pleasure or a curse, according to the position selected for it in the garden. No greater pest was ever unwittingly associated with delicate Androsace or dainty Primrose in the rockery or alpine garden. Once it gains a footing in good deep soil amongst stones, and its underground stolons begin to wander about and crop up in the most unexpected and unlikely places, and many a day's work is in store for those who feel bound to get rid of it. Like Arabis and some of the Saxifrages, the growth of this plant is slow and sure; it overwhelms everything less robust than itself, and if unchecked in time it will smother up and kill many a rare plant in its growth. There are some plants very lovely in themselves that are too luxuriant if unrestricted by artificial means, and others which are really beautiful only when starved into a dwarf and floriferous habit. This plant is one of them, and there are others of which the white and rosy varieties of Thymus Serpyllum, T. lanuginosus, many Sedums, Saxifrages, and Sempervivums may serve generally as examples. For such plants isolated mounds, beds on the Grass, or cemented pockets or niches in the rockery or wall-top garden are essential. So planted they are out of danger, and are even more beautiful than when doing mischief among other things.

Veronica.

RAISING HARD-COATED SEEDS.

I do not know of any tough-coated seed that comes up under six weeks, and some lie in the soil as many months before they germinate. Nearly, if not quite, all seeds of this description come up best if sown as soon as ripe. Christmas Roses, for example, rarely come up unless sown as soon as ripe, and I have never succeeded in raising tuberous-rooted Tropæolums when the seeds were held over till the following year. The soaking of seeds of this description for some hours previous to sowing has often been recommended, but I have found that I succeed just as well without doing so. My experience of soaking seeds is that unless very carefully managed more harm than good is done, and that a check to germination is more apt to take place than when sown in the ordinary manner and the soil maintained in a uniform state as regards moisture. An important detail in the raising of such seeds is covering them with soil sufficient to screen them from atmospheric influence. The great danger lies in the soil becoming dry during the first process of germination. When this takes place the seeds partially harden, and will then, in spite of good attention, remain months and sometimes a whole year underground before they come up. I have seen Cyclamen and other seeds come up on a rubbish heap long after the pots had been emptied, and when they had been given up as bad.

My plan is to well water the soil before sowing, not giving one heavy watering, which will render it somewhat too close, but rather giving two or three moderate doses at intervals of an hour or so. Then, a moderate watering after sowing will ensure moisture sufficient to act upon the tough coat of the seeds, and thus induce them to swell. If hard-coated seeds treated in this way are examined a day or two after sowing, they will be found to have considerably increased in size, and if from this time they are kept in an equable state as regards moisture, they will in due time come up freely. I have seen it stated that Cyclamen seed will lie several months before it germinates, but I get up 95 per cent. of it in six weeks from the time of sowing without having recourse to bottom heat, which from April until September is unnecessary. The seeds of the tuberous-rooted Tropæolums are considered to be unusually difficult to get up; but I have raised them in quantity by sowing as soon as ripe in the following manner: I well drained a box 4 inches deep, sprinkling some soot on the drainage to keep out worms, and after sowing in the manner just mentioned, I sunk the box to within 1 inch of the rim in the open air in a shady position. I should, however, state that the box was only filled with soil to within 1 inch of the top, so that the surface was level with the ground outside. The inch of space thus left was packed in with Moss and covered with a board. Sown in this way, there was no danger of the seeds becoming at all dry. In a general way they did not require looking to more than once till they came up, which was early in September. When the young plants were well through the soil, they were removed to a sunny situation and carefully attended to in the way of watering, and by the commencement of winter they had made 6 inches of growth. The following year they were treated in exactly the same way without removing them from the seed box, and most of them flowered well. That lovely little Tropæolum, T. azureum, so rare in cultivation now-a days, I raised in the same way, and I feel certain that it is the only sure method of doing so.

Christmas Roses are long in coming up; under the best treatment they do not appear until the spring following that in which they were sown. They will come up if sown as above described, but where any quantity has to be raised, a more rough-and-ready method may be successfully employed. A piece of good friable ground on a north border should be prepared and watered; the seeds should be sown as soon as ripe, and covered half an inch or more deep with leaf soil made rather firm. Water gently and cover up several inches deep with Cocoa fibre, or with anything that will ward off the summer heat, which is the thing to guard against till autumn. During a very hot time a little attention in the way of watering may be necessary, and in March, or later, according to the season, the young plants will appear almost all at once. The covering may then be gradually removed. Where this way of sowing is resorted to, it is well to mix a little soot with the soil, as that keeps down worms, which are sure to be attracted in numbers when the weather is dry, and however useful they may be as draining agents, they are not wanted amongst seedlings and cuttings. Hepaticas, which have hard seeds, may be raised in this way, and the Gentians can scarcely be relied on to come up by any other method. Perhaps the hardest coated seed produced by a soft-wooded plant is that of the Canna, and soaking in warm water for twelve hours before sowing is, I think, in its case conducive to success. Cannas, however, require a strong bottom-heat to bring them up; they rarely germinate with freedom under cool treatment.

Palm seeds are amongst those that require careful handling, and the germination of many of them is much assisted by having a portion of the tough coat pared off. Everlasting Peas do not come up very readily, and the pure white one seems to be more difficult to induce to grow than any, if I except the new scarlet Lathyrus Drummondi, which I hope some reader of The Garden will give me a hint as to its successful germination. The seeds are small and almost stony as regards hardness. Up to the present

this has baffled me, and I think that it is one of those things that will only come up if sown as soon as ripe. J. C. B.

THE DIVINING ROD.

There are still people who doubt the power of the divining rod to find water, but it is a fact, nevertheless, that wherever John Mullens sticks his peg there water will be found, although scientific people had previously declared that "owing to the lie of the strata no water could possibly collect at the spot indicated." "Now, then," I said to an experienced engineer and a constructor of reservoirs, "what have you got to say now?" when the water appeared where he had never thought of looking for it. His reply was, "Well, I am fairly puzzled." Now is the time to test the "water-witch," as the people about Grantham call John Mullens, where he has done so much good work. As he told the writer once—in a wet season one can find springs almost anywhere, but in a dry season only the permanent springs run, and when he found them people believed him. His proceedings when in search of water are frightfully unscientific. Armed with his Hazel or Thorn twig, John is always ready to prospect any piece of ground at a moment's notice, and the way in which the twig whips sharply round and stands stiffly erect above a running current of water is really the best thing in magic I have ever seen. There was a tradition here that an ancient culvert existed somewhere near the house, and that it had some connection with the drains, but it could not be found, although it had been searched for many a time. John Mullens found it in less than five minutes and set it out from end to end, and a grating ventilator now marks where he placed his middle peg exactly above the brick arch. He has, I believe, been also employed successfully in similar work by some of the London sanitary authorities. Allow me to propose that Mr. Mullens give a demonstration before the public at some great flower show. What an attraction the "water-witch" would be! I would suggest that a running current of water under dug or ploughed ground should be provided for the occasion, as if newly laid down on Grass land the drain would be seen Mullens to find it and peg it out. My impression is that natural springs or drains consisting of earthenware pipes are sooner detected by the twig than iron water pipes; although when Mullens was here he was so frequently stumbling over the numerous iron mains and branches from the reservoirs, which he found almost in every case, that our water-man had to follow and mark these to afterwards distinguish them from the natural springs.

S. W.

Everlasting Peas.—Of these there are several fine forms, and foremost among them must be put Lathyrus grandiflorus. It is a very handsome species, with flowers much larger than those of the ordinary Everlasting Pea; the standards are lilac and purple and the keel and wings white. Once planted, it will endure for years, making quick and rapid growth in spring, and flowering early and with great freedom. It is not very particular as to soil, but a somewhat open sunny spot should be devoted to it. The common bright rose-coloured Everlasting Pea is known to all, but there are some varieties of it a little larger and deeper-coloured than the type—the results of selection. —R. D.

Garden in the House.

SOLOMON'S SEAL INDOORS.

As pot plants for indoor decoration in late winter and early spring nothing is more useful than this graceful wood-plant. Its singular nobility, refinement, and delicacy, both of form and colouring, make it highly suitable as a room ornament. Flowered under glass, its leaves are more tender in colouring, and the stems rather slighter than in the natural outdoor state. Six or eight crowns potted in 8-inch pots in September and kept in a cold frame may be brought on in convenient batches in a moderate greenhouse temperature, so as to flower from Christmas onward. The engraving shows a potful so treated in an old embossed Venetian copper bucket.

Solomon's Seal as a room plant. Engraved for The Garden from a photograph.

Leaf ornaments for window screens.—The following may afford amusement and pleasure to those who take a delight in domestic decorations: An exquisite transparency may be made by arranging pressed Fern or other handsome leaves on a pane of window glass, laying another pane of the same size over it and binding the edge with ribbon, thus leaving the group imprisoned between them. Use gum-tragacanth in putting on the binding. It is well to put a narrow strip of paper under the ribbon. The binding should be gummed all round the edge of the first pane, and dried, before the leaves are arranged; then it can be neatly folded over the second pane without difficulty. To form the loop for hanging up the transparency, paste a binding of galloon along the edge, leaving a 2-inch loop free in the centre, afterwards to be pulled through a little slit in the binding. In halls a beautiful effect is produced by placing these transparencies against the side-lights of the hall door. Where the side-lights each consist of only a single pane, it is well worth while to place a single transparency against each, filling up the entire space, and thus affording ample scope for a free arrangement of Ferns, Grasses, and leaves, while the effect of the light passing through the rich autumnal colours is very fine. Leaves so arranged will preserve their beauty during the whole of the winter.

Kitchen Garden.

PEAS IN DRY WEATHER.

Last summer the Pea crop, after the produce of the early sowings had been gathered, was in most parts of England cut short by dry weather in a way that does not often occur. In the southern counties the rows were literally burnt up before the contents of the pods had reached nearly their proper size, so that by the end of July in many places Peas were over. The parched condition of the ground and recent intense sun heat make it look as if the present season, so far as relates to Peas, is about to be a repetition of the last. There is no vegetable of which gardeners find it more necessary to keep up a continuous supply for as long a season as possible than Peas. Those who have had to grow vegetables will not require to be told that there is even more difference in the length of time during which the Pea crop can be made to hold out in autumn in some places than there is in the time when the earliest Peas come in. The character of the soil has doubtless a good deal to do with this, for in some parts of the kingdom, under ordinary cultivation, mildew sets in early to such an extent that late Peas are unobtainable. In old gardens, where the soil is light and dry and contains much humus, in addition to being over-sheltered, mildew finds the conditions most favourable to its development. In places so circumstanced the crop is generally over long before it comes to an end in localities more suited to the growth of Peas. Yet something may be done to lengthen the supply, even where soil and other matters are not favourable. Plants that are subject to fungoid growths are less liable to their attacks when vigorous than when weak, and therefore the best way of preventing their attacks is to take means to secure strong healthy growth.

Peas are deep rooters, pushing their roots much lower down than many plants, and consequently they require the soil to be loosened deeply. In common with other things that make much growth in a little time, they cannot be kept moving freely in poor ground. To enable them to succeed in a hot dry summer their roots must find food wherever they penetrate, for though it is the numerous lateral fibres emitted from the main descending roots that principally sustain the plants, still the deeper the latter are induced to descend, the more feeding fibres they produce. The course some-

times advised of growing Peas without manure in ground that has been manured for a crop of some kind the year before may answer for early sowings, or in new ground that is more than ordinarily well adapted to the growth of Peas. But it is not the way to get the best results in the case of summer and autumn crops where the soil is of a light or ordinary description. My own practice with all except the earliest crop has been to open trenches similar to those used for Celery, and then to dig in a spit deeper a good dressing of manure, with where the soil was light 3 inches or 4 inches of marl. When the latter was unobtainable, clay pulverised by exposure was substituted. This with thin sowing, and the rows far enough apart proportionate to the height to which the varieties grow, good soakings with water during dry spells and mulchings with litter for about half a yard on each side of the rows, will keep Peas growing in hot dry seasons in such a way as to enable them to ward off the attacks off mildew, and secure a supply much later than could have been procured under the ordinary course of cultivation.

One of the commonest mistakes in Pea growing is thick sowing; where too much crowded in the rows it is scarcely possible, even with the help of water, to keep the crops going in dry seasons so as to admit of their lasting out as they should do. The roots crowded together as they are under such conditions have not enough good material within their reach to maintain growth, the result being that the crop, such as it is, comes in all together. I have said nothing about the difference that there is in the quality of Peas that have been grown freely and others produced under opposite conditions, but I may add that even the best varieties when indifferently grown are hard and often very deficient in flavour. T. B.

Late French Beans.—An early kind of dwarf habit, such as Newington Wonder or Osborn's Foreing, planted now will probably prove useful in the autumn if the frost should cut off the Scarlet Runners. They should be planted on a warm south border, where it would be easy to shelter them if required. By the aid of an old canvas blind I have often kept this late-planted crop of dwarf Beans going till quite late in the autumn. A slight framework of lath should be erected just before frost is expected, and an old blind or one of Brittain's nets may be drawn over it at night, and removed in the morning in a very few minutes. A very slight covering suffices to shelter tender things from early autumn frosts.—E. Hobday.

Summer-sown Carrots.—I was pleased to read Mr. Hobday's note respecting Horn Carrots. Gardeners, with their constant succession of crops and ample help in the way of labour, can easily find a patch of soil, if but half a rod in extent, upon which to make a sowing of Carrot seed now, and they have themselves to blame if from the middle of October till the end of the year they have not a liberal supply of delicious young Carrots, as well as a stock of larger ones for winter use. But it is a matter for surprise that market gardeners favoured with rich, light soil do not strive to obtain a good crop of these for the autumn. Just now, when early Potatoes are being taken up, the soil is left in admirable condition for receiving Carrot seed, and a few pounds mixed well with sand and sown thinly in drills 10 inches apart might yield a very profitable crop. It seems certain that we shall have plenty of all the Cabbage and Broccoli tribe, for plants of these have been put out largely and are doing well. The result, doubtless, will be a glut of hardy vegetables in the market. On the other hand, small Carrots, clean, young, and tender, would cost little to bunch, and, compared with Cabbages, would not be very bulky to market. Moreover, a Carrot crop so short a time on the ground would not absorb one tithe of the nutriment from the soil that Cabbages would do; hence all round it does seem as if summer-sown Carrots would prove a capital crop. Add to these winter Spinach, sown early, Rosette Coleworts, neat, firm, medium-sized Brussels Sprouts, and good late Cauliflowers, and really high class vegetables are ensured.—A. D.

PEA TRIALS.

In the following trials, made in Ohio, the Peas were sown on May 2 in drills 3 feet apart. The seed was placed 3 inches apart in the row and covered with 3 inches of soil. The season was very favourable, especially in the earlier part; hence the record of nearly all of the early varieties was uncommonly good. The following table is intended to show the comparative earliness of the varieties named. It does not show the first mature pods found upon the plants of any variety, but shows how many pods were fit to pick at a given date. The first picking was made in every case before any of the Peas were too hard to use, and all the pods mature enough to pick at that time were taken. In fact, the pickings were made just as though the Peas were intended for market or table use. This method shows just what it is desirable to know about any variety, viz., the length of season and time of largest picking. According to this method, the earliest variety is the one that shows the greatest number of pods at the first picking and yields its crop in the shortest time. The season being less favourable for the late than the early sorts, the former do not make as good a showing, comparatively, as the latter. The length of season or number of days in bearing given is undoubtedly too long for some of the early sorts and too short for some of the late, but the length of season seems to be quite variable with most varieties, and is influenced greatly by the weather, depth of planting, and time of planting. Before the picking was commenced twenty-five plants were counted off in each row, and the same plants picked from each time.

In the next table is given the whole number of pods picked from twenty-five plants, also the number of Peas. It will be seen that the relative weight of shelled Peas is much smaller in the smooth than in the wrinkled sorts, being from 15 to 20 per cent. greater in the latter than in the former, the only exceptions being the early wrinkled sorts; but even they stand higher than the smooth varieties. In some of the late sorts the shelled Peas weigh more than the empty pods, but in some of the smooth early sorts the weight of empty pods is more than twice that of the shelled Peas.

Name of variety.	First picking—days from planting.	No. of pods from 25 plants. First picking.	Second picking.	Third picking.	Fourth picking.	No. of days in bearing.
American Wonder	53	30	43	40	22	18
Andes	60	180	150	40	..	14
Bliss' Abundance	70	372	205	..	..	10
Bliss' Everbearing	70	199	212	..	..	10
Carter's Premium Gem	53	53	83	39	59	18
Cleveland's Rural New Yorker	50	63	29	44	24	20
Champion of England	70	260	250	..	..	10
Dwarf Champion of England	70	268	222	..	..	10
Dwarf Marrowfat	70	222	285	..	..	10
Early Daniel O'Rourke	50	61	22	24	21	20
Extra Early (Everitt's)	50	52	36	37	48	20
Extra Early (Benson & Co.'s)	50	71	80	25	17	20
Extra Early (Ferry & Co.'s)	50	63	31	35	9	20
Extra Early (Burpee & Co.'s)	59	105	106	231	78	21
Extra Early (Vick's)	50	63	21	6	25	20
Extra Early Philadelphia	50	50	50	31	12	18
Express	50	60	31	24	30	20
Early Pearl	50	90	33	7	15	20
Excelsior	50	63	41	52	16	20
First in the Market	50	63	23	76	26	20
First and Best	50	59	24	56	40	20
First and Best (Hiram & Co.'s)	50	62	24	33	22	20
First of All	50	60	32	28	18	20
Family Garden	70	435	66	..	..	10
Garden Pride	53	116	35	25	50	20
Horsford's Market Garden	60	31	67	230	248	20
Cross Imperial and Champion	70	354	231	..	..	10
Hoskin's Vermont Wonder	53	52	84	29	28	18
Improved Stratagem	70	150	350	..	..	10
Kentish Invicta	53	110	60	..	..	8
Landreth's Extra Early	50	55	26	47	25	20
McLean's Little Gem	53	22	59	74	150	18
McLean's Advancer	53	20	55	62	114	18
Maud S.	50	67	35	28	21	20
Marrowfat	70	173	204	..	..	10
Cross of American Wonder and Sunrise	53	46	81	31	44	18
New Atlantic	60	24	257	187	..	14
No. 10	70	117	141	..	..	10
New Pride of the Market	70	218	81	..	..	10
Pride of the Market	70	214	192	..	..	10
Prince of Wales	70	394	168	..	..	10
Perpetual	..	..	..	..	..	..
Rival	70	272	226	..	..	10
17th of June	50	63	31	29	31	20
Stratagem	70	169	80	..	..	10
Stratagem (Rural New Yorker)	70	150	107	..	..	10
Stratagem (Livingston's)	70	144	98	..	..	10
Similax	70	204	338	..	..	10
Tom Thumb	53	67	62	17	15	18
Telephone (Livingston's)	70	173	53	..	..	10
Telephone (Landreth's)	70	216	71	..	..	10
Vick's New Dwarf	53	62	67	38	36	18
Wm. Hurst	53	48	86	19	6	18
Yorkshire Hero	70	403	138	..	..	10

Name of variety.	Number of pods from 25 plants.	Number of Peas from 25 plants.	Weight of pods in ounces.	Weight of Peas in ounces.	Average number of Peas per pod.
American Wonder	137	739	23⅜	9½	5
Andes	370	1302	50	22⅝	3
Bliss' Abundance	578	1934	73½	36	3
Bliss' Everbearing	411	1419	62	30⅞	3
Carter's Premium Gem	234	1025	31⅛	13	4
Cleveland's Rural New Yorker	160	814	24⅛	9⅞	5
Dwarf Champion of England	490	1511	77⅛	37	3
Dwarf Marrowfat	507	1933	61⅛	31½	4
Early Daniel O'Rourke	128	583	18⅛	6¾	4
Extra Early (Everitt's)	174	854	25⅜	9⅞	5
Extra Early (Benson & Co.'s)	143	722	21⅛	8⅛	5
Extra Early (Ferry & Co.'s)	138	656	20⅛	7⅝	5
Extra Early (Burpee & Co.'s)	520	2875	66⅜	31⅝	5
Extra Early (Vick's)	115	475	13⅜	6¼	4
Extra Early Philadelphia	143	604	20	8	4
Express	145	667	21⅛	6⅝	4
Early Pearl	145	634	20⅛	7¼	4
Excelsior	172	920	29⅛	11⅛	5
First in the Market	188	995	32⅝	11⅛	5
First and Best	179	941	29⅝	10⅛	5
First and Best (Hiram & Co.'s)	141	669	19⅝	7⅛	5
First of All	138	652	20⅝	7⅝	5
Family Garden	501	2466	61	30⅛	4
Garden Pride	226	955	27	10⅜	4
Horsford's Market Garden	576	2376	72⅛	35⅛	4
Cross Imperial and Champion	565	1956	97⅛	44⅝	3
Hoskin's Vermont Wonder	193	849	30½	11⅝	4
Improved Stratagem	509	2085	108	44	4
Kentish Invicta	170	790	21⅛	9	4
Landreth's Extra Early	153	792	25⅜	8⅞	5
McLean's Little Gem	305	2022	58⅞	29⅛	6
McLean's Advancer	251	1373	42⅛	17⅛	5
Maud S.	151	708	22⅜	8⅛	5
Marrowfat	377	1844	58⅛	30⅛	5
Cross of American Wonder and Sunrise	202	971	34⅜	13⅜	5
New Atlantic	468	2008	64	32⅜	4
No. 10	258	1259	72⅛	27⅛	5
New Pride of the Market	209	1033	7⅛	30⅛	5
Pride of the Market	406	1986	95	36⅜	4
Prince of Wales	562	1648	84	39⅛	3
Rival	622	2386	91⅜	44	3
17th of June	154	714	22⅜	8⅜	5
Stratagem	337	1583	82	35⅛	4
Stratagem (Landreth's)	301	1422	75⅞	32⅛	4
Stratagem (Livingston's)	242	1365	73⅛	30⅛	5
Similax	542	2354	82⅛	43⅛	4
Tom Thumb	161	785	19⅛	7⅜	5
Telephone (Livingston's)	226	1193	61⅛	27⅜	5
Telephone (Landreth's)	287	1394	77⅛	32⅛	5
Vick's New Dwarf	203	796	30⅜	11⅛	4
Wm. Hurst	159	799	26⅜	8⅛	5
Yorkshire Hero	541	1911	88	45	3

Of the early sorts, Cleveland's Rural New Yorker Everitt's, Maule's, Ferry's and Vick's Extra Earlies, Ferry's and Sibley's First and Best, Henderson's First of All, Livingston's First in the Market, Early Pearl, Early Philadelphia, Excelsior, Landreth's Extra Early, and 17th of June are essentially the same. Some of them may have been grown with greater care than others, but all of those named show careful selection, and all that is claimed for them as to earliness is true. Bur

pee's Extra Early was quite different from the others, being taller and more productive, but nine days later. It was the same as a variety under the erroneous name of Early Philadelphia from the same source. Stratagem maintains its reputation, and Alexander's Improved Stratagem seems really to be an improvement, so far as productiveness is concerned. Vick's New Dwarf is promising, and may prove to be superior to American Wonder. Bliss' Abundance is an excellent variety, but Bliss' Everbearing is a misnomer. It is only fairly productive, and yields its crop at two pickings. For a variety that continues long in bearing and yields heavily, Horsford's Market Garden seems to have no superior. It is unrivalled for family use. Smilax is very promising, also Early Pearl, if upon further trial it should prove to be as early as it appears to be.

TOMATO TRIALS.

In the following trials the seed was sown on a hotbed on April 20. The plants were once transplanted and put in their fruiting quarters on June 2. The Tomato is quite variable as to earliness; the variety that is earliest one season may not be so the next. It will be seen that Acme seed taken from the first ripe fruit produced plants that gave fruit earlier than that taken from the last ripe fruit. Doubtless, the plan of saving seed from the first good fruit, or from plants that give the most early fruit, is a good one. It has been observed that the finest, if not the earliest, fruit is secured by this method of selection. There was no difference observed between seed saved from fruit affected by rot and that saved from sound fruit. Seed saved from green fruit failed to germinate.

Name of variety.	First ripe fruit.	Number ripe August 14.	Number ripe August 21.	Number ripe August 31.	Average weight in ounces.	Average circumference in inches.
Acme—seed from first ripe fruit	Aug. 3	26	27	53	5	8½
Acme—extra selected	3	17	17	42	5	8½
Acme—seed from last ripe fruit	10	5	16	22	4½	8½
Acme—Landreth's	11	17	16	28	5	8
Alpha	2	37	49	30	3½	7½
Advance	3	26	24	74	3½	7½
Canada Victor	6	30	8	44	4	7½
Climax	8	14	7	23	5	8½
Challenge	12	3	3	9	6	9
Cardinal	10	5	3	6	5	8
Essex Hybrid	10	12	11	12	5	7½
Early Richmond	5	32	15	26	4½	8½
Favourite	12	17	10	12	6	9
Golden Queen	10	11	6	17	6	9
Mayflower	10	12	5	12	5	8
Market Champion	10	11	2	12	5	8
Optimus	10	24	17	20	5	7½
Paragon	10	11	10	23	5	8
Perfection	8	11	7	7	5½	8
Perfection—seed from first ripe fruit	3	8	12	28	5½	8
Perfection—seed from last ripe fruit	6	13	6	12	5	7
Precursor	8	11	7	13	4½	8
Queen	4	6	9	25	5	8½
Rochester	12	5	2	8	6	10
Standard Market and Shipping	8	24	9	14	5	8½
New Tree Tomato	21	..	..	..	..	..
Golden Trophy	10	14	12	29	6	9
Trophy	12	9	9	20	6	9
Wonder of Italy	12	7	10	47	2	5

Advance is rather larger and not so rough as the Alpha, but not large and smooth enough to become a profitable market variety. Climax is a fine smooth-fruited kind, much resembling Favourite. Cardinal has fruit of good form and colour, but it rots quite as badly as Acme. It is not superior to that variety, except for markets where its colour is in its favour. Market Champion resembles Cardinal, and, whether identical or not, is a fine variety or strain. Optimus resembles Perfection in colour, and may be identical with that variety. Of Precursor the fruit is quite irregular, and scarcely better than that of Canada Victor. Of Rochester the fruit is quite large, but somewhat irregular, and ripens unevenly. Standard Market and Shipping regular and smooth, but resembling Perfection. The new Tree Tomato is identical with the Upright Red; its fruit is too rough and late. Wonder of Italy is small and worthless.—*Ohio Experimental Station.*

THE RIDGE CUCUMBER.

This is a crop which often repays a little attention. Up till the time of writing, the present season has not been very favourable to its growth. During the greater part of the month of June the temperature, especially at nights, was too low for any real progress. The last few days of the month and the early days of July have, on the other hand, been scorchingly hot. On the whole, however, where the plants were fairly well established before the spell of hot weather, and have been looked to since its commencement, there are marked signs of better growth.

Where the plants are not at once available, or already planted out, it will be too late in the season for much to be done during the present year, but where the plants have been grown and are placed by this time in the open, much will depend upon the subsequent treatment. With regard to raising the plants from seed, the precise time at which the seed is sown must be to some extent governed by circumstances, and also by the situation for which the plants are ultimately intended. Frost is the great enemy to be guarded against; therefore it is useless to set them out until there is reasonable ground for hope that the frosts are past for the season. Earlier than the middle of June for most positions I could not recommend for planting out. To obtain strong plants by this time it will be necessary to sow under glass during April. The way I generally proceed is to plunge some broad pans or boxes, 3 inches to 4 inches in depth, into a partly spent hotbed, and sow the seeds singly in these at a sufficient distance apart to allow of room for rooting and subsequent removal without disturbing the soil round the plants. The boxes or pans should, however, be drained, as the free escape of superfluous moisture is a great point towards securing healthy plants. As the season advances I remove the glass entirely during the daytime, and for the last week or so before planting out leave no protection but that of the frame itself.

In planting out, the selection of the site will have much to do with the amount of labour requisite to cultivate the crop successfully. With such a moisture-loving plant as the Cucumber, little or nothing can be done if there is not easy access to water in one form or another. A favourite spot of mine for raising ridge Cucumbers used to be some small beds in a back garden. These patches of soil sloped considerably to the south-east, and along the bottom of them there was a small mill stream, which, during the hottest season, afforded a supply of water. On the north and west on higher ground there was a small coppice, which afforded capital shelter. Towards the stream the soil was too moist to produce ordinary garden crops to perfection, if I except Runner Beans, which did remarkably well; but, on the whole, it was about the best spot for raising ridge Cucumbers that I have met with. In such a position, however, it was important that the ground should be ridged, otherwise the drainage would not have been sufficient. It is not always one has the command of a place so naturally favoured, and this season I am obliged to grow my Cucumbers on a spot in many respects just the reverse. The situation is high, the soil incapable of long retaining moisture, and the water has to be raised from a well. The best way for such sites I find to be to place some well-rotted manure in a trench, and cover it with soil 6 inches in depth, finishing off the soil at about the general level. If I deviate at all from this, I would prefer to have it below rather than above the surrounding soil, as to attempt to grow ridge Cucumbers on a ridge in such places would be an error. This season, however, I have had no opportunity of trenching the ground in this way, as the only place I had available was one which has all the spring been occupied as an old Cabbage bed, necessitated by my young plants being killed by the winter's frosts. To economise the space, I have loosened the soil as deeply as possible in spots some 18 inches or 2 feet in diameter, and worked it down to a fine tilth. In the centre of these spots I have placed my plants and worked in rotted manure round the margins of the little circular patches. In this way I have been able to save some of the Cabbage beds in the spaces between the plants, but they will, of course, be removed as the Cucumber plants grow on and need the room. I have my earliest row of Celery at one end of this bed. As raising water directly from a well and applying it at once to the plants did not commend itself to me, I have placed a large wooden trough in a convenient position on the edge of the bed, and into this have thrown several pailfuls of solid excreta from the pig-stye—the same kind of thing from the sheep-fold would be quite as desirable if to be had—and with this I daily mix enough water to supply my Cucumbers, Celery, and other plants which require stimulating.

The actual outcome will, of course, depend much upon the season, and the treatment will have to be varied accordingly, but unless the weather has been very abnormal I have never failed in getting a fair return for the trouble expended upon it. In growing ridge Cucumbers, as with others, there is very much to be gained by pegging down at the joints, and in thus getting them to take a new hold upon the soil. When a plant has to depend upon a single root, it is seldom it produces a very heavy crop. D.

5508.—**White Cucumbers** (*J. N.*, *p.* 22).—Cucumbers are not aquatic; consequently their roots under ordinary culture, do not require water every day. Your temperatures being right, the deficiency in chlorophyll or colouring matter may be due to incessant watering, combined with insufficient food. This, however, is only conjecture, as you omit the most important part of your case, viz., the compost in which they are struggling for existence and the mode of culture, whether in pots or on hills, in frames or a Cucumber house proper. Read notes on Cucumbers in this week's calendar, and if the remarks therein contained do not help you, examine the bed, as it is more than probable the soil has become sour, and the roots are unhealthy and incapable of performing their duty. Should this prove to be the case, cut off all the imperfect fruit, thin out the Vines and a few of the aged leaves to make room for fresh young growths, cleanse and limewash the structure. Meantime, prepare fresh compost, consisting of medium turfy loam, say five parts, rough charcoal one part, and old lime rubble one part; mix thoroughly, and place it in the sun to warm and sweeten. When ready for use remove the mulching, also as much of the old soil as can be taken away with safety, and top-dress with a layer 2 inches in thickness; make this firm, and water rather sparingly until the roots have taken hold of it. Renovate the fermenting material with Oak leaves, if available, to prevent the bottom heat from sinking below 80°, shade slightly if the plants show signs of flagging, and syringe twice a day with warm soft water. Avoid the use of all animal manure, but stimulate the foliage and roots by syringing every part of the house three times a week with very weak soot water, and give diluted liquid when the roots show on the surface of the new compost. Examination of the old compost having revealed the condition of the roots and drainage, your own judgment will be the best guide in giving water, both as regards quantity and quality. Constant saturation of the soil and daily driblets are alike pernicious, and heavy feeding, when roots are neither plentiful nor healthy, is worse than useless. Therefore to avoid these extremes water copiously when this element is needed, ply the syringe freely on non-watering days, and grow the plants without shading when they are re-established. If any of the compost remains over, cover it up with fresh stable manure

for future use, as all mixtures of this kind improve by keeping. Soot water is an excellent insecticide and stimulant when used in moderation, but, like all other powerful fertilisers, burns the foliage and roots when applied too strong and frequently. Old soot which has been kept for a time is less fiery than new, and for this reason should be preferred. Half a peck placed in a bag, and sunk in a tank containing, say, one hundred gallons, will make a supply which should be diluted for a few days at first, but when the tank has been once or twice filled up, it may be used without the addition of pure water.—W. Coleman, *Eastnor Castle, Ledbury.*

—— The reason why "A. N.'s" Cucumbers become white is probably because seeds of the white or cream coloured variety have been planted. White Cucumbers are seldom produced on plants consisting of the ordinary green-fruited varieties.—J. D.

Ferns.

INDOOR FERNERIES.

In the construction and arrangement of an indoor fernery, there is abundant scope for the exercise of taste and skill. There is no class of plants which submits so readily to such a variety of dissimilar conditions as Ferns, and the question of temperature has less significancy in their case than in that of most plants. It is true that to grow some species care must be exercised, but many of the so-called stove Ferns will succeed in a warm greenhouse, and all the greenhouse species will flourish in a warm house. Even hardy Ferns will acquire a freshness of tint under glass which does not always belong to them in the open air. Most Ferns are considered to do best in a shady position. To a certain extent this is true, but I am convinced that more shade than is necessary is frequently given them, especially if we want any of the fronds for bouquet making or for mixing with flowers, or if we wish at any time to move the plants out of the house in which they grow, which most people do at some time or other if grown in pots. Fronds grown in the shade in a high temperature heavily laden with moisture are of no use for cutting, nor yet are the plants grown under such conditions of any use for decorating rooms, for the least blast of cold air shrivels up the delicate pinnules almost immediately. In constructing a fernery, we must first take into consideration what is our aim and object. If we want plants to be moved into the rooms, or fronds for cutting to mix with flowers, they must have plenty of light and as low a night temperature as is consistent with healthy growth. If, on the other hand, we simply want to enjoy the plants as they grow without thought of removal, then the natural system of arrangement is decidedly the best. In such a case, pots and tubs may be dispensed with. The fernery should be as large and as lofty as the means will admit, for no fernery will contain a representative collection that does not include some of the Australian Tree Ferns, and these will require a considerable amount of space upwards and laterally, for their fronds are far-reaching. In a natural fernery the outline of the beds and borders should have as picturesque a surface as can be given in a limited space; winding paths will be formed of some sober coloured material, cement being very appropriate. The Tree Ferns may be grouped in the gullies or indentations, and lower growing species on the banks, which may be aided by naturally arranged rockwork. This plan will give more head room for tall species, and will bring small kinds more into prominence. Mosses and other creeping things will fill up bare space, and cover all with a living natural growth. In making the borders drainage is essential, and it will add much to the interest of the house if a quiet pool can be introduced at the base of a mound of rock, down the face of which a tiny stream might ripple. There should be no bare walls visible; in some way they should be clothed with suitable vegetation. Virgin cork is sometimes used for this purpose, but its chief fault is its lack of permanence. I have seen clinkers and large pieces of hard furnace coke covered with cement used with good effect; and there are creeping plants, such as Ficus repens and others, that will cover quickly any naked wall with living greenery, clinging to the stones in a natural manner without aid.

The culture of Ferns in pots is not attended with more difficulties than are found in the case of ordinary plants. If the fronds are required for cutting, which in most gardens some of them are, I have generally found that a proportion of loam in the compost gives strength and substance to them. Indeed, some kinds do best altogether in loam, and for greenhouse Ferns, especially for plants which are required to possess a good development for furnishing corridors, rooms, &c., and which must at the same time be grown in limited sized pots, loam as turfy and fibry as it can be had is the best material for them. It may be lightened with peat or leaf-mould if too heavy, and sand and charcoal dust will be useful if it lacks porosity, for in no case must stagnant water linger in the soil. It may be taken without saying that the pots must be clean and well drained, and the soil in a healthy condition when used. The ball of the plant must be neither wet nor dry. The best season to repot is in spring, just before or about the time when growth begins. At that season Ferns may be divided—may, in fact, be cut up into little bits and begin life afresh in the smallest of fragments, though in such cases a close moist shady place will be of great value in encouraging early root action, without which some may, perhaps, perish. Though the general potting should be done in spring, yet young growing specimens may be shifted at any time during summer.

Ferns in baskets look well, and this is an excellent way of growing all the naturally trailing or drooping species; indeed, all Ferns will grow as well in baskets as in pots, but it may not be either convenient or expedient to have too many grown in that way. Still, a few to hang about the house will improve its appearance, and they are very useful to move into the dwelling-house to hang up in the hall and corridors, &c., on particular occasions. The simpler the form of basket used the better, as whatever kind is employed, none of it should be visible when the plant which it contains is full grown. We make our own baskets of different sizes, to suit the different objects we have in view, due weight being given to the requirements of the plants. When the baskets are made at home the cost is very small, as wire is cheap, and a handy man, after a little practice, can make them on wet days, the only tools required being an implement to cut the wire and a pair of pliers to bend it in the right direction. Two sizes of wire are used, one stout to form the groundwork of the basket, and the other of lighter substance to bind all together; afterwards a coat of paint is given to preserve the wire from rust. E. H.

Egyptian Lotus.—Mr. Woodall (p. 40) is naturally surprised that I should have repeated in the catalogue of the "North" Gallery the error that the Lotus of the ancient Egyptians was Nelumbium, and so am I, because it was I who translated Schweinfurth's manuscript on the subject, which appeared in *Nature* in 1883. When I wrote the first edition of the catalogue I was unaware of the discoveries of archæologists, and the last edition was finished off so hurriedly, that I had not time to reconsider every statement. As long ago, however, as the time of Herodotus Nelumbium was probably cultivated every here in Egypt, and was then known as the Lotus; how or why the name was transferred from Nymphæa to Nelumbium is unexplained. I may add that Nymphæa Lotus is not blue, as stated by Mr. Woodall, but either white or some shade of red. The Egyptian blue Nymphæa is one of the varieties of N. stellata, and commonly known as N. cærulea. According to Schweinfurth, both N. Lotus and N. cærulea occur in the funeral wreaths of the very ancient Egyptians, though he identified the latter only in the mural paintings of the temples.—W. Botting Hemsley.

Garden Flora.

PLATE 553.

MALVA LATERITIA.*

Generally speaking, the Mallow family is not very popular in gardens, *i.e.*, if we take into consideration the number of species of which it consists; but this we know, that amongst the few that we cultivate are some of the finest of garden plants. These include the Hollyhock, the Hibiscus, the Abutilon, the annual Malope, and that charming little trailer, Modiola geranioides. Of the Malvas themselves much cannot be said, though what have we more beautiful than the white satiny-flowered variety of M. moschata? The Malva herewith illustrated is also a pretty plant, and one that we hope will become more generally known than it now is. It is uncommon, but cannot be called new, since it was first sent to this country from Entre Rios, near Montevideo, by Tweedie in 1836. Nothing more was heard of it until 1840, when Mackay, then of the College Botanic Gardens, Dublin, who had received seeds from the same source, flowered it in September. It is generally described as being only 6 inches in height, but with us many of the stems rise to the height of a foot or more after running as much or more on the ground. The flowers, as represented, are produced on long peduncles rising from the axils of the uppermost leaves. They are mostly set down as brick-red, but they seem to be flesh or salmon-coloured, and not unlike the flowers of Geranium lancastriense. The upper leaves are three-lobed, hard, and slightly rough to the touch. A light sandy soil and full sunshine appear to suit this plant either on a rockery or in a border, the former being preferred. There it should be allowed to ramble at will, without being crowded or shaded by taller plants, and if otherwise well attended to it will produce a profusion of its salmon-coloured flowers from June to September. It is easily propagated by means of the prostrate branches which often root as they spread, or from cuttings which can be had in abundance in autumn. It ripens seed but sparingly, unless in exceptionally warm seasons, and if sown when gathered it will furnish sturdy little plants by spring. The Callirhoes, of which there are three or four good species in cultivation, belong to quite a different type; generally they have a procumbent or prostrate habit of growth, and they are more suitable for a rockery than a flat border, as on rockwork their trailing stems and bright flowers can be shown off to much better advantage than on level ground. Modiola geranioides, or, more properly, Malvastrum Gilliesi, is also of this type. In low-lying localities it is often lost during winter, but in rich sandy soil on an exposed rockery it withstood the last severe winter uninjured, and is now beginning to flower as vigorously as ever.

D. K.

Sparmannia africana.—This old-fashioned greenhouse plant is not to be despised by those who want flowers during winter, and have not convenience for growing more delicate and showy subjects. In a fairly warm greenhouse it will begin flowering in autumn, and continue to do so until late in spring; in fact, it is hardly ever without flowers. We grow it in the shape of various-sized plants, ranging in height from 15 inches to 4 feet; but the larger the plants the more effective they are, and if their flowers are not striking, their formation is certainly singular. The young tops of the shoots strike root freely in spring, and they will succeed in any ordinary garden soil.—Taunton.

* Drawn in the Royal Gardens, Kew, by Miss Lowe, July, 1885.

MALVA LATERITIA

WORK DONE IN WEEK ENDING JULY 13.

July 7 to 10.

The drought continues, but the heat is not so intense; watering is still our principal work, but it is a poor substitute for rain, yet it must be done to keep the plants alive till such times as we are favoured with rain; all the recently planted winter Greens, Lettuce, and Celery have to be included in this category, and when time affords, Peas, French Beans, Onions, and Tomatoes also have their turn. Fruit trees on walls have a drenching once a week, and as all are heavily mulched this watering suffices to keep them in good condition. As a matter of course, the borders of fruit houses—inside and out—are never stinted of water, and in such weather as this all have to be done once during the week. For kitchen garden crops that it is not practicable to either mulch or water, deep stirring of the soil with hoes assists growth immensely, not to mention the destruction of weeds, so that as time can be afforded this work goes on. Flower gardening for summer and autumn effect we have to make a special study; hence this drought is causing us a serious amount of labour in watering to get the plants up to their usual summer standard of perfection. Cocoa fibre refuse is our friend, and we use it for mulching all small beds and plants, and so save a certain amount of watering, and yet the growth of plants continues. It is a grand invention for this purpose, being cleanly, of a nice colour, and the birds do not peck it about as they do other mulching materials in their search for food. Pegging and pinching of low-growing plants, and tying to stakes tall-growing kinds and keeping the turf edgings in trim order are jobs that in this department have been in the ascendant this week. Herbaceous plants, in spite of drought and with but a scant amount of watering, still present a gay appearance; for, now that Pæonies and Pyrethrums are nearly over, in their places we have the several varieties of Delphiniums, Veronicas, Potentillas, and Spiræas, and thus the round continues, not the least interesting part of the matter being the constant change or succession of flowers of various species of plants. Roses have had a hard time of it, for fierce sunshine, however liberal may be both mulching and watering, does not suit the flowers, and three days is about the utmost limit that they continue in fair condition. We cut them off as soon as over, and thus assist the plants to make an earlier growth, which ensures better autumnal flowering. Besides watering, the work connected with houses has been the keeping of laterals in vineries within reasonable bounds. Late vineries now make a great amount of growth, which we never like to cut or pinch back all at once, but prefer rather to do it at intervals of two or three days; thus we avoid a sudden check or derangement of the ordinary functions of the Vines, and thereby to some extent the disease called shanking, which, though it may be caused by other irregularities, such as cold currents of air, a stagnant atmosphere, and by attacks of mildew and red spider, I believe is most frequently caused by the wholesale removal of lateral growth at one time. Early Peaches have had their growth thinned out, the better to admit of sunshine to ripen the wood; the trees are well syringed twice a day, and the house constantly remains open during this hot weather, there being no prospect of immaturity of wood, else the house would be closed up early in the afternoon and fire-heat given, which we have sometimes to practise in respect of later houses to get the wood well ripened. To Melons and Cucumbers we apply the same rule as to the timely removal of lateral growths, as in the case of Vines, and once a week at least we find it necessary to go over these to pinch back and tie them to trellises. To Cucumbers in full fruit we give rich top-dressings, a little being added most weeks throughout the rapid growing season. Melons we grow in good loam, the only admixture being a few crushed bones, and the only top-dressing a little fresh droppings applied as soon as the crop of fruit has set. We never allow the soil to become dry, which state is a certain precursor of the loss of foliage, and it might as well be of fruit, too, for any good it is, so far as quality is concerned, for good fruit cannot be had without good foliage. Layering Strawberries for foreing, as well as for forming new plantations; potting Poinsettias, Gardenias, Eucharis, Tree Carnations, and Bouvardias, and keeping pinched out the side shoots of Chrysanthemums and the main shoots tied to strong stakes, and on this last-named date gave all houses a thorough clean out. Thus ends as hard a week's labour as has ever fallen to our lot, and till rain comes there is, unfortunately, in store for us the prospect of its repetition.

July 12.

The longed-for rain has at length and unexpectedly arrived, 0·48 being our register as having fallen since 9 p.m. yesterday to the same hour this evening. It made us extra busy between the showers putting out Broccoli, Cauliflowers, Savoys, and Curled Kale, also thinning out Leeks, Salsafy, Beet, Lettuce, and Turnips; pulled up second early Peas that were nearly over and planted on ground late varieties of Broccoli. The ground being free of weeds nothing needed to be done beyond the removal of sticks and haulm and the drawing of drills in which to put out the plants. The ground was trenched for the Peas, and as all the Cabbage tribe do best in firm land, digging was not necessary. Sowed Turnip Radishes and Black-seeded Bath Cos Lettuce on borders that had been cleared of early Potatoes, and sowed Turnips on an east border, the partial shade that such a position affords being helpful to this crop at this season of the year. Continued layering of Strawberries, tying Chrysanthemums, and stopping lateral shoots of Vines. Planted Capsicums in manure frames, after the fashion of Cucumbers, which is by far the most profitable way in which to fruit them.

July 13.

Fine, and warm as ever. We should have liked more rain—half an inch is but little on ground so parched; still, it has done an immensity of good, and it is worth something to get even one day's rest from watering. Rolled all walks, mowed flower garden, and cut turf edgings. Tied Tomatoes to stakes and thinned out the weakest shoots—a single branching stem produces the finest, and quite as much fruit as do several shoots on the same plant. Gathering fruit for preserving; Currants and Raspberries are abundant; Strawberries were so too, but the heat and drought have made the crop light, and now that they are over we have begun to weed the plots and to cut off runners, after which the mulching will be renewed. Except the work mentioned under yesterday's date, all other work in and about the houses has been of a purely routine character.

Hants.

FRUITS UNDER GLASS.

Vines.

Where the roots are well mulched and liberally supplied with water, fruits of all kinds under glass and in the open air are now growing with a rush, and bid fair to redeem the time lost during the cold weather which prevailed up to midsummer. These sudden changes from one extreme to another are not, however, good for trees or fruit, and great care must be devoted to Vines in every stage of their growth.

Early houses from which the fruit has been cut must be copiously watered inside and out, and well mulched with half-spent manure, old leaves, or litter to keep in the moisture and protect the young roots now working near the surface. If the Vines are old and weak, a good coating of rotten manure well washed in with the hose will be found a great help, especially where they have been touched by spider and do not show a disposition to break into a free and fresh growth of lateral. With the glass standing at 80° or more in the shade and a cloudless sky, all the doors and ventilators may be thrown open for at least twelve hours out of the twenty-four, and plenty of cold water thrown down in the passages through the day will keep the temperature down until the declining sun admits of a thorough leaf bath every evening.

Succession houses containing ripe Grapes will require still more careful management, as this tropical weather soon takes the colour out of black varieties, whilst it hastens the ripening of others before they have time to lay on the thick coat of bloom more frequently met with in good ordinary seasons. White Grapes of all kinds, especially early Muscats, on the other hand, enjoy all the sun, light, and air that can be safely admitted through the irregular breaks in the main foliage, and for this reason the Vines should be divested of all gross laterals where they intercept the sun's rays; while those on Hamburghs may be allowed to ramble provided they do not interfere with the principal leaves or check the circulation of air. Water, it is hardly necessary to say, may be freely used in succession houses, and, assuming that internal borders were thoroughly watered and well mulched when the Grapes commenced laying on colour, regular damping down two or three times a day and syringing the stems on fine evenings will keep the Vines fresh and healthy until the crop is cleared off. When July Hamburghs and Madresfields are quite ripe, and hanging for private use is not only desirable, but necessary, unless the foliage is close and good, slight external shade is sometimes applied with beneficial effect through the hottest part of the day. Various materials, including light scrim, are frequently used, but the shading of any particular section of a long range being extremely troublesome, I have found two or three thicknesses of ordinary herring netting most suitable, as they are not affected by wind, and the abundant, but subdued, light which passes through the meshes renders daily removal unnecessary.

Late houses.—Thinning in Lady Downes and the general Muscat house having been brought to a close, the Vines must be well watered and generously treated until the scalding period has been passed, when it may be necessary to run the scissors over all the varieties intended for hanging up to Christmas and cutting for bottling. Black Alicante, Gros Colmar, and Black Morocco this year promise to be very fine in the berry, and as yet have shown no tendency to scalding; therefore all doubtful or imperfectly fertilised berries should be removed with a careful hand. In order to economise fire heat in the autumn, and yet to insure the proper ripening of these varieties before the end of September, a night temperature of 70° with a corresponding rise by day should now be maintained in the houses—if with the aid of sun heat alone so much the better—but in the event of the minimum falling below 68° before morning and scalding setting in, gentle fires with a free circulation of air and a diminished supply of moisture will become necessary. When this danger is past atmospheric moisture in plenty must be resumed, and in order to keep spider in check, the stems and foliage, wherever a syringeful can be delivered without wetting the berries, may be carefully bathed about 7 p.m. Many growers never wet their Vines after the Grapes are set, but this is a season of extremes and admirably adapted to the spread of spider. Moreover, prevention being better than cure, a few gallons of cool soft water passed through a good syringe in dexterous hands will tell favourably upon the Vines and fruit until we have a change to cooler weather.

Pot Vines.

Fruiting canes intended for next year's forcing will now show signs of changing colour if they are not already ripening. This process, it must be borne in mind, must not be too rapid, as the main buds have to be properly fed and the embryo bunches formed before the leaves fall. If well plunged, or the pots are surrounded by leaves or litter, less water may be needed, but on no account

must the roots be allowed to become dry or the foliage to suffer through careless syringing. Air in abundance through the ripening stage is an important factor; indeed, the treatment usually accorded to early houses from which the Grapes have just been cut will suit pot Vines admirably. The general stock intended for planting or cutting back should be prevented from rooting through into the beds, much as one may approve the vigorous growth which they make when the first root breaks bounds. If not already stopped each leader may be pinched when the Vines have made 6 feet to 8 feet of growth, more or less according to their strength and the purpose or position for which they are intended. All laterals and sub-laterals, too, must be pinched to plump up the lower buds and thicken the canes near the base, but those which start near the top after the points are pinched out must be allowed to ramble as safety valves to the main buds when the lower laterals are entirely removed. The ripening process must be facilitated by gradually reducing the supply of water and increasing the circulation of air. Where old Vines have been forced hard with the view to replanting as soon as the Grapes were cut, the houses should now be ready for the young stock if they are not already planted. June is the best month for replanting with growing canes, but I have planted as late as the end of July and the first week of August and then they have topped the rafters. Weaklings, or canes that have been checked, it must be understood, will not do this, as one continuous growth from the bud to the finish is absolutely necessary; therefore, where Vines have not been properly prepared, either on cratches, squares of turf, or in good sized pots, July planting is best left alone. If, on the other hand, the Grapes are ripe, and perhaps partially used, and young Vines in good condition are ready, the work should be taken in hand at once and finished off quickly. Quickly, indeed! the inexperienced in these matters may exclaim. Vines in bad condition (no one would disturb them if good) must be made to ripen a crop of Grapes; these must be consumed, young ones must be struck from eyes, and new borders made, all in the course of nine months. Yes, the young Vines will be growing while the Grapes are ripening; if stopped once to keep them within bounds no harm will be done. The Grapes may be cut and bottled as soon as they are ripe, and new compost can be prepared ready for use as soon as the house is cleared of the old canes and properly cleansed. But what is to be done with the old borders—a ponderous undertaking when all hands are so busy? Why, leave the external border intact for removal at leisure, and cut a trench 3 feet in width out of the inside border next to the front wall plate if time presses. Otherwise remove the inside border bodily, correct the drainage, and form the foundation (3 feet will be wide enough) with fresh turves, grass side downwards, build turf walls clear of the undisturbed part of the old borders, and fill in with fresh compost. When finished the ridge may be 3 feet in width at the base, 2 feet 6 inches at the top, and 6 inches to 9 inches higher than the old to allow for settling. Shut up the house for a day or two to warm the compost, plant the Vines 3 feet apart, give a little water at 90° to settle the soil about the roots, and mulch with old Mushroom manure. Keep the house close and shaded to keep down the temperature, and syringe the paths, walls, and Vines three or four times a day until fresh root action sets in. This the crisp appearance of the young leaves will indicate, when the heavy shading must give way to canvas or tiffany for a time, but not longer than is absolutely necessary, as the Vines must be gradually inured to sunlight and air. When fairly established and the growth, which will be rapid, has filled half the rafter, pinch the points to thicken the canes near the base, also the lower laterals to plump up the buds, and allow those near the apex to ramble over the upper part of the trellis. As autumn draws on give more air and less water, and apply gentle fire-heat to ripen up the canes.

Figs.

Where November-started trees have been well managed, the second crop of fruit will now be ripe, and after the past hot weather the colour and flavour will be good. Second-crop fruit does not, as a rule, attain a very large size, and some varieties, including Brown Turkey especially, when trained on trellises, show a great deal more than they can carry to maturity. This may be prevented early in the season by pinching the points to swell up the fruit and induce fresh breaks; but it is now too late to pinch, as points so treated would most likely become blind and comparatively useless for next year's forcing. In order, then, to obviate this difficulty and still to retain the short-jointed points now drawing up to the glass, all intermediate fruits not likely to be wanted must be taken off, as their retention will only rob the second crop and keep the trees at work when they ought to be going to rest. Two crops are quite enough for one set of trees to carry, although I have made them carry three, but they have always squared the account the following spring, independently of the fact that the third crop comes in with larger fruit from walls and wall cases. Second-crop trees cannot easily be over-watered, even when the fruit is ripening, and they require good syringing wherever water can be placed without casting spray on Figs nearly ready to gather. From this time forward, every particle of spray should be constantly removed to let in sun and light, so essential to the ripening of the fruit and wood, and when the last Fig is gathered, the hose must be introduced to cleanse the foliage of filth and insects. All fruits at the same time larger than Marrow Peas may safely be removed for the benefit of those barely perceptible in the axils of the leaves near the points, as they rarely pass the ordeal of cleansing and the suspended flow of sap through the winter.

Late houses and wall cases.—Tie down to the wires the most promising growths before they touch the glass, and avoid overcrowding by thinning out side shoots and useless spray as the work is proceeded with; also thin the fruit where too thickly set, as one fine fruit is of more value than two of inferior quality. Keep the roots well mulched and copiously watered, syringe freely, and shut up early with sun heat on fine afternoons. Trees on walls enclosed by narrow glass cases require similar treatment, but being a greater distance from the glass the young growths should be more freely thinned, otherwise a great deal of heat will be lost, as water instead of warmth will be absorbed by the brickwork. Where pot trees are grown along the front of these structures—a suitable place for testing new varieties—they should be partially plunged in the soil and thoroughly well mulched to feed the fruit and economise watering. Free fruiting kinds like Osborn's Prolific, Brown Turkey, and White Marseilles do not make much growth; consequently they rarely require stopping. Young stock from eyes or cuttings must now be pushed along, as days will soon begin to draw in, and next year's success entirely depends upon the way in which the points are ripened. Weak plants that have not received the final shift should be potted before the end of the month, otherwise they will be growing when the young points should be ripening. As these will hardly form embryo fruits, they may be pinched a little later than others intended for forcing. A set of trees so treated last year and kept in a late house have made handsome little bushes, and every summer shoot is now crowded with swelling fruit which will ripen in August.

Cucumbers.

Although winter plants are not unfrequently kept doing good work throughout the summer, they cost a great deal in labour, and often become badly infested with thrips and spider. If these pests could be confined to the plants upon which they originated, their presence for a time might be tolerated, but unfortunately they migrate in hot, dry weather and get carried about by attendants whose duties take them into other houses. To obviate this and keep up a good supply of fine fruit, a sowing of Telegraph should now be made in 4-inch pots or squares of turf to secure strong plants for succeeding Melons. Where a little stable manure and a few fermenting Oak leaves are at command, a slight hotbed large enough for a two-light frame in which the young plants can be kept close to the glass will answer better than a larger structure. If portable, the frame may be placed with its back to the south, and 6 inches of old tan or leaf-mould spread over the surface of the manure, while keeping back rank steam, will admit genial warmth and suit them admirably. These plants must be shifted from time to time before they become pot-bound and trained to single leaders, with plenty of side room for the full development of the stem-leaves—a very important matter where canker is prevalent. Where space does not favour this mode of procedure and old plants must be retained, a portion of them may be divested of all their fruit and cut over. Slight shading for a short time, combined with frequent syringing with warm water, will soon cause healthy plants to break, when the bottom-heat must be renovated. When this touches 80° to 85°, not before, remove a portion of the old compost and replace it with a thin layer of fresh sweet turf, a dash of bone-dust and a liberal admixture of rough lime rubble. As growth advances, lay in young shoots full length for a time to cover bare stems, pinch the points to induce fruitful laterals, and crop lightly. In this way a house can soon be renovated piecemeal, but the better plan, where a compartment can be dispensed with, is to cut all the plants over at one time and renovate them under heavier shading, with an abundance of genial heat and moisture. Fresh top-dressing, little and often, should be added as soon as young roots appear on the surface.

Eastnor Castle, Ledbury. W. Coleman.

Fruit Garden.

GOOD STRAWBERRIES.

Hitherto the remarks made on Strawberries have been confined to a few well known kinds, but there are numbers of different sorts which, although not popular, are grown in various places because their flavour is found to be more agreeable than that of better known kinds. In this county, for instance, there is a garden in which no Strawberry is grown but Webb's Refresher, a kind preferred to all others on account of its peculiar refreshing flavour. It is a fairly vigorous sort, the fruit of which is large, but variable in shape, some being cockscomb and others roundish. In another garden Alice Maud has the preference; it is a second early, a fair cropper, and less acid than some kinds. What, I wonder, has become of that once favourite sort Mr. Radclyffe, a variety which produced large red fruit, with a flavour very little inferior to that of British Queen, and one which will thrive where that variety will not succeed. It is not so many years since it was to be found in many gardens, but it is now very scarce. Connoisseurs of richly flavoured Strawberries should grow Marguerite, a grand variety and a very old kind; but in a soil that suits it none are more prolific. The fruit, too, is both large and handsome. This sort is suitable alike for forcing and for outdoor culture, and it is a kind that travels well. It is somewhat capricious as to soil, which I believe is its only fault. What have growers who reside in chalky districts to say about Rivers' Eliza (not Myatt's)? When I grew this sort in a garden at the foot of the South Downs, it bore magnificent crops. Its fruit is medium-sized and the flavour good.

Less than twenty years ago Trollope's Victoria was much more cultivated than it is now. It bears a flat round fruit, not remarkable either for sweetness or acidity, but it has the merit of thriving in any kind of soil. This sort may be known from all others by its pale green leaves and short leaf-stalks. I should add that its fruit is not particularly handsome, being bright red on the sunny

side and lighter on the other. La Constante never made much headway, though sent out as a first-rate late sort, a character which I think it would have sustained had it been sufficiently tried and a little more patience exercised respecting it. Its habit is neat and dwarf, and its fruit possesses a brisk, yet not unpleasant, flavour. As regards the newer varieties, I have a number of them now on trial. The earliest is The Captain, which is only a day or two later than Black Prince, and it is superior to that variety in size and appearance. King of the Earlies, quite a distinct kind, ripens at the same time as the last-named sort. The wiry character of the runners and hairiness of the leaves seem to indicate that it belongs to the alpine section. Its flavour is quite equal to that of the best early kinds. Helen Gloede will not, I am afraid, prove hardy enough for any but the warmest and deepest soils. This I must reserve for another season's trial. Auguste Decaisne I think will prove a useful midseason variety. It is a vigorous grower, and throws its flower-trusses well up above the foliage; its fruit is both large and handsome, slightly acid, but with a fine aroma. Goldfinder is, I think, a local sort, but it so nearly resembles Loxford Hall Seedling, that it is not wanted.—J. C. C.

Alpine Strawberries.

These are so easily managed, that it is surprising so few grow them. Their size is certainly against them when they have to compete with larger fruit. While large fruits are not to be had, no one objects to Black Prince, but as soon as President or Sir Joseph Paxton becomes ripe, Black Prince is rejected. If we could get an alpine to ripen ten days or a fortnight before Black Prince—which is still the earliest of all Strawberries—no doubt it would be largely grown. During my experience I have, however, known instances in which alpines were highly appreciated. I remember on one occasion sending in a dish of them for dessert, and so much were they liked, that I had to supply plants next morning to four of the visitors who had partaken of them; this was in the month of September. In order to get good crops of alpine Strawberries fresh plantations must be made every spring, and all the first flowers should be picked off; indeed to get the fruit as large as it is possible to get it, all the flowers should be picked off up to the beginning of July. The ground, too, must be liberally manured and dug deeply during winter. If nothing is done to the old beds during autumn and winter, except clearing off weeds, there will be plenty of young plants ready for transplanting in spring. Early in April is soon enough to plant them, and they should occupy a fresh piece of ground every year. The plants should stand 1 foot apart each way. The best place for the beds is on an east or west border where they get shaded during a part of the day. The largest sort with which I am acquainted bears a white fruit with a tinge of pink on the sunny side, but the variety named Galande is decidedly the best in flavour. The fruit of this is dark red in colour and the flavour agreeable. I at one time grew all the kinds of Hautbois that I could get together, and the only sort I considered worthy of cultivation was one raised at Sawbridgeworth. This bore abundantly through August and part of September. The fruit was large and produced in erect trusses, and had a true Hautbois flavour. Fresh plantations of this sort should also be made every spring. Birds do not seem to like Strawberries in autumn; at least, they never interfered with our alpines.—Taunton.

Strawberry Trials.

Mr. Hobday's suggestion as to providing a garden in which all kinds of Strawberries would be grown is an admirable one, so far as it goes, but to make the suggested trial full and complete, the same thing should be done in some dozen parts of the country, and in diverse soils and positions, because it is evident that the Strawberry is affected by soil more than any other fruit. How often do we find growers declaring that certain kinds will not thrive with them at all, and yet they do well elsewhere and in different soil. It is to surmount the comparative unfairness which would follow were a trial of the kind suggested to take place in only one spot that it is advisable to have many. On the other hand, something is already done in this direction by growers of plants for sale, as these usually retain stocks of kinds that private growers may generally have discarded. If trade growers, who must have a wide and varied knowledge of the qualifications of Strawberries, would speak out, they might help this discussion very materially. Something, too, might, I should think, be done in the production of new and improved sorts, but for that purpose a small quantity of each one might suffice.—A. D.

President Strawberry and Mildew.

President is bearing a heavy crop with us this year, and the berries, individually, are very fine and comparatively free from mildew. Two things are absolutely essential to its well-being on our soil, viz., plenty of room and constant renewal; the first is necessary on account of its large foliage and the length of its fruit-stalks. The latter is a great drawback, especially in a wet season, as regards the fruit ripening and finishing well. With respect to its constant renewal, I find that two seasons are enough for it, and that plants put out in June this year should be destroyed in that of 1888. If with these conditions strictly adhered to it still, in average seasons, mildews badly, I shall be reluctantly compelled to discard it, as extra size is no compensation for a tender constitution. That it is peculiarly liable to mildew both in and out of doors we have ample proof. Plants standing in vineries side by side with Sir Joseph Paxton and La Grosse Sucrée are sometimes much affected, whilst the varieties just named are not touched. —E. Burrell, *Claremont*.

Strawberries Degenerating.

Do some varieties degenerate in certain districts? I have found that to happen here in the case of several sorts, notably Dr. Hogg, Mr. Radclyffe, La Grosse Sucrée, and, I am afraid, Loxford Hall Seedling. For four or five years these sorts produced grand fruit, but after that I had to discard them. As to British Queen, it is useless here. A few years ago I converted a meadow into a new kitchen garden, some part of which was as good loam as could be desired. On this I planted several rows of British Queen, but during the three years they were on the ground they did not produce three quarts of fruit. There are very few gardens in this neighbourhood in which British Queen is grown, while in a garden some 10 miles distant it does as well, or better, than any other variety. Our best bearing Strawberry is Vicomtesse Héricart de Thury, the next Sir Charles Napier; Sir Joseph Paxton is also very good. I find King of the Earlies to be a good bearer. We have the smallest crop of Strawberries in the open ground this season that I have seen for many years, owing, I think, to the crowns not having been properly matured last autumn, for our latest crops from pots have been very heavy. The best-flavoured variety that I grow is Loxford Hall Seedling, which is probably as good as British Queen. King of the Earlies, which is very good, is very much like Keen's Seedling. Sir Joseph Paxton is also very good. The Captain, like Vicomtesse Héricart de Thury, is a little acid. Our earliest Strawberry is King of the Earlies, a kind which ought to be planted extensively. The next is The Captain, then Vicomtesse Héricart de Thury. Pauline is said to be very early, but it has been a failure with me both in pots and in the open ground. The best late variety is certainly Loxford Hall Seedling, from which I gathered on the 14th of August eight pounds from forty-six plants, but my plants of it have not done so well this season and last as they did previously; perhaps their comparative failure is owing to their having been planted late in the autumn. If not, like some others, they are degenerating. Hélène Gloede is a fine Strawberry and late, but its quality is not equal to that of Loxford Hall. Anne de Rothschild and Unser Fritz are also good, but being shy bearers, I have discarded them. This is the best time at which to commence cultivation if Strawberries are to be grown successfully either in pots or in the open ground. I plant a plot each autumn, generally three rows on the side of a walk along which the water-barrel can be driven; they are planted 2 feet 6 inches apart each way. In spring all the flower-stems are removed. It is indispensable that early runners be got, particularly for pots, and I find those to be best which are taken from plants put out the previous autumn. They make better crowns, produce more and better fruit than those taken from older plants, and the earlier they are in the fruiting-pots, the growth made, and the crowns ripened, the better. I am of opinion that the best method is to layer the runners in 3-inch pots, of which there are generally plenty which have recently been emptied in the flower garden. Secure these plants in the pots by hooked pegs cut in winter from old birch brooms. I have tried layering them in their fruiting pots, but if heavy rain comes before the plants are established and the roots have filled the pots, the soil gets sodden and sour. I do not consider, moreover, that labour is saved by so doing. After they are placed in their fruiting pots they are put on strips of wood nailed about 2 inches apart on short cross pieces; these are placed on bricks on one side of the walk in front of the vineries fully exposed to the sun. Thus set, no worms can possibly get into the pots, and if any extra labour attends the method it is more than counterbalanced by the results.—David Walker, *Dunorlan, Tunbridge Wells*.

Strawberry Burghley President.

Mr. Richard Gilbert, of Burghley, contributes his item to the Strawberry discussion in the shape of some specimens of this Strawberry, which seems to us a very large and well coloured fruit. We shall be very glad if he will kindly tell our readers how far it differs in habit and productiveness from the older kind, and something of its origin and value.

FRUIT PROSPECTS.

The fruit crop throughout the country this season goes to confirm the proverbial uncertainty that is attached to outdoor cultivation in our variable climate. Apples are very thin in most localities in the southern parts of England, though there was sufficient bloom to lead to the expectation that there would be an average crop. The trees had made too much leaf growth at blooming time, a condition that as long as I can recollect has almost invariably ended in the fruit setting badly, and which this year's experience goes further to confirm, as there was not sufficient frost at the time of flowering to do any great mischief. Further north, so far as such parts of Yorkshire that I have had an opportunity of seeing, Apples have set better, but are so unusually late, that there are some doubts about their falling off, for it usually happens that when the time of blooming is delayed beyond what may be regarded as seasonable, even if the fruit sets, it often drops. Pears are seldom a full crop two years in succession, yet, notwithstanding that they were plentiful last year in the southern parts of the country, this year they again promise well. In such of the northern counties as I have seen, particularly Yorkshire, Cheshire, and the seaboard of Lancashire, Pears are set much fuller than usual.

Respecting Plums, it is even a rarer occurrence to have them in abundance two seasons together than in the case of Pears, but, loaded as the trees were last summer, they seem fuller of fruit this year; in many localities the branches are already bending under their load. In the Green Gage section I have never seen trees with more than half the crop that they are now carrying in many gardens for some distance north of London. The quantity of fruits is indeed such that where they are not thinned they will be small and poor. Plums, except the commonest hardy varieties, do not succeed nearly so well in the northern half of England as in the south, but

this season the crop appears to be a full one. Apricots, in common with other fruits that bloom early, were unusually late in the spring, and in parts of the north of England in which they succeed they appear to be carrying a heavier crop than ordinary; the same remark holds good with Peaches in all the gardens both north and south that I have seen, except a few places more than ordinarily exposed where the cutting frosty east winds that occurred at the time of blooming appear to have defied anything that could be done in the way of protection. Cherries in districts where they do best are again plentiful, and so far as I have had an opportunity of judging in localities where they do not succeed so well they are this year more plentiful than usual. Strawberries appear to be much below an average, generally speaking. In districts in Kent where such vast quantities are grown they are set down at about half a crop. The effect of this is seen in the much higher prices that Strawberries have this season fetched in London than for some time back, notably last year, when in the leading provincial towns to which the Kent growers send such quantities the prices realised were so low, even more so than in London, as not to cover the cost of gathering, carriage, and sale. As an evidence of the extraordinary lateness of the season, I may mention that a grower with whom I am acquainted got 10s. a pound in Covent Garden on June 19 for British Queens grown under glass without fire-heat. It is thus evident that within a week of midsummer there were no outdoor Strawberries, otherwise such a price could not have been realised. Raspberries, which vary less in yield from one year to another than most fruits, seem to be about an average. Gooseberries and Currants in all places that have come under my notice are plentiful. White Muscadine Vines growing on the south side of a house within half-a-dozen miles of London, well sheltered and fully exposed to the sun, were not in bloom until the 5th of July; while last season, although late, they were nearly three weeks earlier. As to the fruit ripening, it is out of the question, as, however protracted the summer may happen to be, the time is too short. T. B.

WOOD ASHES AS A FERTILISER.

Some of our fruit-growers, says the *Pacific Rural*, are making good use of wood ashes, both as a source of home-made lye for washing fruit trees for insect pests and directly as a fertiliser. When we consider how large an amount of vegetable matter is represented by a small amount of ash, the value of wood ashes for manure becomes evident. Thus only ten pounds of ash remain from the combustion of a cord of hard wood, and only five pounds from a cord of soft wood. Eleven tons of Gooseberries, Grapes, Blackberries, Peaches or Apples would each contain only 100 lbs. of ash. Seven tons of Cherries, Plums or Raspberries contain only 100 lbs. of mineral matter. This gives some idea of the large amount of orchard produce represented by a small weight of mineral matter. But small as is the amount of ash, it is still indispensable for the production of fruit and other crops, and must be present in the soil in available form before profitable cultivation is possible. Let it not be supposed that the ash in all these crops is identical in composition. The ash of each class of plants has a composition peculiar to itself, differing in some respects from that of other classes; yet there is a certain similarity in the ash of all cultivated plants. When the ashes of vegetable substances are served up for any plant by mixing them with the soil, such plant does not of necessity require every item on the bill of fare, but selects such materials and in such quantities as are adapted to its wants, and leaves the balance for some other guest. If any soil is naturally deficient in any of the ash constituents, or has been impoverished by excessive cropping, the restoration of these materials in the form of wood ashes appears to be a natural and safe process, because they contain all the minerals of vegetable growth.

Hard wood ashes were taken from our kitchen stove, the fuel being a mixture of Beech and hard Maple. Small fragments of charcoal were scattered through the ashes and a little sand from dirt adhering to the wood. Ninety-three per cent. was soluble in dilute hydrochloric acid; the potash constituted 12¼ per cent. and phosphoric acid 6 per cent.; of soft wood ash 50 per cent. was soluble in acid, and so much soluble silica was in the ash that, when treated with acid, it formed a jelly-like mass of precipitated silica; the ash contained 12 per cent. potash and 4 per cent. phosphoric acid. In general terms it may be said that the ashes of wood and of plants of every kind are of value for manure on every kind of soil which has been reduced by cropping; but the greatest benefit is shown upon sandy and porous soils. On these light soils crops of every kind, but especially root crops, will be benefited by a dressing of wood ashes. Fruit trees and fruit-bearing plants having a woody structure will be benefited by wood ashes. Thirty to fifty bushels to the acre of fresh ashes will be a full dressing, and three or four times that amount of leached ashes may be applied with permanent benefit.

Old Apple trees and drought.—Apple trees suffer more from drought than either the Pear, or Plum, or Cherry. In many gardens and orchards last year the Apple trees—especially old trees—received a severe check, owing to the dry weather which prevailed last summer. The drought of the present season, though less pronounced as yet, has made its mark. This may be seen by the smallness of the fruits and the almost entire absence of young growth, and they have a starved, impoverished look. It will be better to leave the old trees unpruned this year and encourage them by giving them liquid manure. The best way in which to apply rich liquids is to make holes with a crowbar a foot deep and 3 feet apart, and widen them till they are 6 inches in diameter at the top. These should be made all round under the tree as far as the roots extend, and they should be filled up with liquid manure three or four times a day till the whole soil has become saturated. Such treatment cannot fail to invigorate anything not gone too far wrong. But, let me remark, we have far too many old trees, and such young ones as are planted are often too carelessly dealt with, both as regards the preparation of the land before planting, and also the attention given afterwards. —E. Hoeday.

Premature ripening in Vines *(C. R., p. 22).* —It is no unusual occurrence for the foliage of Gros Colmar to lay on the autumn tint early in July in hot seasons, neither is it surprising to hear that a few of the lower leaves have already fallen. If the Vines in question and their roots were not thoroughly ripened before they were so severely pruned back to within 1 foot of the soil in December, it is more than probable that the shock caused many of the soft roots to die back during the three months they were dormant. The natural consequence would be a weak, or a comparatively weak, start, but the rods would gradually improve as the season advanced, and possibly stopping at 10 feet would cause them to thicken to an extent which would force the first formed leaves from their holding. Then, again, the weather has been intensely hot; the border at some period may have been allowed to become dry; and the heat—70° by night, 80° by day, and 90° after closing—to say the least, has been high, certainly higher than I should care to recommend through the early stages of the growth of this variety. When young Muscat Vines are forced from moderate into strong growth as the season advances they sometimes behave in the same way, but no serious mischief follows. Keep the border well mulched and moist, and do not let the roots feel the want of water. If laterals exist where the main leaves have fallen or show signs of ripening, carefully preserve the young leaves in a fresh healthy state to draw the sap into the base buds, as this is your only chance of getting them properly formed and fed through the autumn. If the Vines generally show a disposition to ripen, and the canes are turning to a nut-brown, give more air through the day and close later. Syringe well to keep the foliage fresh and clean, and having plenty of time before you give night air to favour steady and perfect maturation of the wood and foliage. As this process goes on give sufficient water to keep the border moist and in a growing state, and place more light non-conducting mulching on the surface.—W. Coleman, *Eastnor Castle, Ledbury.*

FLOWER GARDEN.

CANTERBURY BELLS.

When, some few years since, the curious cup-and-saucer or Calycanthema forms of these flowers were introduced they were not only limited to white and blue colours, but of the ordinary forms we had then only singles, and those limited to the colours just named. The Canterbury Bell has progressed or, more properly speaking, developed since those not very remote days, and now we find form remarkably varied and hue of colour of the most varied character too. I have for several years tried to keep both ordinary and Calycanthema forms distinct, but circumstances are against my doing so. The old single forms have developed doubles of the most absolute kind, and many of the Calycanthemas are also double whilst still retaining the hooded calyx. Not a few of the flowers found in this latter section are remarkable both for size and form, and are far ahead of those which when originally shown obtained for the raiser a certificate of merit. In the original strain some of the finest bells are those of a semi-double form, that is, having one bell fitting closely within the other, but with the edges overlapping. Some have three or four bells, thus producing elongated flowers, whilst, again, others have the bells so crowded within the outer one that they are very massive and solid. These latter, owing to the choking or disruption of the organs of fertility, rarely seed, and I invariably select from the best semi-double flowers only, because these seed freely and also give me all the variety which may be looked for. Plants producing these double flowers often need support, as they are so heavy. They are now absolutely portions of the strain, and apparently cannot be got rid of if desired; still many are pleased to have them. Since the beautiful rose coloured form was introduced many variations of colour have followed, and between pure white and purplish blue we find probably a dozen diverse shades, perhaps more, and these hues are gradually increasing. Probably very many who have gardens and have dawdled along with the old blue and white singles have any conception of the grand forms and variations now found in a good strain. Whilst some plants will bloom two years in succession yet few can be trusted to do so much; hence it is wisest to sow seed every year and thus raise a stock each season. I sow seed always under glass, although so much trouble need not be taken in every case, as in some fine soils small seeds will germinate freely enough in the open ground. My soil is not of a character to encourage me to do so much; hence I prefer to sow seed in shallow boxes and raise it under glass. Sowing is done in April, and as the boxes are placed in the open after the plants are strong they transplant readily into the open ground, where summer showers favour the planting. If not convenient to plant out where they are to bloom at once, then the plants will transplant with the aid of a fork in the autumn. Few garden biennials show such remarkable advance as do Canterbury Bells. A. D.

Cornflowers in masses.—I have seen nothing prettier in the way of hardy flowers this year than some large bush-like masses of variously coloured Cornflowers in a cottager's garden. It often happens that the happiest effects in the flower garden are obtained in a chance way, and in this instance the careless throwing about of some plants with seeds on them in autumn gave a

large number of seedlings, which were strong ere winter set in, and which increased exceedingly as the days grew longer. These plants have for a long time been a mass of charming colour, and as they have grown to a height of quite 4 feet, they are very effective. Cornflowers sown in spring cannot compare with those sown in autumn, and a few weakly isolated specimens give no true idea of the charms of this hardy flower when proprely treated. What a grand contrast is afforded by a plentiful sprinkling of blue Cornflowers amongst crimson Clover, the two colours setting off each other to advantage.—J. C. B.

SILVERY-LEAVED ALPINES.

People who have travelled on the Alps, or passed the winter in the Mediterranean region, are always struck with the green appearance of plants in our gardens that with them are quite silvery. Our climate doubtless does something towards effecting this change, but we are inclined to believe that the manner in which such plants are treated has most to do with it. Potentilla nitida is a good example of what is here meant. Plant it in a rich border, and the result is luxuriant foliage, but wholly or almost green, and of flowers there will be few, if any. Ram it tight between the bricks or stones of an old wall, and it will become bright and silvery, and bear flowers in profusion. There are not, of course, old walls in every garden, but a substitute for them, in which the presence of old lime rubbish and broken bricks should form the major part, can be as readily made as a rockery. This done, the conditions to provide the desired effect will be within measurable distance of attainment. Silvery-foliaged alpines for rockeries have been almost wholly neglected—not that we are without such plants, but they do not receive proper treatment. A dozen or more kinds with variously cut or shaped leaves occur to us at the moment, hardly one of which we ever see in perfection, and yet they are very effective in brightening up our rock gardens and old walls. The plant here represented, Artemisia mutellina, is much more in character when found growing on limestone than when in ordinary garden soil; and the same may be said of A. glacialis, argentea, maritima, discolor, and many others. Salvia argentea, if the flowering shoot is kept pinched, makes an excellent silvery-leaved plant, as do also Tanacetum Herderi, nubigenum, bracteatum, &c.; Cerastium tomentosum and Boissieri, Achillea umbellata, Anthemis Aizoon, Helichrysum serotinum, litoreum, &c.; many of the Gnaphaliums, Pyrethrum cinerariæfolium, Antennaria tomentosa and the Aizoon section of Saxifrages, many of the Sedums, and a few of the Sempervivums; while Onopordon, Cnicus, &c., supply specimens of a larger type. D. K.

Artemisia mutellina.

Ranunculuses resisted the intense heat and drought lately experienced better than many hardy plants. Some I noticed bore expanded blooms in good condition quite a fortnight, although not watered and growing in rather poor soil. It is seldom that one sees this really fine flower well grown now-a-days; indeed one may go into many gardens without seeing either a Turban or a Persian Ranunculus. The named kinds are many of them rather dear, but good seedlings can be bought so cheaply, that a good sized bed can be had for five shillings. I bought some this spring at the rate of five shillings per 100, and they turned out very satisfactory; they were, I believe, imported roots. A mistake that many make in the culture of the Ranunculus is leaving the roots too long in the soil after they have flowered. They ought never to feel the influence of the autumn rains, as they then plump up again and throw out roots, and, unlike many hardy flowers that die down after blooming, they should not be left in the ground all the winter. As soon as the foliage dies off they should be lifted and stored away in a dry, cool place until planting time. Ranunculuses require a good friable soil and well rotted horse or cow manure that has been turned over and over for a year or two. Rank manure would be almost sure to cause the foliage to turn yellow, especially in wet weather. In the case of stiff soils it is well to draw deep drills and fill up with light mould.—J. C. B.

NOTES ON HARDY PLANTS.

Pinks.—It would indeed be hard to even imagine a more handsome or more serviceable Pink than Dianthus alpinus. D. neglectus and glacialis rival it, but until we learn generally how to grow them into larger specimens than is generally seen, they are not likely to place alpinus in a second, much less a third-rate position. There are, however, several less known kinds worthy of note. The slender-stemmed and small-flowered D. pulchellus is a pleasing Pink; it has white flowers of good substance, with a distinct maroon star-shaped eye. It grows 6 inches or 8 inches high. Another form, kindly sent to me by Mr. Wolley Dod, is an effective and most enduring flower. It may be described as a magnified form of D. neglectus. With me, grown in a pot, it is about twice the size of that kind. It reproduces itself by underground stems of moderate vigour. Even in hot sunny weather the flowers have kept fresh and good for ten or twelve days. Another kind somewhat in the same way, but still larger and with higher coloured flowers, is grown under the name of D. superbus Hæltzeri. It is a very desirable Pink for the rock garden. The flowers are nearly 2 inches across and extravagantly beautiful, the intensely crimson petals being deeply lacerated, and fall like a fringe. Then there is the little white D. fimbriatus, with arching stems like a thread; let the florist try these flowers in an epergne or bouquet; for delicacy or perfume few flowers are better. In cultivation the plant is free from all the weaknesses which characterise the neglectus class, and its neat grassy cushions keep perfect for years, one here being five years old and nearly 2 feet across. The gay Maiden Pink (D. deltoides) is now a host of beauty in itself, owing to the myriads of flowers which it produces. The latter range from white to crimson. It makes a good decorative plant for walls and the rock garden in July. On old walls it seeds freely, and if there are ledges connected with them ever so narrow, there will appear seedlings by the hundred. In such positions during very hot, dry weather a little water should be given it, or it may perish. Of course, much will depend on the aspect and amount of *debris* with which the ledges are filled. The Cheddar Pink (D. cæsius) is not only well adapted for similar situations, but the typical form of it is, perhaps, the most fragrant of its family. I say type studiedly, because there are several dwarfer varieties of it which do not so well develop this desirable quality.

Saxifraga tricuspidata is an intermediate species, so to speak, between the rigid and pointed forms, such as Burseriana, and the smaller mossy kinds. Its habit is neat, but it is a slow grower

and sparse flowerer. The cosy way in which it adapts itself to the stones in rockwork, and the pleasing tints which it develops in summer, most commend it. Just now, the tiny three-pointed leaves are becoming a fairly good yellow tipped with red. The plant reminds one of some of the Drabas. Moreover, it is one of the least common of the numerous family to which it belongs.

Rosa minima.—Under this name I received a charming little double Rose—the smallest plant and smallest flower I ever saw. Its colour is varied like that of centifolia; the petals are pointed, and the scent spicy and strong; my specimen of it, which is flowering a second time this season, does not exceed 3 inches in height. It grows bushy from the base, and the flowers are produced singly. I have only as yet tried it in a pot in a cold frame on which air was left all last winter, and where several times its roots must have been frozen hard, for the pot was not plunged. If it should prove hardy it will be a gem for the rock garden.

Codonopsis (Glossocomia) ovata.—This is a little tuberous-rooted Bell-wort, with greyish downy foliage set on slender stems. Its big bells, which are produced singly, are leaden blue in colour and prettily veined. Its structure and painting inside are indeed a study, being wondrously beautiful. I will not try to describe the ivory-capped columns, or the angular rings of rich colours at the bottom of the cup, but I would urge all to grow it, for it is perfectly hardy; use plenty of splintered or sharp wood charcoal, for this, I fancy, keeps ground pests from eating its long tuberous roots. I also find that in light soils it has the habit of drawing itself down deeper and deeper every year. Whether this is for it or against it I cannot say, but in three years it gets to a good depth, though originally set near the surface. Some roots kept in small pots were so persistent in this habit, that they deviated from the erect position, bent themselves round the bottoms and escaped by the holes tail first. This sort of thing occurs in many Liliaceous plants Alstrœmeria lutea being a notable example.

Ramondia pyrenaica.—Last year I spoke about rooting the leaves of this choice alpine. I have just been going over some that were inserted as cuttings two years ago; they lifted with a nice tuft of roots attached to them, and they had thrown up from two to four young leaves, the cutting leaf being still green. They were pricked into decayed Cocoa fibre, sprinkled with a few seeds from the short velvety wall Moss. The latter soon germinated and formed a nice mulching, and, as I suppose, helped to keep the little pan of leaves cool and moist. Just about a year ago a friend sent me a handful of seedlings of this plant in some nice fresh Sphagnum. My man seemed to care more for the Moss than the Ramondias, so he had the Moss, but in it he took by accident one of the plants, which, together with the Sphagnum, was placed on the surface of a basket of Stanhopea, and, of course, hung up in the stove near the glass. After a week or two it made rapid growth. It remained in that position, and it is there now, healthy and strong. This Ramondia is found wild in cool, deeply shaded places, while the position into which this plant has got is just the reverse, but, of course, very moist, and this evidently balances the other conditions.

Papaver bracteatum and orientale.—The distinctions between these are such that no one could mistake them after once seeing them. The colours form the chief distinguishing points, for though there are others, they are not always reliable. As, however, it seems desirable that, if possible, the two kinds should be identified when not in flower, one or two features may be noticed. The leaves of bracteatum begin to appear earlier than those of orientale; they are more sparsely covered with grey hairs and more erect; they begin to grow freely in winter, and, like the flower-stems, are stouter and more erect than those of orientale. In the matured state, indeed, the leaves are a grass-green compared with the greyish green of orientale. When in flower the stalks of bracteatum are not only stouter and more erect, but they are better furnished with foliage; they support the flower in an upright position, never bell fashion or looking sideways, as in some varieties of orientale; the leaf-like bract immediately under the big crimson flower is never absent. This, however, is sometimes present on the orange-red flowers of orientale, but it rarely occurs on all the flowers alike of the same plant. It is on account of this bract in orientale or some of the varieties which run rather close to bracteatum in all but bloom colour that many become puzzled. I may also mention that from five different sources I had orientale sent me for bracteatum, and I believe the latter (true) is not generally yet in cultivation. Another striking distinction is the fact that the flowers of bracteatum last twice as long individually as those of the oriental species, and each petal, by comparison, may be termed wedge-shaped, whilst those of the latter may be called balloon-shaped in outline. The capsules, too, are markedly dissimilar; the seed-head of bracteatum is wineglass-shaped, that of orientale more round.

The Dryases are just now in very happy form, having made new and shining foliage which has just become sufficiently ripened to show its true character. Some fine flowers are still to be seen, and the seed-heads both in the twisted and downy condition are also present. D. Drummondi is the largest, but though its flowers are yellow and therefore desirable, it is not so free nor is its habit so pleasing as that of octopetala, which, taken altogether, is by far the best and most useful. Octopetala minor is a counterpart of the type, but more shy as regards bloom and smaller in all its parts. Its tufts of foliage are very pretty and make a dense mat. Much difficulty has been experienced in establishing fresh patches with material taken from the old plants. I do not think such would happen if an effort were made to secure it at the present season. Just now the new growth has become set and partially ripened; last year's wood has sent down its rootlets, and if rooted twigs were slipped off now they would start into growth at once. The foliage should not be turned wrong side to the sun. A little later on will not do so well as now, because not only will the second growth have begun to lengthen, but there will hardly be time enough for the plants to make as many roots as they will require with which to pass through the winter. Place the rooted twigs on moist peat and loam, scatter over them a good covering of the same, and lay a heavy stone over the roots, then give one good watering and leave them alone.

In the pot culture of alpines wild Spergula is a plague. There is one little matter which I would like to point out in reference to this Spergula or Spurry. Owing to its small size it is not objected to until it has made itself a nuisance; people then begin to pull it out as well as they can. Now where it has grown freely it is not enough merely to pull it up; let anyone turn the soil out of the pot and it will be found that a paper-like mat of its roots will have been formed between the soil and pot, greatly to the injury of the roots of the rightful occupant, and if such is not removed the plant never thrives as it otherwise would do. Therefore, if Spurry is growing among alpines in pots, remove it, and be sure you clear the soil of its roots.

Some Gentians may be propagated by rootlets, the stronger kinds, for instance, such as lutea, punctata, purpurea, &c. I noted this fact in the case of the latter where a rather strong plant had been starved in a small pot; the roots had run round and cropped above the morsel of soil where an eye formed, and when taken off it grew freely. As regards lutea, I have cut its roots like those of Seakale, and made plants from them in moist sand and peat.

Saxifraga ohioensis is as pretty when in flower as it is uncommon. It belongs to the same section as rotundifolia, having roundish, but largely toothed, leaves, which, however, are not thick or downy, but thin, somewhat leathery, and glistening; the leaf-stalks are very slender, and the little plants when in flower do not exceed 6 inches or 8 inches in height. The flowers are of crystal whiteness, small, and borne in lax spreading panicles. It is a gem for rockwork, and during these past four years it has withstood the severity of our winters.

Aster alpinus and its varieties.—Unless these are constantly propagated from cuttings like Chrysanthemums no idea can be formed of the beauty and size to which the flowers may be grown. The plants will be in their prime the second summer from the cutting stage, and it is a mistake to place them in the poor worn-out soil of rockwork, where they often get, and which is, moreover, too dry. Under liberal treatment the flowers are not only better as regards size and colour, but they last longer. The white variety is especially amenable to high culture; it then becomes larger than the type and the ray florets trebled, thus giving this shorter-stalked variety a massive effect. We have noted also the ruby coloured kind under the name A. alpinus ruber, but my experience of it is so brief, that I can only say it is very hardy and a robust grower.

J. W.

LILIES IN FLOWER.

IN order to form some idea of the beauty and variety to be found among Lilies, a collection of them should be inspected now when the majority of them are in bloom. L. Thunbergianum or elegans and its different varieties make a goodly show, and, what is more, they supply a wide range of colour, varying from the orange-buff tinted Prince of Orange to the deep blackish crimson-coloured cruentum or hæmatochroum. This last is the deepest coloured of all Lilies, that known as the Black Lily excepted, but that by some is classed with the Fritillaries. Other desirable forms of L. Thunbergianum besides the two just mentioned are bicolor, a large bold reddish apricot-coloured kind; Van Houttei, rich crimson; and sanguineum or biligulatum, brownish red. L. bulbiferum is a pretty Lily with erect heads of cup-shaped, reddish orange flowers. This species is readily distinguished from all others by the small bulbils that are produced in great quantities in the axils of the leaves. The common Orange Lily (L. croceum) is just now at its best, and when seen in a mass a fine display it makes. The old White or Madonna Lily (L. candidum) is known to almost everyone, and, though so common, is second to none as regards purity and beauty. When once established it dislikes being disturbed, a remark which also applies to L. chalcedonicum, one of the Turk's-cap section, with intensely bright scarlet-crimson blossoms. This kind will often absolutely refuse to grow the first season after being planted; the bulbs remain in the ground throughout the winter, and flower the following year. The brightly-coloured L. pomponium verum has been very fine, but it is now past its best. It is a most effective early-flowering Lily, but has such a faint smell that it cannot be used in any way for indoor decoration.

Several of the North American Lilies are now in bloom, notably the Panther Lily (L. pardalinum), L. parvum, and Humboldt's Lily (L. Humboldti). Variable as some Lilies are, this last is even more so than usual; some blooms of it, except towards the tips of the petals, are thickly studded with small dots, while in others they are fewer in number, but become comparatively large blotches. The extreme form of this latter is often met with under the name of L. Bloomerianum, and an extremely pretty variety it is. Another North American kind is L. Parryi, the beautiful golden blossoms of which, delicately poised on a slender stem, are admired by everybody. The white trumpet-shaped blooms of L. longiflorum and its varieties are just commencing to expand. Harrisi, eximium, and Wilsoni are all too much alike, but a pretty form of longiflorum is albo-marginatum, in which the leaves are broadly margined with white. The fragile-looking L.

Krameri is most deceiving in the size of its bloom; its appearance during the earlier stages of growth would lead one to expect but a miniature flower, but in reality the blossoms are comparatively large. The delicate pinkish hue of the majority of them is most pleasing, but unfortunately it is a difficult Lily to keep in health—so, at least, I find it to be, but I hear of others who grow it most successfully. Here, in rather a light well-drained soil, imported bulbs flower well the first season, but less satisfactorily the second, and by the third year few indeed will bloom. The beautiful L. Browni, with its large tube-shaped flower suffused heavily on the outside with chocolate, is just opening, and revealing the waxy white interior. When fully expanded the dark-coloured anthers are most conspicuous, contrasting strikingly as they do with their delicate surroundings.

Of the Turk's-cap Lilies, mention may be made of the ordinary form of L. Martagon, with its spike of gracefully reflexed purplish blooms; but the finest in this class are L. Martagon dalmaticum, a variety in which the flowers are of a deep shining crimson-purple, and album, with pure white blossoms. Some forms of these two last-named Lilies are greatly superior to others. Another nearly allied to the Martagon is the Japanese L. Hansoni, but its rich golden-coloured blossoms being earlier in expanding than the others are now past their best. L. monadelphum I take to be a remarkably fine Lily—that is, when it does well, which is not always the case. My experience is that it is useless to expect a good show of bloom during the first season, for, generally speaking, many of the plants do not appear above ground till the second year. Its blooms are borne on large pyramidal-shaped spikes, and are most gracefully reflexed and delicately tinted. Their colours vary from deep yellow to pale whitish sulphur, and they are more or less studded with small dark coloured dots. L. testaceum, which when growing reminds one to some extent of L. candidum, is a fine Lily, and especially noteworthy from the distinct nankeen tint of its gracefully reflexed blossoms. They may be used in a cut state, as their scent is agreeable and not too powerful. No notice of Lilies would be complete without mention of L. auratum, the earliest blossoms of which are just expanding. Like most of the others, this Lily is very variable, some forms of it being greatly superior to others.

Alpha.

BORDER FLOWERS AND HOT WEATHER.

The recent hot weather has been most trying both in the kitchen and flower garden. The ground was dry before it set in, and after that everything suffered. The plants first affected were those in herbaceous borders, such as Phloxes, Pyrethrums, Irises, &c.; in fact, the leaves of the Irises became yellow. I visited a garden ten days ago containing thousands of English and Spanish Irises during the hottest part of the day, and their flowers were in a sad plight; they were drooping in the bright sunshine, and the heat reflected from the hot, dry red earth was even trying to one's eyes. A surface watering under such conditions would have done little good—indeed, might have done harm. We cannot avoid the blaze of sunshine, even if desirable, but we can maintain a moist condition round the roots of these and all other plants by giving a thoroughly good watering, and immediately thereafter mulching the ground with Cocoanut fibre refuse, or short manure if well decayed. Watering in dry, hot weather should be done thoroughly. Enough should be given to reach, if possible, all the roots, and to prevent evaporation mulch with something.

Roses suffer very much in dry weather if the soil is light and the subsoil gravel. They cannot be maintained in good health unless they are kept growing. I have seen them with the sap almost dried up, so much so, as to prevent the bark from rising when slit with a knife for budding. Such Roses become a prey to green fly, mildew, and even red spider. This last is the worst of all, as it causes the leaves to become brown, and ultimately to drop off. Such disastrous results would not happen if the ground in the first place was trenched and manured, and also mulched in winter with manure, and again in summer as soon as hot weather sets in. Syringe well overhead at night, and then in the morning every leaf will be furnished with a row around it of glistening dewdrops—a healthy sign either under glass or out of doors. Perhaps none of our choice garden flowers suffer sooner from the lack of water than Gladioli; they require the same treatment as Roses; they should never be allowed to get very dry at the roots. At one time I used to grow thousands of named varieties and seedlings. Our plan was to give them a thoroughly good watering twice a week, and every hot day they were well watered overhead with the garden engine. If this was not done, red spider would attack the leaves and cause them to become brown. Syringing, however, does not dislodge the maggots which inhabit the axils of the leaves, crawl out at night and devour the flower-buds. They can be discovered in their hiding-places by day, or, by the aid of a good lamp, be found feeding at night. Phloxes ought to be well watered and mulched, and the same advice should be followed in other cases. It is a good plan to plant some spreading low-growing subjects to cover the surface of the ground in mixed herbaceous borders. This retains moisture and has a pleasing appearance.

J. Douglas.

Trees and Shrubs.

TREES AND SHRUBS FOR WATERSIDE.

In planting near water the following shrubs may be named as suitable for planting in the neighbourhood of water. The Alder, kept low by occasional cutting, makes a fine fringe, and forms a strong barrier for the margins of water when the current is liable to wash away its banks. The common Whitethorn, Bramble, hedge Rose, red Dogwood, Honeysuckle, and Blackthorn, afford proper marginal decoration for water in natural scenery. Trees best adapted for positions nearest the water, where the ground is liable to be moist, must consist of the common Alder, various kinds of Willow (including the Weeping and Rosemary-leaved Willow), Alnus cordifolia, Norway Spruce, deciduous Cypress, and Hemlock Spruce. Such trees are also quite proper for the islands; but in order that the roots may not lodge too much in the water, the parts of the islands to be planted should be raised irregularly, or in a natural manner, with stones, roots, sods, &c., mixed with suitable soil, a few feet higher than the level of the water. The five last-named kinds of trees are most appropriate for beautifying water in well-kept grounds.

Amongst the larger trees employed, not exactly for fringing the margin, but at a moderate distance from the water, the Wych Elm is the most elegant, and should always be planted in extensive places; its elegant massive twigs and pendent branches entitle it, above all other large trees, to this distinction. Nevertheless, the English Elm, Lime, Beech, Weeping Birch, and Larch would be appropriate. Every kind of Poplar should be excluded, except, indeed, the Lombardy, of which two or three may be planted so as to rise out of the midst of masses of other trees. In planting, room should be allowed for walking near the water's edge; sometimes close to it, and at other times with a bush or group of shrubs interposing. Swans, by all means, must be introduced, as well as other water fowls.

W.

Elder and Dogwood.—Just now the most noticeable tree in flower in the hedgerows is the Elder, and abundant as the blossom of this tree generally is, this season it seems to be unusually profuse. By the roadsides it is seldom the hedges are allowed to grow on long enough for the trees and bushes of which they are composed to approach to anything like perfection or maturity of growth, but in some places in this neighbourhood there are hedges which have not been cut for many years, and in these the Elder seems to have supplanted many other species. Where these large bushes occur at very frequent intervals for long stretches on each side of the roadway they present a vista of masses of flowers seldom equalled except in positions which have been arranged for the sake of the effect. Hereabouts there is another hedge bush which grows largely by the roadside, the common Dogwood (C. sanguinea), and this is now showing a great mass of blossom, and very often comes into the view with the Elder.—D.

Rhus radicans is a very suitable shrub plant for the woodlands; when allowed its own way it will climb among shrubs and low trees, and take perfect care of itself. In sheltered places its leaves do not change colour, but more in the open they turn bright yellow in autumn. I remember seeing a plant which had climbed among the branches nearly to the top of a tall Cypress, at the edge of a wild piece of shrubbery. It formed a perfect picture, its large, bold foliage being set in a framework of glaucous green.—G.

The Washington Cedar.—As is now tolerably well known, the Mammoth tree of California—Sequoia (Wellingtonia) gigantea—was at first supposed to be a new genus, and named Washingtonia by Dr. Kellogg. Lindley also supposed it to be distinct, and, either ignorant of or ignoring Kellogg, named the supposed new genus Wellingtonia. But neither of these determinations stood the test of botanical rule, and the plant was finally referred to a genus already established, namely, Sequoia. Dr. Kellogg, however, claims, at least, priority for his common name, Washington Cedar. He says, "As historic truth demands it, it is but just to state, I, myself, took Mr. Lobb to the California Academy of Sciences, and showed him the first specimens he ever saw of this marvellous, now world-renowned, Washington Cedar, which was so named by me before he ever saw the tree. The fact is well known to the old charter members of the Academy, several of whom are still living. It is, therefore, the earliest among common names, and claims precedence, by all courtesy, in point of time, as also in appropriateness of honour. Our relations to its earliest identification we leave to the historian of the future."

The Judas tree (Cercis Siliquastrum).—This tree is indigenous to Turkey, Greece, and Judea, where its flowers, owing to their agreeable acidulous flavour, are highly esteemed for mixing in salads, and they are also frequently pickled for use in the same way when fresh flowers cannot be had. Its foliage is very distinct from that of most other trees in shape and colour, the latter being bluish green on the upper surface and grass-green underneath. When old, the Judas tree forms a broad, round, flattish head, somewhat similar to that of an Apple tree. The wood is not considered valuable, although it is hard and capable of taking on a good polish. As an ornamental tree in spring, it ranks as one of the most attractive, owing to the singular and beautiful appearance which it presents when its old, as well as young, wood is literally covered with its purplish pink blossoms clustered together in small bunches before a leaf is visible; and when associated with Laburnums, Lilacs, Flowering Currants, Azaleas, and other spring-blooming subjects, it forms a charming contrast in colour, blooming, as they all do, at the same time. The Judas tree is also well suited for planting on a lawn, either to form a standard bush or as an isolated specimen.—G.

Pruning Picea Nordmanniana.—This Conifer is inclined to produce strong side-shoots, frequently stinting the growth of the leader to 1½ inches in height per annum. Seedling plants of P. Nordmanniana rarely put up more than one leader, and it is wrong to allow this leader to be robbed by the superabundant growth of the side-branches, now that it is shown that no harm will accrue from a judicious use of the knife. During the period when the P. Nordmanniana was scarce, the plants were generally increased by cuttings, grafts, and layers. This pruning was unintentionally the means of causing the leaders of the original plants to assume an upward growth. It is surprising to

see many of the early produced plants from cuttings, grafts, and layers, although eighteen or twenty years told, growing procumbent, and, if upright, somewhat fan-shaped. The only way to induce a leader on such plants is to cut off all the branches and peg the stump firmly to the ground. By this means, one, two or more leaders will be produced from the lower part of the stem. By the removal of all but one, it will in time become a well-set leader, and ultimately make a vigorous tree. The leading shoots removed will make excellent cuttings or grafts, by retaining their leaders, which is not the case with the points of side-branches. The same remarks are, I find by experience, applicable to many other species of Picea when produced by cuttings and layers, such as P. nobilis, P. robusta, P. amabilis and P. grandis.—J. M.

The Spruce.—There is not a more elegant tree, I consider, than the Spruce Fir (Abies excelsa), which, planted in a northern exposure towards the foot of a hill where the soil is loamy and damp, presents a most beautiful appearance, its horizontal branches touching the ground, laden with its large handsome cones in the proper season, and displaying such a lovely mass of green foliage from growing so closely that its stem cannot be seen, and which, if left untouched, will remain so for sixty years. But plant a Spruce upon a dry sandy soil that would be appropriate for a Pinaster or Scotch Fir, although it may possibly thrive for five or six years, when it has attained an age of twenty years, its under-branches will be found withered and destitute of foliage, the bark covered with Lichen, and the whole tree at a complete stand-still.—W. H. A.

Erica cinerea.—Of this pretty Heath, which does not seem to feel the effects of drought, there are several varieties, some of them differing widely from each other, and also from the type. For instance, in atro-purpurea the flowers are much richer in colour than the ordinary form, while in alba they are pure white, thus contrasting well with the preceding. In pallida the colour of the blossoms is of a pale reddish hue, and in coccinea they are a distinct shade of crimson. The St. Dabeoc's Heath (Dabœcia polifolia), with its spikes of comparatively large bell-shaped blossoms, is also in flower, and with it the two varieties, viz., that with white flowers, and the other in which the blooms are parti-coloured.—H. P.

The Beech in Denmark.—It may interest your readers to know under what circumstances the Beech (Fagus sylvatica) grows here in Denmark. The Beech is the commonest and at the same time the most beautiful forest tree with us. Fascinating and lovely beyond all description is a Beech forest, or even a single tree in early spring, when the delicate, glossy, bright green foliage has just unfolded itself on the graceful, hanging branches. Formerly the Oak (Quercus Robur) predominated in the Danish forests, but are now fast disappearing for the Beech. Young self-sown plants of this beautiful tree grow very luxuriantly even if they are quite overshaded by the crowns of the Oaks, and when they grow larger the Oaks must give place to the Beeches. The European Beech (Fagus sylvatica) is, however, distinguished from the common American Beech (Fagus americana or F. ferruginea) by a more slender growth, with more hanging branches and smaller, but more glossy and bright green foliage, and very likely its claims to soil and situation are also a little different. The Beech in this country grows best in a somewhat heavy clay and chalk mixed mould with a moderately moist subsoil. When these conditions exist the tree reaches its finest development. It also does better in low places in the neighbourhood of lakes and rivulets and on northern slopes than in higher localities and on southern slopes. In sandy soil deprived of chalk and in a dry situation it will either not grow at all or it becomes stunted in growth. A soil and situation that is favourable for the growth of Evergreens in general will also be suitable for the Beech.—R. H.

GRAFTING CONIFERS.

As the season for grafting Conifers is at hand a few words upon the subject may be useful. Conifer grafting may be performed either about the month of August or early in spring. For this purpose two-year-old stocks are preferable, as it is desirable that the stock and scion should be as near of a size as possible. They should be established in 3-inch pots, and if it is intended to use them early in the spring they should be kept during the winter in cold frames. There are several methods of grafting Conifers, but ordinary side-grafting is in most cases the best. This operation consists in making a clean cut in the stem downwards about an inch in length, then at its termination making a transverse cut, thus removing a piece of the bark-wood clean away from the side of the stock. The scion should be cut off clean and square at the end, and a piece of the wood should be shaved off about equal in length to the cut on the stock. The butt-end of the scion should then be placed upon the notch cut in the stock, taking care that the bark on one side meets exactly the whole length of the cut. The great aim in this operation is so to cut the scion and stock that the former when fitted on nearly replaces the piece removed. The scion being thus fitted must be held firmly in its place by the thumb of the left hand and tied on with bast or wool so that it does not afterwards shift. When the scion is very small, or the stock much out of proportion to it, another method may be practised. This consists in simply making an incision obliquely in the stock, the scion being so cut that one side of it forms a sharp edge, in order that it may be easily inserted therein, the bark of the scion thus coming level with that of the stock. This is a neat and expeditious method, as when united it is difficult to perceive the union. The cuts must be cleanly made with a sharp knife, and the incision in the stock and the cut on the scion should correspond in length as nearly as possible. This latter method scarcely needs tying, for if properly done the scion will not easily move, and it quickly unites to the stock. W.

Berberis concinna.—Now that nearly all other Barberries are out of bloom this species is in full flower. It is a dense compact evergreen bush, at most not more than 2 feet high, with light green leaves, the undersides of which are of a silvery whiteness. The flowers are of a pale yellow colour, and borne as freely as those of the commoner kinds. This Barberry is well worthy of a place among the more select shrubs; indeed, it is not vigorous enough to be associated with strong-growing subjects, but needs rather a good position in front of a shrubbery border or a fairly sunny spot on the rockwork. It is a native of the Himalayas, but quite hardy in this country, except during very exceptionable winters. Another Barberry rather variable in its time of flowering is B. aristata, some individuals of which are now in bloom. It is a vigorous growing kind, reminding one to a certain extent of the common Barberry, but differs widely in its time of flowering. From the reddish colour of the bark it is a conspicuous object in winter when devoid of foliage, for it belongs to the deciduous section, while B. concinna is nearly, if not quite, evergreen. B. aristata is also a native of the Himalayas.—T.

Birds and Holly berries.—In March this year there were some observations in The Garden from one or two persons about "Birds and Holly berries," and I mentioned that here, at Tunbridge Wells, where the Hollies had borne an unusually heavy crop of berries, that they were then losing their berries, which were lying on the ground thickly beneath them. One tree, however, in the garden of a friend of mine has not done so, and still retains its berries. Is it not a very unusual circumstance for a Holly to be covered with berries at this time of year? This tree forms a very striking object among some deciduous trees among which it is planted.—G. S. S.

Pernettyas in flower.—Everybody admires the Pernettyas in berry, but few seem to notice their flowers; yet just now the myriads of tiny wax-like flowers have a beautiful effect. Though the most attractive stages of the Pernettyas are in summer when in bloom, and in winter when in fruit, yet at all times they hold a high place among neat growing evergreen shrubs, irrespective of any other conspicuous feature. As so many new varieties have been raised recently, and a wide range of forms exists from a fruiting point of view, it would be as well to devote a certain amount of attention to the flowers, as some might be obtained giving a greater variety in this respect.—H. P.

The Rose Acacia (Robinia hispida).—This lovely shrub or small tree is at its best when Thorns and other early summer trees and shrubs are over. Its clusters of large deep rose-coloured flowers are very beautiful, and no other shrub of its class can vie with it. It is not very particular as to soil or situation, but will thrive in dry sandy spots better than most shrubs, for though when grafted it acquires a tree-like habit, yet it is more adapted for associating with the larger shrubs than with vigorous trees. When on its own roots this Robinia forms a loose, straggling specimen of bush-like habit, but, grafted standard high on the common False Acacia, it soon acquires a good-sized head, and flowers most profusely. An additional merit is that a second crop of flowers is often borne towards the end of the summer, at which time they are extremely welcome. There are several varieties of the Rose Acacia mentioned in various catalogues, but the finest of all is macrophylla or grandiflora, the flowers of which are larger and deeper coloured, while the foliage is also bolder.—T.

Where to plant Laburnums.—A few weeks ago, in going through a place, I was much struck with a group of Laburnums on the edge of one of the lawns. The background was a large mass of Beech and other trees of the same class, and the Laburnums were just in flower. Being a group of a considerable size and pendulous in habit, I think the effect was better than any I had seen produced by this tree before. As is well known, the form which the Laburnum assumes as an isolated tree, if left to grow on naturally, is such as to render it somewhat unsuited for lawn-planting, but here this loose and straggling form was turned to good account through their being placed in a mass. I have seen many Laburnums, which have been trained to a single stem and periodically cut back, form a good regular head, but the result is too stiff. By planting them in masses, as suggested, pruning becomes unnecessary, and being left to themselves the trees soon intertwine and make a capital flank or screen on the margin of a lawn.—D.

The Jerusalem Sage (Phlomis fruticosa).—This is not usually considered a handsome flowering shrub, yet it is when in bloom, and, moreover, is distinct from all others. It is now in flower and seems to defy drought; indeed, it thrives best in hot sandy soils where few other shrubs can grow.—T.

Cut-leaved Alder.—I shall be glad for information regarding the Cut-leaved Alder. Is it easily blown over by the wind, and is it suited to an exposed situation?—F. W.

*** The Cut-leaved Alder is not a tree suited for a very exposed situation. It never flourishes so well as when planted in a low-lying spot near water, near enough for the roots to derive abundance of moisture therefrom. In such situations it is not liable to be blown over, as its roots spread widely and obtain such a firm hold of the soil. In poor soil on on exposed situations half its beauty is lost.—Ed.

SHORT NOTE.—TREES AND SHRUBS.

Carpenteria californica is now in flower in my garden. I bought the plant three years ago from Messrs. Rodger and McClelland. It is quite hardy here.—T. M. Bulkeley-Owen, *Tedsmore Hall, Westfelton, Shropshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

July 13.

A better meeting than this has not been held here this season. There was a capital fruit and vegetable show—could hardly have been finer; hardy flowers were neversh own more extensively nor of greater excellence, and added to these were a large gathering of cut Roses and a miscellaneous display of plants, including Orchids and new and rare plants. These latter were more numerous than usual, and no fewer than thirteen plants were certificated. First-class certificates were awarded to the following:—

Dendrobium Williamsianum.—This, the rarest and most beautiful Orchid shown, has long been heard of, but seen in flower by very few. It is a New Guinea plant, belonging to the group of which D. bigibbum is a familiar example, but it is different from any other in cultivation. Its growth is most like that of D. bigibbum, but more slender. The flowers are about 2 inches across, with pure white sepals and petals, and a shell-like labellum of the richest royal purple colour. Such an extremely beautiful Orchid attracted much attention. It was exhibited by Mr. B. S. Williams, who introduced it some years ago, and after whom Reichenbach named it.

Odontoglossum crispum Hrubyanum.—An extraordinary variety of the spotted-flowered or guttatum group. It can only be compared with such as Veitchianum and Sanderianum. The flowers are large and finely shaped; the broad sepals and petals are white and very heavily marked with irregular blotches of a rich chestnut colour. The plant was shown by Baron Theodor Hruby, of Austria, and bore several flowers on a long, graceful spike.

Odontoglossum crispum Mrs. Dorman.—A lovely variety, very similar to an older one called virginale. It has large and symmetrically formed flowers, and spotless white sepals and petals. Exhibited by Mr Dorman, The Firs, Lawrie Park, Sydenham.

Phaius Humblotii.—A new species from Madagascar, resembling the better-known P. tuberculosus, and though not so beautiful as the latter is a very showy Orchid. The flowers, produced on erect spikes, are about 2 inches across, with pale claret petals and sepals, while the large and broad lip, quite an inch across, is white on the upper part, the lower lobe being stained with a deep port-wine colour. The spikes are few-flowered and about a foot high, and the foliage is long, narrow, and ribbed. Shown by Sir Trevor Lawrence, Burford Lodge, Dorking.

Oncidium macranthum (Southgate's variety).—This closely resembles, if not the same as the variety named Williamsianum by Reichenbach some time ago. It differs from the typical form in having the petals stained with a large irregular blotch of purple. It is the handsomest and most distinct variety of this Oncidium yet seen. Shown by Mr. Southgate, Selborne, Streatham.

Impatiens Hawkeri.—A marvellously fine new Balsam, somewhat in the way of the popular I. Sultani, but greatly superior to it both in the size of its flowers and their colour, a brilliant carmine-crimson. It appears to be quite as free in growth and bloom as I. Sultani, which it will no doubt supplant in course of time. Exhibited by Mr. W. Bull, of Chelsea, who recently introduced it from the South Sea Islands.

Aphelandra chrysops.—A handsome plant resembling A. fascinator. The leaves are broad, of a deep green, and marked with parallel bands of silvery white. The flowers are produced in a dense terminal spike about 6 inches long, and these, as well as the bracts, are of a clear canary-yellow. Exhibited by Mr. W. Bull.

Pteris serrulata (Naylor's Crested).—This is different from the numerous crested forms of this Pteris previously raised, the fronds being more finely divided; indeed, the plant looks more like a tuft of translucent seaweed, as finely cut as garden Parsley. It will prove a specially valuable plant for the market grower. Shown by Mr. Naylor, Harrow.

Pelargonium Eden Marche.—A new French variety of the double-flowered Ivy-leaved class in the way of Mons. Crousse, but with larger, more double flowers. It is free in growth and very floriferous. Shown by Mr. W. Bealby, Roehampton.

Papaver nudicaule miniatum.—A brilliant orange-red-flowered variety—a beautiful contrast in colour to the yellows and the whites also found among seedlings of the Iceland Poppy. Exhibited by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

Rose Grand Mogul.—Said to be a seedling from that splendid Rose, A. K. Williams. The flowers of the Grand Mogul have the size, form, and substance of petal of the older sort, but the colour is much deeper and, if possible, richer. It is sure to become as popular as A. K. Williams. Some superb blooms of it were shown by Messrs. W. Paul and Son, Waltham Cross.

Stock Snowflake.—A Ten-week Stock with dense spikes of flowers, very double and pure white. Shown by Messrs. J. Veitch and Sons, Chelsea.

Among other exhibits the most noteworthy was a group of Orchids from Sir Trevor Lawrence, which was composed for the most part of species not often seen, and a few extremely rare. Besides the Phaius Humbloti certificated, there were the following: Spathoglottis angustorum, a beautiful terrestrial Orchid, with long, narrow, plicate leaves and slender flower-spikes some 2 feet high, terminated by crowded clusters of about a dozen flowers. These are about 1½ inches across of a delicate blush pink. Trichopilia Galeottiana, a distinct and very fine flowering species, a good deal like others in the shape and size of flowers, which are yellow blotched and spotted with brown on the labellum; Aerides roseum, in the way of A. Fieldingi; Masdevallia Dayana, a very rare species, more curious than showy; the flowers resemble snake's heads, and are creamy white chequered with brown, like a Snake's-head Fritillary; and M. infracta purpurea, a very fine variety of what is generally regarded as an unattractive species. In addition to these the Burford garden contributed a plant of Cypripedium caudatum with three flower-spikes, which the committee considered worthy of a cultural commendation, inasmuch as the plant had been grown in a cool house. A variety of Odontoglossum vexillarium was shown by Mr. Hollington, Forty Hill, Enfield. It was named Hollingtoni, and differed from ordinary forms in having the lateral petals broader than usual. Baron Schroeder showed a plant of the old, but rather rare, Galeandra Baueri, which is the way of the commoner G. Dayana, but has yellower flowers and a deeper stained lip. From the Earl of Fortescue's garden at Castle Hill came a very fine spike of that showy Orchid, Renanthera coccinea, which so few can grow and flower successfully. Col. Berkeley, of Market Harboro', sent a fine flowering specimen of Phalænopsis speciosa, one of the small-flowered group after the Luddemanniana stamp, and with bright carmine-purple flowers. A choice group of plants of Odontoglossum crispum came from Mr. Dorman's collection, all being of the finest type as regards size and form of flower. Mr. Measures sent from his garden at Cambridge Lodge, Camberwell, a large and select group of Orchids, consisting chiefly of Cattleyas, Odontoglossums now in season, besides a good many out-of-the-common things, such as Lælia xanthina, Cypripedium concolor Regnieri, C. Parishi (a fine specimen), C. Godefroyæ, and a wonderfully fine variety of that little-known species, Oncidium stelligerum, remarkable for its large showy lip, white and claret colour. Some seedling Poppies, varieties of Papaver Rhæas, raised by the Rev. W. Wilks, of Shirley, Croydon, attracted some attention, as they were so beautiful, the crumpled and satiny petals of their flowers being of all colours, from white to deep crimson. The delicate Roses and Pinks were very lovely. Messrs. Veitch showed a small group of seedling Gloxinias, which made an attractive group. Out of the eight or nine sorts shown, we thought that Irma, brilliant scarlet; Vestal, delicate pink; Lucinda, frecked purple; The Moor, deep purple, and Ruby were the finest. Messrs. Veitch likewise showed a pretty Carnation named Mrs. Mason, a sort of salmon-pink colour, and an extensive collection of Iris Kæmpferi varieties, which included some wonderfully fine sorts, some with flowers 8 inches and 9 inches across. Mr. Gordon, of Twickenham, also showed some good sorts of this Iris. Messrs. Carter showed some well-flowered plants of their new double-flowered Silene pendula compacta, which promises to become a valuable plant for borders. A finely-flowered specimen of Fuchsia General Roberts was shown by Messrs. Cannell, who had with it a bunch of that most beautiful of all yellow Carnations, Pride of Penshurst. A fine Hybrid Perpetual Rose named Eugène Furst was shown by Mr. T. Bunyard, of Ashford. It is of a dark crimson colour and with blooms of good quality. Mr. R. Dean, of Ealing, exhibited some spikes of Ten-week Stocks, the sorts being Giant Crimson and Mauve Beauty—the latter a most beautiful sort of a soft mauve colour. He also showed a pale pink variety of the Everlasting Pea named Delicata, the white Musk Mallow, and a new Carnation of a flesh pink colour named Effie Dean. Messrs. Vilmorin, of Paris, sent a gathering of their mixed seedling Carnations representing all colours, and some as large and double as named sorts. Some seedling Pelargoniums were sent by Mrs. Kingsbury, Bevis Valley Nursery, Southampton. One was named Mrs. Parker, with silver-edged leaves and double flowers of a soft pink; the other, Kingsburyana, with silver-edged leaves and double scarlet flowers.

Roses were plentifully shown by Messrs. W. Paul, of Waltham, and by Messrs. Paul, of Cheshunt, who had blooms even finer than at the great Rose show a week previous, and a multitude of first-rate sorts were represented in perfection. Among the new sorts shown by Mr. W. Paul was a white sport from Catherine Mermet which we thought excellent, and a new Hybrid Perpetual named Silver Queen, pale pink with deeper centre. The new Madame de Watteville was also splendidly shown.

Hardy flowers were also abundant, large and varied collections being shown by Mr. Ware, Messrs. Paul, Messrs. Kelway, and Messrs. Barr. The first prize for the finest collection was won by Mr. Ware, with a group as fine as he has ever shown at South Kensington. Lilies were its chief elements, and of these there were huge masses of tall spikes showing the natural grace of Lilies to perfection. The most noteworthy among them were L. candidum and its striped variety (striatum), testaceum, the nankeen-coloured Lily, croceum, pordalinum, Parryi, Humboldti, columbianum, lucidum, Martagon dalmaticum, canadense, besides large gatherings of early Gladioli and other bulbs and a choice selection of hardy perennials. Messrs. Paul's group was a very fine one too, and most effectively arranged. They had great masses of showy things like Lathyrus latifolius varieties, Centaurea montana and the golden macrocephala, Erigeron glaucus, Spiræa palmata, Phlomis Russelliana, Lythrum Salicaria superbum, Campanula turbinata, and a host of other alpines and Lilies. Messrs. Kelway's group consisted chiefly of Pyrethrums, Gaillardias, Alstromerias, white Agapanthus, Phloxes, &c. Messrs. Barr excelled, as usual, in bulbous flowers, of which they had an extensive collection.

Fruit.—With trifling exceptions, rarely has there been a better display of fruit at any summer show than was to be seen here on Tuesday. There were about a dozen classes, and the competition generally was good; in some instances unusually so, and if the remaining shows of the season present the same admirable features, they will prove worthy of the Society. Grapes were excellent, especially the black kinds; the best three bunches of Black Hamburghs, stout, handsome, and well finished, came from Woolmer Forest and from Sir A. Macdonald's garden, so admirably managed by Mr. Taverner, who generally turns out Grapes well. Other good samples came from Elvaston and Bickley Park. There were eight lots in the class. But the class for any other black kind had most interest, because it brought some grand bunches of that delicious Grape, Muscat Hamburgh, superbly finished, and as good as usually seen, from Mr. Goodacre, who merits the highest praise for this exhibit. Gros Maroc, from Mr. Miles, of Wycombe Abbey, medium bunches, but very handsome, if not quite up to size in berry, and what would in another month be superb Alicantes, from Chertsey, were the pick of this class. It was a surprise to find so late a

Grape as Alicante shown so early, but in no case was it fully coloured. Muscat of Alexandria came up moderately. The best were still lacking colour, and the second best, though good bunches, still pale green. It is very rare indeed that good examples of this fine Grape are seen early. Peaches were in grand form; the Grosse Mignonne sample from Mr. Seymour was as fine as could be wished for; and Mr. Wallis, of Keele Hall Gardens, had rich-coloured Crimson Galande that were perfect. Not only other Grosse Mignonne, but Violette Hâtive, Sea Eagle, Royal George, and Barrington were well shown in the fourteen dishes staged. Of Nectarines, finer than the dish of Lord Napier, from Mr. Roberts, of Gunnersbury, have rarely been seen—quite up to Peach size and richly coloured. Pitmaston Orange was also well shown; there were thirteen dishes of these. Cherries were fairly good generally, but Mr. Hudson's two dishes of Black Circassian and Bigarreau Napoleon could hardly have been excelled, they were so fine, glossy, and superbly coloured. Mr. Roberts had good samples of the latter and Black Tartarian; and amongst others shown were Elton, May Duke, Black Eagle, and Governor Wood. Some capital Pines came from Wycombe Abbey, the pair of Queens staged by Mr. Miles weighing 10 lbs., and they were handsome, well coloured, and even. The first prize Pine, which also came from the same exhibitor, was not less good, and weighed 5 lb. 2 oz. Queens were most favoured, only one lot of Smooth Cayenne being shown. Melons were plentiful, sixteen pairs being shown, but were a singularly uneven lot as far as size was concerned, and even the first prize brace, Blenheim Orange, was not first-class, though handsome. Hero of Lockinge, Sea let Premier, Imperial Green Flesh, and Read's Scarlet Flesh were well shown. Some very fine brown Turkey Figs came from Woolmer Forest; indeed, of the eight dishes staged this kind largely predominated. Strawberries were very fine, and gave little indication of the drought which so recently prevailed. There were ten pairs of dishes in the one class, and fourteen single dishes, the British Queens and Dr. Hogg from Greenford showing how admirably the soil in the fertile valley which lies between Ealing and Harrow suits these uncertain, but delicious kinds. Mr. Garlandvoy always does Strawberries well. Curiously enough in the single dish class, fine British Queen from Gunnersbury Park, and Dr. Hogg from Bickley Park, were the best dishes. Of other kinds shown well were President, Eleanor, Sir J. Paxton, Sir C. Napier, and Eclipse. Of miscellaneous fruits there were furnished by Mr. Ross, Welford Park, a seedling Grape very much resembling Muscat of Alexandria, but said to be a seedling from the Black Monukka. It has fine berries and received a commendation. Also from the same exhibitor dishes of Duke of Devonshire, Sturmer Pippin, and Alfriston Apples and Catillac Pears fairly well preserved; also a basket of fairly good Backland Sweetwater Grapes; and from Mr. E. D. Lee, Aylesbury, a basket of Lord Napier Nectarines of fair size and colour.

Vegetables were also remarkably good, and no less than ten collections of eight dishes were staged, the best growers competing. The honours in this case worthily fell to Mr. Richards, of Somerley Park Gardens, though run very close indeed by Mr. Miles and others. The leading kinds were London Cauliflowers, Telegraph and Telephone Peas, Perfection and Stamfordian Tomatoes, Snowdrop Potatoes, New Intermediate and Matchless Scarlet Carrots, White Elephant Onions, Globe Artichokes, Asparagus, and Moore's Cream Marrows. In other collections were beautiful Nantes Carrots, Pen-y-byd Marrows, Duke of Albany Peas, in several collections and very fine; Leviathan Long-pod Beans, &c. The best dish of Tomatoes, of which eight lots were staged, came from Mr. Farrance, Chadwell Heath; in it were fine Trophy, and Stamfordian, a beautiful sample, coming next, and Hackwood Park third, whilst Acme, Reading Perfection, and Trentham Fillbasket were also good. Cucumbers were but moderate in quantity and quality—Purley Park Hero, Model, and Telegraph coming in this order.

Special prizes.—Messrs. Carter offered for competition on this occasion some valuable prizes for their undoubtedly fine Peas, Telegraph, Telephone, Stratagem, and Pride of the Market, ten collections, generally fine samples, being staged. It was rather odd that Messrs. H. Marriott, sen. and jun., of Boston, should have come in first and second, and the samples were throughout literally as like as two Peas. It is due to the Royal Horticultural Society that Messrs. Carter and Co. should satisfy themselves that these exhibitors are distinct, and grow their samples in different gardens. In the class for a single dish of House's Perfect Marrow—prizes given by Mr. House, of Peterborough—only six dishes were staged, the Marriotts coming first and third with fairly even samples, another Boston grower, Mr. Cook, taking second place. This Pea is somewhat of Veitch's Perfection shape and style. For Messrs. Webb and Son's prizes for Wordsley Wonder Pea there was poor competition, the samples being rather small and sword-shaped. Whatever may be its cropping merits, it is not a striking Pea on the exhibition table. Mr. J. C. Mundell, of Moor Park, Rickmansworth, showed several dishes of Peas, fairly good samples, including the old Bunch Pea, put up as the Egyptian Mummy Pea. Mr. T. Laxton, Girtford, showed a collection, including such good kinds as Ameer, Walton Hero, Sensation, &c., chiefly his own kinds. From Messrs. Carter came a collection of about eighty dishes, including all the best kinds in cultivation. The finest of these seemed to be Alfred the Great, Duke of Albany, Telegraph, Pride of the Market, Prodigy, and Telephone. A quantity of Sweet Pea flowers in bunches seemed to prettily decorate this exhibit.

Fruit committee.—The chief exhibits consisted of new Melons, a crop of seedling sorts, sent by various growers for the opinion of the committee, but none were considered superior to old sorts. Mr. R. Gilbert, of Burghley, sent one called Her Ladyship's Favourite. Mr. Ross, of Welford Park, sent one called General Gordon, and another named Semper Fidelis; and Mr. Howe, of Benham Park, showed his Pink Perfection. Messrs. Viccars Collyer and Co., Leicester, sent some excellent specimens of the new Blackberry, named Wilson Junior, which were quite equal in size and productiveness to the illustrations that have been published of it. Mr. Barron exhibited, from the society's gardens, Chiswick, a dish of a handsome Strawberry named Waterloo. The fruits are large, round in shape, and of a deep blood-red colour, and of good flavour. Some fine Canadian Apples were shown in good preservation, the sort King of Tomkins County being the handsomest. Some excellent Lord Napier Nectarines and Royal George and Noblesse Peaches were shown, and Mr. Ward, of Longford Castle, showed some capital samples of Webb's Chancellor Peas, and Mr. Turner, Tonbridge, furnished four dishes of Carter's Peas, Telegraph, Telephone, Stratagem, and Pride of the Market. A silver Knightian medal was awarded to the commissioners for the Cape of Good Hope colony for a fine selection of dried fruits, including Peaches, Pears, Apricots, Apples, Raisins and Cape Gooseberries. The stewed Pears prepared from the dried fruits were delicious, scarcely distinguishable from fresh fruits.

Scientific committee.—The following were the chief subjects of interest discussed at this meeting:—

Rhododendron ponticum var. myrtifolium.—Mr. G. Maw doubted this being a true native of Gibraltar, as stated at the last meeting. At the same time Mr. Maw mentioned that R. ponticum was wild at Algesiras, where it grew in company with Balantium Culcita, both cases affording instances of isolation.

Cistus ladaniferus.—Mr. Maw remarked that plants of this with blotched flowers grew in Spain in company with others in which no blotch was perceptible. He had also seen a few instances of blotched and unblotched flowers on the same plant. Mr. Maw also suggested that Digitalis lutea and grandiflora might be dimorphic forms of one and the same species.

Daffodils.—Mr. Maw reported on the occasional occurrence of erect flowered Daffodils. He also stated that N. minimus of *Botanical Magazine*, t. 6, was identical with N. minor, and abundant in Central Spain at high elevations. Drawings of various hybrids were shown, and the opinion expressed that N calathinus and triandrus were one and the same species.

Masdevallia Dayana.—Mr. O'Brien alluded to this interesting species, in which the three sepals cohere by their tips, leaving, however, lateral apertures through which insects may enter, as in M. fenestrata. The peduncles originate from the top of the shoot, and not from the base, as in others of the genus. A botanical certificate was awarded to the plant.

Fungus on Mangoes.—Mr. W. G. Smith alluded to a fungus, Capnodium mangiferum, which he had received from Mr. G. S. Jenman, of Demerara. The fungus occurs also in India, but there attacks the leaves only. In Guiana it bursts through the bark of the trees.

Selenipedium and Uropedium.—Dr. Masters exhibited a drawing by Mr. W. G. Smith of a specimen, interesting as confirming the notion that Uropedium is a monstrous state of Selenipedium; and a monstrous form of Cattleya Loddigesi was also shown; and Dr. Masters showed a spray of Mistletoe with ripe berries.

Fire blight in Pears.—Dr. Masters exhibited specimens of this disease received from Professor Arthur, of New York Agricultural Station. The disease is attributed to Bacteria, and happily has not yet been noticed outside the United States. To the naked eye the young shoots look dry, shrivelled, and black as if scorched by fire.

A prize list will be found in our advertising columns.

Strawberry Laxton's Noble.—Mr. Laxton, of Girtford, reminds us that we omitted to note the fact that his new early Strawberry named Noble was awarded a first-class certificate at the Royal Horticultural Society's recent show at Liverpool.

Cabbage grub (*B. W. H.*).—Allow me to make a slight correction, as the alteration of one word makes a good deal of difference to my meaning. I wrote (perhaps not very legibly), "however, it should be known as the Cabbage-fly, as it is *really* the same as the Cabbage-fly," but in print it reads, "as it is *nearly* the same."—G. S. S.

Alnwick Seedling Grape.—Just at the moment I cannot with certainty inform "W. I. M." where he will see examples of this Grape that have been set by means of the syringe, but the best and evenest bunches of this variety that I have seen were syringe-set, and I cannot understand how "W. I. M." has failed in setting it by this method.—T. B.

QUESTIONS.

5508.—**Slugs.**—What is the best way to get rid of slugs in Strawberry beds? Perhaps some reader of The Garden will kindly say.—Fawley.

5509.—**Crickets.**—I am very much annoyed by crickets in my greenhouses, Melon houses and vineries, and I shall be glad to hear of anything to destroy them.—F. M. T.

5510.—**What to grow profitably under glass.**—I have a heated span-roofed house 60 feet by 11 feet, thirty miles from London and eight miles from a railway station. I should be glad to know what I could plant it with that would be easy of culture and realise the most money. Will some reader of The Garden kindly assist me in this matter?—H. W.

5511.—**Orchid spot.**—Will some Orchid grower kindly help me under the following circumstances: I have a very fine plant of Cymbidium eburneum which flowers freely, but unfortunately the tips of the leaves as soon as formed become spotted and gradually die back, rendering the plant when the decayed parts are cut off, to say the least, unsightly. I have also in the same house Pleione lagenaria, maculata, and Wallichiana which go in the same way, but in their case the bulbs do not grow, I think, to their full size, nor do they properly ripen. They are shaded with canvas blinds when the sun shines; the night temperature is 70°, and the atmosphere moist. The Cymbidium is potted in Fern fibre, fibry loam and Sphagnum, mixed with crocks and charcoal.—J. E. R.

Names of plants.—*W. R.*—1, send better specimen; 2, Spiræa ariæfolia; 3, Spiræa callosa alba; 4, Sedum spurium, ——*C. F. J.*—1, Cassia corymbosa; 2, Diplopappus chrysophyllus; 3, Staphylea pinnata; 4, Polystichum angulare var. ——*M. Shelberton.*—1, Cyperus longus; 2, Holcus mollis; 3, Festuca elatior; 4, Hordeum murinum ——*L. Rondebosch.*—1, Crassula Septas; 2, Phylica stipularis; 3, Brunia sp.; 4, Erica Thunbergi; 5, Struthiola longiflora; 6, Aristea. All these except No. 4 were named by us for you last year.—— *E. Cox.*—Aeokanthera venenata.——*Sanguinea.*—Elæagnus hortensis.——*A. K.*—1, Milla Murrayana; 2, Datura, too much withered to name. Please send leaves also.——*R. M.*—1, Cephalaria tatarica; 2, Iris sibirica.——*E. Beveridge.*—Oncidium dasytyle (true).——*R. L. B.*—1, Adiantum formosum; 2, apparently A. concinnum latum; 3, Onychium japonicum.——*R. M.*—Next week.

WOODS & FORESTS.

PEELING STANDING TIMBER.

In some parts of Yorkshire Oak trees are all peeled standing, and hardly anything would persuade either woodmen or purchasers accustomed to the practice to adopt any other plan. Marshall, writing on the subject about 100 years ago, speaks of barking trees standing as having much to recommend it, but tedious and troublesome. As to the cost of the work, I am not sure that the labour or expense is greater, while there can be no doubt about the advantage to the timber, and we are familiar with both methods. Most of our timber here is sold standing, and the purchasers, who have the option of peeling and felling it in their own way, always peel it standing to the extent of many thousands of feet every year. The men understand the work, and there are besides people in the district following other occupations during the rest of the year who are expert peelers and always attend the bark harvest. We have had about thirty-five such men employed this season; they began in May and peeled, according to the weather, till the end of June, and some of them later. One man will contract for so many tons, or a certain portion of a fall. These men this season have paid their assistants from 3s. 6d. to 5s. per day, and made a good thing of it themselves, the trees and poles being, on the average, rather small. Thirty-five shillings per ton is the price this year agreed on for peeling—including stacking, 36s. 6d. This is considerably higher than in most other parts of the country, but it is in proportion to the general run of wages in the district; and if the trees are felled first and peeled afterwards, the price would just be the same. The figure does not leave a broad margin for the bark seller at £3 10s. or less per ton delivered in the rough, but large purchasers say that it pays them to peel Oak timber standing if it does no more than cover expenses and perhaps pay for the felling. The advantages of peeling the trees standing are that the timber is much better and sooner seasoned, looks better, is cleaner, does not rive with the drought, and is more saleable. In dry weather Oak peeled after felling cracks and splits in a way that sometimes renders it useless for some purposes. Left standing this does not happen, and it can be felled when wanted. Lastly, the weather has been extremely bad for felled peeled timber. In peeling standing timber the workman begins at the top and strips the trunk in a few sheets in a wonderfully short time. The small boughs are lopped off and peeled on the ground. During the the present bark harvest the quantity got has been about 200 tons. Timber felled and peeled afterwards has to lie where felled till a purchaser is found, unless the forester or the purchasers choose to have it dragged out and lotted, which means additional expense. Acquaintances of mine who fell and peel always sell the timber as it lies—if possible at the purchaser's risk. Felled timber does not peel so readily as standing timber, nor does the season last so long. We have this year peeled down to July 5. Much depends on the weather. A cold day or two will arrest operations; and, on the other hand, when the weather is warm and favourable to the run of the sap, the peelers cannot make too much haste, as it is between the first move in the sap and the full leafage that the work must be completed. Old peelers profess to distinguish between the first and the second sap. The trees are said to be in their first sap when the sap begins fairly to rise before the buds burst, and in the second sap after the leaf is out. Hardly two trees are exactly alike as regards condition for peeling at the same time. One of the most experienced men goes before the others and tries and opens the trees that are "on the run" until the fall has been gone over the first time, when they begin at the beginning again and peel those left. Timber that is peeled standing has another advantage over felled timber, inasmuch as it is not so heavy when felled, and the teamsters can load more feet of it than they can of timber that has lain long, perhaps, on the wet ground and got wet and heavy. All timber merchants I have spoken to on the subject prefer timber that is peeled standing, and that is perhaps one reason why we have for many years been able annually to sell such large quantities of Oak at a fair price when the market was almost glutted with it.

YORKSHIREMAN.

DRAWBACKS TO TIMBER CULTURE.

Although I have had a good deal of experience of buying and selling timber, and have studied the means of producing it—in short, all aspects of the forestry question—I do not think that we have really reached the true issue, or clearly determined why it is that timber culture is not more largely attempted in this country. It would be a great point to be satisfied as to what the real drawbacks are. We here and there see this side of the problem touched upon in a casual manner, or spoken of in connection with other parts of it, but it never seems to be gone into exhaustively.

There is no doubt that the difficulty of fixing upon the real reasons has much to do with the subject being shelved, or it may be that they are so clear to the majority, that they do not deem it necessary to discuss them. If this is so, there are some, I have no doubt, who, like myself, are not altogether clear about it. There is one reason which is occasionally brought to the front, and which has a certain amount of plausibility about it, and that is, that the individual who plants timber trees will hardly ever get a return upon his outlay in his lifetime. In ordinary cases this is true, but the objection is more apparent than real. If the property upon which planting is done passes on from one member of the family to another, where is the difference, whether the owner hands down the bare land and a certain amount of stocks and shares, or whether he invests a proportion of hard cash in young woods and plantations? It is obvious that in the latter case the planter is deprived of the income which would arise from the hard cash invested in enterprises which would be immediately interest-paying; but, on the other side, he would be placing a certain amount of capital in the hands of his successor in a perfectly sure way, and, as the history of families shows plainly enough, it is no small advantage to bequeath wealth in a form which cannot be too readily realised. It is not, however, every would-be planter who would wish to bind himself to the idea of passing on his estates in due succession. If this is so, the conditions are virtually the same, as, when plantings have been made, they are each year increasing in value, and if at any time the property upon which they have been established is placed in the market, its value will be increased in proportion. I cannot, therefore, think that the mere fact of the improbability of the planter himself felling the trees which he propagates is the reason why larger acreages are not laid under wood. It is, I think, on more purely economic grounds that the hesitancy to plant must be sought for, viz., that the ultimate return from the timber crop will not be in proportion to the outlay and the lost interest on capital. This, at least, is the only way in which I can account for it. Taking the present position of the markets, it is not to be wondered at, and I fear that, under existing conditions, the advocates of more extensive planting have rather a thankless task. There are plenty, it is well known, who build up superstructures of figures, showing that in such-and-such a time all forests will be exhausted, and those who now take time by the forelock will then be well repaid. It is an old adage, that "one should not prophesy unless they are sure," and this prophecy as to the exhaustion of what may strictly be termed timber-producing forests seems to be a little before its time. That certain contingencies may occur it cannot be denied, but hap-hazard assumptions are scarcely good enough ground upon which to rely. I conceive that a much more rational way would be to take the averages of the figures of the last two or three decades, and sift out, as satisfactorily as may be, the prospects of return on present outlay. That prices will, by the time that timber crops planted now mature, attain a much higher level than the averages of the last twenty or thirty years, there seems but little foundation to believe.

Timber planting is not likely to be undertaken as a simple act of patriotism, as there are so many directions in which this spirit may be worked out and receive recognition. As has been said, it is upon economic grounds that the question must either stand or fall. Admitting this, and also that the current average figures are not likely to be much exceeded, we are narrowed down to the point of whether the cost of growing and working up can be cut sufficiently low to compete with the imported productions of natural forests. A step towards it I have over and over again urged, and that is a better appreciation of home-grown woods by the producer for his own wants. It is a plan, however, which does not seem to be greatly favoured by the most enthusiastic of would-be planters, and this leads me to think that many who take the subject up do so more on sentimental than practical grounds. A writer remarked some time ago that the amount of wood required for estate use was comparatively very small. On densely wooded places, where the acreage in proportion capable of pasturage or cultivation is consequently reduced and the wants less, this may be true, but on the great bulk of estates I believe that if the timber account was balanced it would be found that there is as much paid out yearly for timber as there is received. It may be done unconsciously, but it is nevertheless a great drawback to timber culture. Although the market quotations are low enough in all conscience, by the time it gets to the place where it has to be used there is not a very large pile of foreign wood for £20, but when a sale has to be effected a pretty good bulk has to be parted with to make this sum. I do not by saying this mean to imply that the merchant takes an unfair advantage, but it is the cost of transport which is the dead loss, and to cover this very heavy item it is necessary to part with about two or three times the bulk of home-grown for the same value in foreign wood. I do not overlook the item of labour for sawing our own produce. This is generally too heavy, and needs to be greatly curtailed. Taking into view the multiplication of labour-saving machinery, I think there is a hope that this item will become less and less, and that ultimately what is now most certainly a great drawback to our timber culture will be very materially modified. A few years ago a portable saw-mill was almost a novelty to the average countryman. Now they are becoming more and more common.

D. J. Y.

British veneer woods.—The reason why woods are cut into veneers is obviously on account of their scarcity and consequent value. When a

wood is abundant, it need hardly be said that it is infinitely better that the article for which it is to be used should be made of the solid material. Amongst British woods the Oak is probably the most used for veneer. This, of course, is not because the wood as a species is scarce, but because there is only here and there a tree which possesses some especial quality, such as a peculiar colour or working of grain which it is desirable to make the most of. The red or brown Oak, which, as understood by cabinet-makers, does not refer to any particular species botanically, but to the colour which a tree of the common Oak now and again assumes, is an example of the kind. Being comparatively rare, it is unusual for it to be used in a solid form, but is cut up into fliteches for covering less valued woods. When the Walnut was a fashionable wood, it was very generally cut up into veneer, and, fashion notwithstanding, it probably is to some extent up to the present time. There are also other comparatively rare British trees which are either used for veneering, or for inlaying in woods of other kinds. The Yew is an example of the kind. When polished its dark colour when placed in contrast with some light wood like the Sycamore has a very good effect. I remember some time ago being shown some specimens of work in British woods, and I was especially struck with a panel of Sycamore, which was bordered with a margin of Yew. In this way there are many woods grown here which make really splendid articles of furniture. It is, perhaps, hardly the place to refer to it here, it being rather a matter of artistic taste than of special forestry interest, but I cannot but think that a very grave mistake is committed in concealing or attempting to conceal the true colour of the wood by means of foreign substances. There are, no doubt, many reasons why a polish is admissible, but beyond this, as a rule, foreign substances on what are of themselves beautiful woods are simply abominations.—D. J. Y.

RUSTIC SEATS FOR WOODS.

These ought to be good and durable and look as natural as possible. For the purpose I know nothing better than seats, whether portable or fixed, made of peeled Oak boughs from 1½ inches in diameter up to 4 inches or 5 inches. Such materials are plentiful at this season, and they ought to be collected and stored in a dry place where the men can use them in stormy weather during winter and on wet days. Crooked and straight of all sorts should be gathered, as every piece will come in useful. Straight thick pieces provide the framework for the seat; the large bent elbows make arms and legs in one piece; the straight smaller pieces provide the cross-bars for filling in the seat bottoms laid close together, and the crooked pieces make the backs and fronts. Mostly all our seats in the woods are made of these materials. Some hold only one person, and can be lifted and moved about; some can hold seven or eight easily, are also portable; and some placed round old tree trunks and at walk-sides hold many more. Ordinary woodmen make and repair them all, and it is surprising how soon a handy man will put a large chair together. In putting a seat round a large tree trunk, the arms and legs, consisting of one piece with a good round knee, are set up first; next the bearers are put in between back and front, and the seat-bottom filled in with the small pieces laid across and sawn off flush with the bearers. Then the back, pretty well elevated perhaps to the height of the shoulders or head—is constructed of what remains, mostly crooked pieces placed crosswise with each other, just as they come in, and topped with a stouter frame of the same pattern. The result is always a rustic-looking, comfortable, and capacious seat. No man who is the least handy need hesitate to construct a seat of this description. Given the materials, which, if promiscuously gathered and plentiful are sure to be right, he has only got to decide the dimensions and begin, and as he proceeds bit by bit he will find the task easy enough. General symmetry of appearance need not be neglected, but uniformity in the corresponding parts is neither necessary nor desirable. Perhaps such seats look most natural when not painted or stained in any way after they get weather-beaten, but a coat of transparent varnish annually makes them last longer. At this season we go over all the seats and repair them where needful, and in this way they last for ever. As for those places of public resort—that is, in places open to the public certain days in the week—the seats are of simpler construction and stronger, consisting generally of a stout tree-trunk cut flat by the axe on one side and nailed on to two upright pieces—one at each end—sawn off and set on end. On any new seat of this kind the visitor at once begins to inscribe his initials with a knife, but the structure is too stable to be much affected by such carving. Yorkshireman.

TIMBER TREES AND SOILS.

The question as to what trees to plant and where they should be planted appears to be yet imperfectly understood. There can be no doubt that the subject is a wide and complicated one, and that very perplexing diversities of growth occur with the same kinds of tree upon what to all appearance is the same kind of soil. There are, of course, other considerations beyond the soil itself, as elevation and aspect, and whether inland or on the coast, which have to be taken into account, but there should be little difficulty in supplying enough of these particulars to render the reports reliable. Such statements do now and then appear in The Garden, but I think there is much room for their extension. Matter of this sort from various districts would be of almost universal interest, for when sifted and compared they would afford valuable data to planters. As an illustration of what I mean, we are here a distance of some forty or fifty miles inland and several hundred feet above the sea level. The soils consist of the different strata of the middle Oolite and within a short distance some strata of the lower group occur. Towards the hills in the opposite direction we have the green sand, and then again the chalk. Taking, for instance, the upper stratum of the middle Oolite, that is, the coral rag, a study very interesting in itself, as well as of real value from a forestry point, could be commenced, viz., that of determining what trees thrive best upon it. As this is a stratum which runs for a considerable distance, and at various elevations and positions, with respect to the sea, it would be of great interest to learn what difference in the species of trees upon the various districts of it can be noted. The nature of the subject would preclude a single individual travelling over the areas to ascertain the facts for himself, but the thing could be easily done if observers at different points would record the result of their observations. That soil has much to do with the quality and progress of timber cannot be disputed. The variation in certain trees, say, between the coral rag and the Oxford clay, next in order to it and here adjoining it, is in some cases very striking. I do not here propose to give any account of the particular trees in which the most noticeable differences occur, or to make a list of those which are common to the soils, but merely to raise the whole question to ascertain the views of those to whom such subjects are both a recreation and a serious study. As a great enquiry like this must be in some way subdivided, so that it shall be intelligible and unmistakable—a common language, so to speak—to observers wherever stationed, I do not see any better basis than that of the geological strata. It is a thing which I have long desired to see taken up and treated in a thoroughly exhaustive manner, and I cannot conceive a better channel of communication than through the columns of a journal like The Garden. The information elicited would without doubt be of as much value to the gardener pure and simple as to the forester. There has been so much said and done on the forestry question, which is so wide of any practical purpose (note the paragraph, p. 42, on the evidence given before the forestry committee), that it would be a relief to get upon some fresh ground from which data could be gained, which would be permanent and reliable. I do not now intend to pursue the matter further, but shall be glad to hear opinions expressed as to the practicability of some such plan.

D. J. Yeo.

THE BEST WOOD FOR POSTS.

Can you inform me (1) which may be considered the best British grown wood for posts, and (2) what kinds would be likely to last for a fair length of time without the use of any protective agent? —W. H. L.

*** By far the most widely used British wood for the purpose of posts is unquestionably the Oak, and there is a general agreement amongst men of experience that it is the most durable. On the other hand, there are men who are intimately acquainted with woods and their uses who prefer the Spanish Chestnut or the Acacia. The comparative scarcity of both these trees, however, precludes their being very largely used. With regard to the durability of the Oak, much will depend upon the age of the wood, the soil upon which it grew, and its freedom from sap-wood. For common mound posts, *i.e.*, such as are used for fences for the protection of young hedges, &c., the smaller branches of the Oak, if there is a fair proportion of heart-wood, will, in most cases, last as long as they are required. Small sapling trees may also be used, and they are generally straighter, but, on the whole, I would prefer the tops of more matured trees. As to the second part of the question, there is a very wide selection of woods which are used for posts, but next to the Oak the Larch is the most common. Scotch Fir, too, is sometimes employed, but I cannot very highly recommend it. It is only fit for temporary purposes. Now and again Elm is used when other wood is not to be had, but it is not well suited to the work. Ash and Beech should be quite avoided, especially the latter. There are other hard woods which may be used under certain circumstances, such as the Maple and trees of that class. In other cases large Willow sets may be made to answer, as they will often grow on instead of decaying. These, however, are matters more for individual decision than for especial recommendation. When it is considered what a very wide range of ground the term post covers, it will be seen that unless it was definitely stated the nature of the work for which they were required, it would be impossible to say precisely what would be the most suitable material. If you could inform me whether the posts are for a building or merely for fencing, and the kind of soil, I could probably assist you further.—D. J. Yeo.

Waste land in Scotland.—"Be aye sticking in a tree, Jock," was the Laird of Dumbiedyke's advice to his son, and the advice should not be lost upon the present generation of Scotchmen who, by adding to the Fir woods of their country, enhance the value of the cultivated land, and add also to the beauty of the district. The rapid growth of the Scotch Fir where it has been extensively planted in the north is a proof of what I state. It is impossible to conceive the extent of the ancient Scotch forests until one carefully examines the mountains and hills now bare and treeless, where the relics of the trees that once flourished upon them lies concealed in the soil or peat; and it is very evident that if these extensive wastes are to be clothed with verdure, the hand of man must do it.—J. T.

Trees for towns.—It has been found that the Plane, which does better that any other tree in London smoke, will not grow at all in that of Lancashire; but, on the other hand, the Beech, Sycamore, Birch, Wych Elm, and Turkey Oak thrive well, but the Lime does best of all.

No. 766. SATURDAY, July 24, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BORDER CARNATIONS.

It is satisfactory to see these beautiful midsummer flowers becoming more and more popular. But a few years ago what are now called border Carnations were comparatively but little known and as little sought after. They were thought to be so inferior to the orthodox Carnation of the old school florists, that they were considered unworthy of attention. They were held to lack size, symmetry, and refinement. The border Carnations of to-day are, however, very beautiful, and popular opinion respecting them is changed from what it was; it seems probable, indeed, that in course of time they will quite supplant the old show sorts, notwithstanding the fact that their blooms are faultless in form. The once-despised border varieties, or at least their descendants, have developed into a most important, and in fact indispensable, class of open-air garden flowers. Since the raisers of new varieties began to meet the demand for new kinds the list of first-rate sorts has lengthened considerably, and every season brings with it a crop of novelties superior in some way or other to older kinds. Every year one may see during the end of July and beginning of August a grand display of all the sections of Carnations and Picotees in the Royal Exotic Nursery, Chelsea, which is the more remarkable because the plants are grown in a populous neighbourhood, where one would imagine that open-air flowers would have but little chance. The Carnation is, however, proverbially one of the best town flowers one can grow, especially those vigorous border kinds which can withstand a town atmosphere better than the more refined, but much more delicate, show varieties.

The Chelsea Carnation show this year is indeed very fine, notwithstanding the fact that the season has not been one of the best for Carnations. The cold dry winds which blew so long in April were much against them, and before they had recovered themselves there came the dry, hot weather which we had a few weeks ago. The result is that some of the more delicate sorts have not been able to cope with the weather, and this is especially noticeable with the yellow-flowered sorts, nearly all of which, strange to say, are much less robust than the whites, or high-coloured kinds. The Carnation ground has a finer effect than usual, we think, because sorts of like colours are planted in large masses, which brings out the contrast of colours more strikingly. Besides a full collection of what are called border sorts, there is to be seen here a large selection of the very finest show sorts—flakes and bizarres, and all the finest Picotees of their various sections. But it is to the border sorts that we wish to direct most attention, because they are most popular, and because so much is said and written about the show section now that the Carnation show season is at hand. Messrs. Veitch, as we have said, group their border kinds into sections, according to their colours. There are white, yellow, scarlet, crimson, purple, pink, and rose selfs, besides a class for fancy varieties, that is, those sorts which have a mixture of colours in their flowers. Of whites there are about a dozen named kinds, and these seem to be all so good, that it is a difficult matter to say which is best, but, speaking as we saw the sorts together, we thought the best white was Duchess of Connaught, the flower being good and pure, and the growth excellent and floriferous. The favourite, W. P. Milner, so long considered the finest, is well represented; while other first-rate whites are those named Miss Marianne North, The Bride, Ossian, and Virgo; the latter quite a gem, the flowers being small, very compact in form, and snow-white. Gloire de Nancy, the white Souvenir de la Malmaison, is a first-rate white, especially considered as a large flower, but it is not nearly so floriferous as the smaller sorts. Among deep crimsons there is still nothing finer in flower or habit than the old Crimson Clove, of which there is a great mass, but for brilliancy it is eclipsed by a new sort much of the same stamp as regards habit of growth. This is called Masterpiece. Its flowers are smaller than those of the old Clove, more refined, and of a vivid blood-red colour, which, seen *en masse*, is very striking. Masterpiece is bound to make a way for itself among the finest border Carnations. Another good crimson self is General Stewart, which is thought very highly of, and favourite sorts still are Robert Burns, Sparkler, and Sambo. Scarlets are numerous, and perhaps beyond all others the most effective, the great masses one sees of them here being very brilliant. There are about a dozen and a half sorts represented, but even among such a number it is not difficult to single out those which make the greatest show. Brigadier is about the best, being the freest in bloom, and one of the most brilliant in colour. Then follow Fire-eater, Illuminator, The Lord Mayor, Vivid, and Lucifer. To our mind the very best is Magnum Bonum, which, moreover, is the most distinct of all. No one can mistake it, for it has such a dwarf, compact habit that you can discern it a hundred yards off. It is also most floriferous. This is the stamp of Carnation that raisers should improve upon. Being dwarf and stocky in growth, the plants want little, if any, support, and it must be owned that one of the drawbacks to border Carnations is the number of stakes with which they are associated in nine cases out of ten. Beauty of Whitby is another new sort, a brilliant scarlet, which is superior to some of the others.

Passing to the pink and rose sorts, the queen of the group is Celia, which everybody says has eclipsed that popular sort Mary Morris, which it most nearly resembles. The flowers are very large and full with smooth petals (always a point with florists), and the colour is a most exquisite clear rose-pink; a bed of this is one of the chief features in the Chelsea collection, and as it may be seen by Mary Morris's side, one can judge for oneself. Other pink or rose sorts of superlative merit are Gertrude Teigner, Elysian Beauty, Queen of the Roses, Corsair, Cornelius, and Blush Clove, the latter a sport from the old Crimson Clove. Its flowers are large, and the colour, a delicate blush-pink, which, combined with a spicy fragrance, makes it a much-prized sort.

Purple selfs are not numerous, only about half a dozen sorts being catalogued, but most all of these are good. There is none finer in our opinion than one called Walter Ware, which has smallish flowers, compact and of good form, and of a brilliant purple. It is extremely floriferous; in short, we should rank it among the most select of border Carnations. In a similar way is Royal Purple, while others to be recommended are Auctioneer and Improvement, both first-rate.

Coming to the yellows, we can say the least about them, for, as we before remarked, they have been almost a failure at Chelsea this year; they seem to be different from the whites and coloured sorts, more delicate in constitution, and altogether more capricious. There are but few decent beds of yellows; some of these consist of an apricot-yellow sort, named Florence, which is unquestionably first-rate in every respect, and one can overlook its undefined colour when its growth and floriferousness are considered. Among the clear yellows is Primrose Queen, which in a good season would have made a very effective bed. Of the new Pride of Penshurst there is a bed, but the plants have done but indifferently; perhaps other causes besides the weather have brought this about, for of new sorts nurserymen cannot usually afford to keep large plants long without mutilating them for cuttings. The new Belle Halliday is perhaps the best of all the yellows now in bloom in this nursery. It is of good dwarfish habit, very free in flower, and of a soft sulphur colour. Everybody who sees this variety likes it, which is a pretty good indication of its beauty. Among what are called fancy varieties there are few really fine kinds, the best, we think, being Sir Beauchamp Seymour, a sort raised by Messrs. Veitch at their Langley Nurseries. It has large, full flowers of a flesh-red colour, mottled and streaked with lighter and darker hues. In a similar way is Sir Frederick Roberts, also first-rate. The Earl of Beaconsfield is among the cream of the collection. Its large, well-shaped blooms are bright scarlet, flaked with crimson, and, moreover, it is very floriferous and of good habit. The above are some of the best of the border varieties; but we do not mean to say that they are the only kinds of Carnations and Picotees suitable for borders, as there are scores of sorts, bizarre and flaked, as well as of Picotees that are quite as beautiful, but far less effective in the open borders; in fact, their bizarred colours produced an undecided effect, and in order to be enjoyed must be inspected closely. One may see in this nursery a selection of the finest sorts side by side, so that one can compare their merits. In addition to the Carnations, there is a Pink to which we should like to direct attention, as it is the prettiest self-coloured sort we have seen; indeed, it is said to be the only self Pink yet obtained. It is named Rose Perfection; its blooms are bright rose, and produced freely. A mass of it is quite as effective as that of some of the Carnations.

FLORISTS' CARNATIONS AND PICOTEES.

We are now upon the threshold of the two southern exhibitions of this favourite flower, one of which takes place at South Kensington on Tuesday next, and the other in Mr. Dodwell's garden at Oxford on August 3. The latter will include flowers from districts further north than the show at South Kensington. I have not yet learned the date of the Manchester exhibition, but it will in all probability be a week or ten days, at least, later than the Oxford meeting, for the flowers are very late in blooming in the north. At the Royal Nursery, Slough, there can be seen some 2600 plants now under glass, and the fine head of bloom can now be seen pretty well at its best, being protected from damage through rains. The plants are singularly clean and vigorous in growth. There are three classes of bizarre Carnations, the scarlet, crimson, and pink and purple; the two last so nearly approach each other, that it almost requires the knowledge of an expert to separate them. The bizarres have two and three colours on a white ground, and the scarlet bizarres are of the highest value and most striking, being extremely showy, and when in good character very beautiful. The flaked flowers have, in the case of purple flakes, dashes of this colour; scarlet flakes, scarlet; and rose flakes, rose, on white grounds. The purple-flaked flowers have the highest value; the scarlet flakes are singularly bright and effective; and the depth and brightness of colour in the case of some of the rose flakes cause them to very nearly approach the scarlet in colour. Picotees are divided into three main divisions: red edged, purple edged, and rose or scarlet edged; in each case there is a beading of colour on the margins of the petals; these are again sub-divided into heavy and light edges, according to the density with which the colour is laid on. There is a fourth class of Picotees, the yellow grounds, in which the colour forming the edge varies, and while some of the petals are of a pale yellow colour, others are deeper in tint. A statement of these divisions will, perhaps, enable the visitor to a Carnation and Picotee show to understand the classes in the schedule of prizes and the flowers exhibited in them.

The following are now in fine bloom in the Slough collection—Scarlet bizarres: Robert Lord, James McIntosh, Master Stanley, Lord Napier, Charles Turner, and Arthur Medhurst. Crimson bizarres: Rifleman, Harrison Weir, Crimson Banner, E. S. Dodwell, and Mrs. Maclaren. Pink and purple bizarres: Twyford Perfection, Sir

Garnet Wolseley, H. K. Mayor, Sarah Payne' Squire Llewellyn, Falconbridge, Princess Beatrice, and Joe Bogstock. Purple flakes: Sporting Lass, Juno, James Douglas, Mayor of Nottingham, and Florence Nightingale. Scarlet flakes: Royal Scarlet, Figaro, John Bayley, Dan Godfrey, John Ball, Jupiter, Henry Cannell, Scarlet Keet, and Bailey, junior. Rose flakes: Lady Gordon, Lord Chelmsford, Miss Erskine Wemyss, James Flowdy, Rob Roy, Stapleford Hero, Mrs. Matthews, Mrs. Tomes, Sybil, John Keet, and William Newman.

Picotees — Red-edged: Blanche, Princess of Wales, Dr. Epps, and William Summers. Purple-edged: Norfolk Beauty, Her Majesty, Princess Dagmar, and Clara Penson; the latter has a fine broad petal and delicate edge of purple. Rose and scarlet-edged: Evelyn, Louisa, Miss Horner, Constance Heron, Duchess, and Favourite, the latter a somewhat new and beautiful variety.

The fancy Carnations and Picotees are so brilliant in colour in many cases, and so handsomely marked, and the self-flowers are scarcely less attractive, that it is not to be wondered at they have become such great favourites. Many of these are what are known as "run" flowers; that is to say, the flower of a Carnation, instead of becoming a bizarre or a flake, as is its proper character, becomes self-coloured, or the white ground is rose, scarlet, &c. It is difficult to account for the phenomenon of running; it is one of those subjects that seem to defy explanation; but it is generally thought that soils, more than anything else, have to do with it. Run flowers seldom revert to the proper character, and therefore they are not propagated by nurserymen, except to preserve the particular sport.

Just now there is also a good bloom of Carnations and Picotees in the open air. I have a bed of seedlings of a very attractive character, and I am pleased to find among them some flaked flowers of excellent quality. The flower-stems should be tied securely to stakes, and the numerous buds thinned out a little; the former to keep the blossoms from being damaged by wind; the latter, that the plants may carry only a reasonable number of flowers of a good character.

R. D.

NOTES OF THE WEEK.

A Helianthus from Japan, shown the other day at South Kensington, and which we suspect is H. japonicus of botanists, is one of the finest Sunflowers introduced of late years. The colour of the flowers resembles that of H. cucumerifolius, but this new species has the advantage of being a perennial. It grows about 2 feet in height, sturdy, and bears a profusion of bloom.

Ornithogalum aureum.—It is to be regretted that this is not hardy or capable of being cultivated with the aid of protection during winter. We have nothing in the open air at this season to compare with it, unless, indeed, it be Cyclobothra pulchella, and that does not always grow satisfactorily. O. aureum is well worth growing by those who have accommodation for it, its flowers, both in colour and quantity, being all that could be desired.

Statice Suwarowi, as we saw it the other day, both in the Cape house and on the rockery at Kew, is likely to be a favourite when better known. It grows ordinarily from 1 foot to 2 feet in height, with branched spikes of charming rose coloured flowers, set as closely together as they can be on the spike. Half-a dozen plants together of this Statice have a grand effect. It seems better adapted for pot culture than for planting out of doors.

Inula glandulosa.—This is undoubtedly the best of this genus for ordinary garden purposes. The flowers are much larger, and the colour if anything better than that of the now popular Rudbeckia speciosa, and the plant, to all appearance, is just as easily propagated. One thing must be guarded against, however, and that is, in light sandy soils, its dislike to sunshine. In heavy land we have seen it do well in the full blaze of the sun, but in light soil it needs shade.

Sidalcea candida.—The recent dry weather, however unfavourable it may have been to the generality of herbaceous plants, seems to have suited this and S. oregana, both of which have thriven wonderfully under it. A good fresh bunch of S. candida was shown at South Kensington the other day, and it seemed to be quite a match for its rival, Malva moschata alba. The latter has the largest flowers, but they are less substantial in texture than those of S. candida. Both are, however, worth noting, the Malva being easily procured from seed.

Alstrœmeria Pelegrina.—Mr. Rawson sends us from Windermere the best bloom of the white variety of Alstrœmeria Pelegrina we have seen. It is large and quite devoid of that greenish whiteness the flowers usually have. Mr. Rawson recommends it "as being amongst the prettiest and most lasting of greenhouse flowers." He adds, "I think that these Alstrœmerias are not known enough, and their culture is simple." A flower of the typical form of A. Pelegrina is also sent. Its colour is pale rose with markings of deep red.

Codonopsis clematidea.—Mr. Bartholomew sends us a specimen of this pretty hardy perennial so seldom seen, except in botanical gardens. It is so much like a Campanula, that many would think it is one. It has slender stems, bearing small opposite leaves, and terminated by a flower somewhat larger than a full sized thimble. This is pale mauve coloured, with yellow and black markings at the base. It grows best in a light soil in a well drained and sunny spot, and all the better if its shoots can fall over a ledge, so that the interior of the flowers can be seen. It is also known as Glossocomia clematidea.

Phalænopsis Mariæ.—Mr. Measures, The Woodlands, Streatham, is the possessor of two plants of this scarce and beautiful Phalænopsis. One is a large plant, bearing two spikes of bloom with thirty flowers; the other, a smaller plant, with six flowers on a spike, is a much better variety. It has clear white sepals and petals, marked and barred with rich crimson-maroon. It seems apparently to be between Phalænopsis sumatrana and Luddemanniana. Both plants are thriving well along with the varieties Schilleriana, amabilis, and grandiflora in a low west lean-to house, in which they evidently delight.

The Bridal Wreath (Francoa ramosa).—A very fine specimen of this elegant plant, measuring nearly 6 feet high, has been sent to us from Mr. Renshaw's garden, The Hall, Catford Bridge. The tall, wand-like flower-spikes are 5 feet or more high, branched in the upper parts, and wreathed with crowds of snow-white flowers. Such a specimen as this has a very fine appearance in a greenhouse, and the wonder is that it is not more often grown, especially as its culture is so simple. All the Franceas are nearly, if not quite, hardy, but they are most satisfactory when grown in pots.

Cape bulbous plants.—Some flowers of a fine choice bulbous plant have been sent to us by Mr. A. C. Bartholomew, of Park House, Reading. Among the prettiest are Lapeyrousia corymbosa, very elegant in growth, the slender flower-spikes being crowded with small blue flowers furnished with white markings; Hesperanthera graminifolia, flowers small and pale yellow; Geissorhiza roeheasis, dark blue and scarlet; Ixia monodelpha, violet-blue, with a purple centre; I. conica, yellow, with a dark centre; and Gladiolus ornatus, with small rose-pink flowers. All these are choice little plants, hardy enough for frame culture, and which, in warm places, may be even grown in the open border, if protected, during winter.

New Roses.—Messrs. Paul, of Waltham Cross, send us flowers of four new Roses, named Grand Mogul, Florence Paul, Lady of the Lake, and Silver Queen. It is a difficult matter, without means of actual comparison, to say in what way these new sorts differ from others possessing similar colours, and as we have no notes on their habit of growth or other points, we can only say that the blooms represent four beautiful varieties, the best being, in our opinion, that named Grand Mogul. This is said to be a seedling from that popular favourite, A. K. Williams, and its flowers and foliage partake strongly of the characters of that variety. The flowers are large and beautiful in form, with thick-textured petals of an intensely deep, rich, velvety crimson, yet glowing with a scarlet shade in strong light. The sorts Lady of the Lake and Silver Queen are both delicate pinks; Florence Paul is bright crimson-scarlet, and has numerous reflexing petals.

New recreation ground.—During the week the Baroness Burdett Coutts has opened a recreation ground at Sayes' Court, Deptford, the gift of Mr. W. J. Evelyn. Sayes' Court is an old square red-brick building, which is the site that was once the residence of Peter the Great when he was learning shipbuilding in the English Royal Dockyards. The estate, which has been in the possession of the Evelyn family for upwards of two centuries, consists of about ninety acres, the greater part of which has been built upon. A portion of the remaining open space has been generously bestowed upon the public, and yesterday was consecrated to their use. Tastefully laid-out grounds have been formed by the members of the Kyrle Society, and embrace flower beds, gravel walks, a kiosk, and numerous seats, forming a pleasant retreat for the mechanics and their families after a long day's labour. This is an example which might suggest imitation to some of the more wealthy proprietors of property in and about London.

Bulbine bulbosa is one of several species of this genus which are natives of Australia, the bulk of the number being found at the Cape. The above was obtained from the Darling Downs, in Queensland, where it was found along with Calostemma luteum, the Australian Daffodil. The leaves of B. bulbosa are almost fistulose, as in the Onion, 15 inches long, and they spring from a rhizome. The flowers are on erect spikes, 2½ feet high, the upper foot bearing numerous star-shaped flowers 1½ inches across, bright yellow in colour, and sweetly scented. All the Bulbines have the filaments of the stamens hidden by a covering of long hairs, and most of the kinds are fragrant-flowered. B. latifolia and B. narcissifolia are sometimes met with in gardens. These three species may now be seen in flower at Kew.

Hemipilia calophylla is a small terrestrial Orchid with the habit of an Ophrys, and related to the Satyriums and Habenarias. It has a fleshy tuber as large as a Date stone, and a cordate solitary leaf about 3 inches long, beautifully mottled and netted with brown-red. The flowers are produced on an erect, thin peduncle, 6 inches long, and bear about half-a-dozen flowers, each as large as the flower of Ophrys apifera, the sepals and petals white with green tips, and the large flat lip a beautiful amethyst-purple. There are two species of Hemipilia, both natives of India, the above being found on limestone rocks in Moulmein, from whence tubers were obtained for Kew about two years ago. Our description is made from one of these which we saw in flower a few days ago. The species is not big, but its flowers are beautiful jewels, and the leaf is as prettily marked as that of an Anœctochilus. It thrives in a loamy soil, planted in a pot, and placed on a shelf in a warm house.

Huernia brevirostris.—The Huernias were once called Stapelias, but they are now in a genus by themselves; and, if on no other account, they deserved to be taken out of the company of the vile-smelling Carrion plants as Stapelias are called—because they have lost, or never had, that objectionable character found in all true Stapelias. In form the Huernias differ from Stapelias in their shallow bell-shaped corolla tube. They are all large flowered and very prettily marked, H. oculata, which has an almost black velvety flower with a pure white eye, being one of the most gem-like of all. H. brevirostris has short, thick, five-angled stems with serrated angles; the flowers are 1½ inches across, five-lobed, and in form suggestive of a Primula; the colour is yellowish white, with numerous small brown spots and papillose hairs, the stigma at the base of the bell being five-rayed, black, and set in a disc of purple colour.

Nymphæa biradiata.—This rare Water Lily is now in flower in the Water Lily house at Kew. It is a variety of our own native species (N. alba), and is found only in Central Europe. As a garden plant it does not equal the beautiful variety known as N. candidissima, nor is it superior to the plant which grows in our own ponds. Its chief interest lies in the number of its stigma rays (five to eight), and in the stellate blotch which is found in the centre of the flower. This blotch is composed of numerous small purplish glands on the surface of the lower half of the rays, the upper half being

bright orange; and it is owing to the kind of double star thus formed that the name biradiata has been given to this variety. In size the flowers are not so large as the common English Nymphæa; the sepals are very broad, green below, whitish above; the petals are correspondingly broad and pure white, and the stamens are bright yellow. The leaf is 7 inches long by 6 inches wide, the sinus at the base being about 2 inches wide, narrowed to a point where it is attached to the stalk.

Phœnix hybrida.—Mr. Bull exhibited a Palm under this name at South Kensington on Tuesday last, the same plant, or one under the same name, having been exhibited by Messrs. Veitch about a month previous, when it was certificated. We should like to know the history of this Palm. Is it one of the hybrid Date Palms raised in Calcutta by Mr. Scott? or does it belong to the numerous forms of P. spinosa now known, and of which P. leonensis and P. canariensis are examples? There is a close resemblance between this last-mentioned kind and P. hybrida—so close, indeed, that we suspect they are one and the same plant. He would be a bold man who tried to set the names of the different Phœnixes in order, but we are not quite sure that the name hybrida is not another addition to the synonymy of these plants.

The Garland Flower.—When treated liberally, the Hedychiums grow into very large specimens, their tall leafy stems springing up in great profusion from the underground rhizomes, and each one bearing a large head of graceful Orchid-like flowers having a delicious fragrance, and always delicately coloured. The commonest of them is the almost hardy H. Gardnerianum, which is beautiful both in flower and fruit, and even the leaves have a freshness and thrifty look which is valuable in large houses. The more tropical kinds and those best known are H. coronarium, whose enormous heads of ivory-white flowers are all grace, fragrance, and beauty; H. flaveseens, with pale yellow flowers; and H. thyrsiforme, which may be called a canary-coloured coronarium, its flowers being as large and as fragrant as those of that species, the habit of the two kinds also being the same. These three species may now be seen in flower in the Water Lily house at Kew.

Thunbergia affinis.—The genus Thunbergia, including Meyenia and Hexacentris, contains about 30 species, most of which are handsome garden plants, a few of them being amongst the most popular of stove climbers. H. affinis deserves to be added to this select few, as it is a free, clean grower, has foliage of a good green, and bears large violet-purple flowers. In T. laurifolia, T. Harrisi, and T. mysorensis the flowers are developed on the ends of the shoots, but in T. affinis, T. natalensis, and one or two other cultivated kinds the flowers are borne singly in the axils of the leaves. The two last named kinds may be called climbing Meyenias, the leaves and the flowers being similar, but much larger than in M. erecta. The calyx of T. affinis is green and large, and the corolla tube is 2 inches long, with a spreading limb of over 2 inches in diameter, the whole being of the same colour as the flowers of Clematis Jackmanni, with the addition of a blotch of yellow in the throat. There is a plant of it in the Palm house at Kew, and this, along with T. natalensis, T. alata, and T. erecta, are now in flower.

Ipomæa Bona-nox.—The Moon Creeper, or Good Night, is a beautiful plant which should be grown in every stove, because of its peculiar habit of opening its flowers only in the evening, to remain expanded till the following morning. The Bindweeds generally close their flowers as soon as the sunlight leaves them, the name "Morning Glory" no doubt having originated in the habit of the flowers opening to the morning sun. I. Bona-nox is the largest flowered in the genus, which is saying a great deal for it. We saw a plant of it in flower at Kew a few days ago, and on measuring one of the blooms it proved to be 6½ inches across, the length of the tube being about the same. If a circle is drawn with a diameter of 6½ inches, the size of these flowers will be better understood. The pure white and fragrance, together with the size and the night expanding habit of the flowers of this plant, invest it with an interest and value as a garden plant, and we should recommend everyone who has a stove to grow a plant of the Moon Creeper, which is as common in India and other tropical countries as the white C. sepium is in our own hedgerows.

Lourea Papilio is a new name for an old garden plant, well known to botanists as L. vespertilionis, or the Bat's-wing plant. An example of it under the new name was shown at the last South Kensington meeting, and the only excuse we can find for the substitution of the former name for the latter is that it is shorter and quite as descriptive of the appearance of the foliage as the other. Still, the practice of changing names is a bad one much too freely followed now-a-days. There are two or three species of Lourea, and they are common roadside weeds in many parts of Asia and Australia, just as the Sensitive plant and the Telegraph plant are. Like these, too, the Loureas are Legumes, annual, small, and have curiously formed leaflets. The species named above has a large terminal leaflet 2 inches wide, and shaped just like a common butterfly when its wings are spread out; it is coloured green with stripes of brown-red along the principal nerves. The flowers are of no account. As a curiosity, L. vespertilionis is worth a place in a collection of stove plants.

New Lachenalias.—Amongst the collections of Cape bulbs distributed and sold from the Botanic Gardens at Cape Town last year were some unknown Lachenalias, numbered from one to six. A set of these was obtained for Kew, and four of the kinds have just pushed up flower-spikes. Mr. Baker has named these as follows: No. 1, L. fistulosa, leaves two to each bulb, erect, green with slightly spotted bases; flowers on erect scapes 9 inches high, bearing about twenty flowers, in which the segments are equal, half an inch long, and coloured rose with purple tips. No. 2, L. orchioides, a yellow-flowered form of it, the most attractive one being that known in gardens as atroviolacea, in which the flowers are dark purple. No. 4, L. contaminata—this has tufts of grassy-green leaves and short scapes of white flowers with brown tips and orange anthers. The segments are equal in length, but only about quarter of an inch long. No. 6, L. unifolia—as the name denotes, this species has only one leaf to a bulb, and this has incurved edges, and is green above, zoned below with brown on a white ground. Flowers on an erect slender spike, rather sparse, nodding, pale rose at the base, then white, the tips being green. As garden plants these four Lachenalias are not in themselves of much value, but they are worth the attention of such cultivators as Mr. Cam, Mr. Rawson, and M. Max Leichtlin, who, we believe, are crossing the various species of Lachenalia with a view to obtaining more variety both in form and colour.

A useful insecticide.—As considerable difficulty is sometimes experienced in finding an insecticide that is not injurious to foliage and at the same time is destructive to insect life, I send a recipe that came under my notice some two or three seasons back, and which has been used ever since with excellent results. Put half a pound of soft soap in one pint of hot water, and stir until it has dissolved; add one pint of paraffin; when that is thoroughly incorporated, add similar quantities of water, soap, and paraffin, and mix until all traces of soft soap have disappeared. The mixture will then be of the consistency of thick cream; then add two more quarts of water, place it in a jar and cork tightly. Our dose is one 3-inch (small 60) potful of this mixture to three gallons of water, and this we have found to be perfectly harmless to all outdoor foliage, while at the same time it is certain death to all forms of aphides, thrips, and red spider.—B.

Lace-winged fly.—I send herewith some leaves and stems of a plant on which you will observe long hairs ending in a small whitish substance attached to them. Is this a fungus, or what? I have not found it on any other plant, and but little on this. The plant is very much shaded by an Apple tree.—T. Palmer, *Kingston Hill.*

*** The long hairs attached to the plant you forwarded are the eggs of a very common and most useful insect, the lace-winged fly (Chrysopa perla). This insect, when about to lay its eggs, settles on a leaf or stem, which it touches with the end of its body, from which exudes a viscid fluid, which hardens very quickly on exposure to the air; then, raising its body, a thread is formed of this secretion, at the end of which an egg is laid. It is the empty egg-shells which you have noticed at the end of the threads. The grubs hatched from these eggs feed upon aphides and destroy great numbers of them. The lace-winged flies should always be encouraged; they do not fly well, although they are provided with two pairs of large greenish gauze-like wings. They almost always lay their eggs on plants infested with aphides.—G. S. S.

Indoor Garden.

BERRIED PLANTS FOR WINTER.

Berry-bearing plants are very handy, either for the decoration of the conservatory or sitting-room, and have the advantage of lasting in beauty for several weeks, and not unfrequently months, in succession. They are, as a rule, very easily grown, and form an agreeable contrast when grouped tastefully with Chrysanthemums, Cyclamens, scarlet Salvias, and Ferns. Some are well adapted for cutting, and help to create variety in the drawing room vase, while their value in church decoration of all kinds is well known.

Aucubas.—These, when covered with a crop of shining scarlet fruit, make fine winter decorative plants, and they are easily grown. In mild sheltered localities, small bushes in the shrubbery or private nursery may be fertilised, when in flower, by pollen from the male plants, and these can be taken up and potted in the autumn. Plants in pots generally flower more freely than those planted out, and are handier than the latter for fertilising purposes. Large plants in sunny positions outside have a beautiful appearance when fertilised—an operation which is most readily done, either by grafting a male branch into the female tree, or by setting a male plant in flower in close proximity to a female one. We have now numerous varieties, both green and variegated, which form noble winter decorative plants. Aucubas, like all other smooth and glossy-leaved plants, do well in towns and smoky districts, simply because they are readily cleansed by every passing shower.

Solanums.—These are well-known plants, which are easily propagated either by means of seeds or cuttings in the spring. Young plants may be planted out in a warm sheltered border in May, and if liberally supplied with water, will make clean, fresh, little specimens for decorative purposes during the ensuing winter. They should be carefully lifted and potted in October for removal indoors, and if taken inside and kept in a moist close atmosphere for a week or so, they will establish themselves and ripen off their bright orange fruits without losing a leaf. S. Capsicastrum and S. pseudo-Capsicum are the most useful, but Yellow Gem is very distinct and effective when well grown, bearing large ribbed or contorted fruit of a bright glossy yellow colour. The Egg plant is very ornamental, and grows well in an ordinary frame or greenhouse. There are both white and purple varieties.

Capsicums.—These, although generally grown for culinary purposes, are far from being uninteresting as decorative plants. We have several species in our gardens, all bearing bright scarlet or yellow fruits, which contrast well with their deep green foliage. Care must be taken to syringe these and Solanums freely when growing, in order to keep red spider in check, a pest to the attacks of which they are very liable.

Skimmias.—These are dwarf shrubs with broad lanceolate smooth foliage, and bear clusters of small Holly-like berries. S. oblata and S. japonica are both well adapted for pot culture, and look well all winter in a cool house.

RIVINA (HUMILIS) LEVIS.—This well-known stove plant bears small inconspicuous white flowers and drooping clusters of shining berries. Small plants of it in pots are very pretty, or it may be trained up the back wall of a stove, where it will grow, flower, and fruit all the year round, forming an interesting object of permanent beauty. A bright yellow-fruited woolly-leaved species of Rivina was introduced by Bowman a few years ago, but it appears to have been lost.

NERTERA DEPRESSA.—This is one of the smallest, and at the same time most interesting, of all berry-bearing plants. In habit it is very dwarf and spreading, rarely exceeding 1 inch in height; indeed, it may not inaptly be compared to a plant of Selaginella densa, sprinkled with coral beads. The foliage is of the freshest green imaginable, the berries being of a brilliant orange-scarlet. It is readily grown in a light compost of peat and sand either in the stove, greenhouse, or under a glass shade or Wardian case in the sitting-room.

COTONEASTERS.—These include some of the finest of all hardy berry-bearing shrubs for planting along a sunny wall. C. Simonsi, trained up the front of town houses, along with small green-leaved or gold and silver variegated Ivies, forms a brilliant picture in the autumn and winter when studded with bright scarlet berries, the latter being very freely produced along its slender branches. C. microphylla, a well-known small-leaved evergreen species, bears berries of a deeper crimson, and is one of the most useful wall shrubs we have. Trained up the front of a house, or over the porch or balcony, it has a cheerful appearance even in the depth of winter, and is particularly beautiful when the ground is covered with hoar frost or snow. It also does well as a low bush on the lawn if cut in closely every year. Of this, Lindley says, "Its deep glossy foliage, which no cold will impair, is, when the plant is in blossom, strewed with snow-white flowers, which, reposing on a rich couch of green, have so brilliant an appearance that a poet would compare them to diamonds lying on a bed of emeralds."

ARDISIA.—This is one of the prettiest of all pot plants when well grown. It is easily propagated by means of seed, and plants about a foot high bear nice crops of berries the second year. Seedlings should be potted off in loam, leaf-mould, and sand, and if placed on a shelf near the glass in a moderately warm greenhouse temperature, they make dwarf vigorous little plants. Even when not in fruit the plant is ornamental, its oblong foliage being of a rich glossy green colour, elegantly wavy or crenate along the margins. The species common in gardens is A. crenulata, bearing bright scarlet or crimson fruit the size of Peas. There is, also, a yellow-fruited variety, well worth growing for variety, although not so effective as the normal kind.

PERNETTYAS.—These are pretty little shrubs for pot culture; in habit they closely resemble the Cotoneasters, and, like those plants, have deep green glossy foliage and a rich profusion of berries during the autumn and winter months. For greenhouse, conservatory, or drawing-room decoration they are invaluable, taking the same place indoors that the Cotoneaster occupies outside. I have only seen three species, all of which are beautiful. P. mucronata bears deep crimson berries, something like those of Cotoneaster microphylla in both size and colour. P. microphylla bears immense crops of purple or lilac berries, and is, perhaps, the most distinct and ornamental of the whole group. P. speciosa is very dwarf and compact in its growth, and bears deep crimson berries.

CRATÆGUS PYRACANTHA (Pyracanth or Fire Thorn). For covering the fronts of town houses, or the side walls of greenhouses or stoves, nothing can be prettier or more effective than this plant, especially if trained among gold, silver, or green leaved Ivies. It may be freely propagated by means of layers, and small plants from 2 feet to 3 feet high bear heavy crops of brilliant scarlet berries. Nearly all glossy-leaved plants do well in towns for reasons already stated, and for such purposes this plant is one of the best.

CALLICARPA PURPUREA.—This is an old greenhouse plant, well deserving cultivation, although rather straggling in habit. Its shoots are clothed with opposite serrate leaves, and it bears axillary clusters of small purple or amethyst coloured berries very freely. It may be propagated freely either by means of seeds or cuttings, and young plants grown as recommended for Ardisias are best; old plants lose their bottom foliage, and become "leggy" and unsightly.

LEUCOCARPA ALATA.—If grown in a poor, sandy soil, and fully exposed to the light, this makes dwarf plants 1 foot to 18 inches in height and as much through. It has light green foliage and thick winged stems, and, when well grown, bears heavy crops of white berries. If grown in rich soil it is little better than a rank-growing weed, but, treated as above, it makes a variety—white-berried plants being rather scarce.

BERBERRIES.—Among other large-growing hardy berry-bearing shrubs we must not forget the common Arbutus, with orange-scarlet, and Berberis Aquifolium, with bluish purple fruit in massive clusters. B. vulgaris, having elegant drooping clusters of bright scarlet oblong berries, forms a noble object on the margins of shrubberies in warm sandy soils during the autumn months. The berries of both the last-mentioned species are often preserved in syrup, or in salt, for garnishing purposes during winter. Hollies are too well known to need much comment, but small bushes, 2 feet to 3 feet high, may be grown in pots, or taken up from the outside and potted, when they come in usefully for the decoration of churches, front halls, conservatories, or even for ordinary apartments during the Christmas season. The common Snowberry bears heavy crops of large pearly-white fruit in some districts, and these cut from the plant and tastefully grouped in bunches, wreaths, or vases, along with the fruit-bearing branches of Hollies, Berberis, Solanums, Cotoneasters, Cratægus, and the bright-coloured autumnal foliage of Maples, Berberis, and Oaks, have a highly pleasing appearance, while they are specially valuable for church decorations of all kinds. We have many other fruit-bearing plants, but the above list comprises the best known for decorative purposes during the winter season. B.

VIOLETS FOR WINTER FLOWERING.

THESE require careful management at this time of year, and if they do not receive it no amount of attention when they are required to flower will induce them to do so. Assuming that young plants were put out in April, they will now be making rapid growth, and pushing out runners in abundance. Now, it is of the utmost importance that these runners be removed at once, for if allowed to extend they soon monopolise a large share of the energies of the plant, and the crown does not swell up thick and ready to burst with flower-buds as it does if the runners are kept closely cut off. The best implement for removing them is a pair of Grape scissors. The plants should be gone over several times during July and August, and also frequently surface-stirred with the hoe, and if the weather is dry a good soaking of water should be given, and after hot days a good drenching overhead will help to keep red spider in check. Liquid manure is of great assistance at this stage of growth, and in showery weather a little dry powdered manure shaken on the surface to be carried down to the roots by rain will help to keep the plants healthy and growing vigorously, as it is when growth is checked that red spider attacks them. Soapsuds, a good homely remedy for spider, should be applied copiously about this date. The new double white Comte Brazza's Violet appears to be a robust grower, producing large healthy foliage; the older Marie Louise, too, is still one of the most useful of Violets, and has to a great extent superseded the Neapolitan. J. G. H.

Æchmea fulgens.—Many Bromeliads are extremely elegant in habit, require but little attention to grow them in perfection, and form very effective decorative plants for the greenhouse, stove, or drawing-room. Some species are very hardy in constitution, and remarkably tenacious of life; indeed, they may be grown with less trouble than any other class of plants, if we except succulents. The leaves of Æ. fulgens are bright green, robust in character, and gracefully recurved. Its flower-spikes continue in perfection for several weeks at a time, and form conspicuous objects. Nearly all the Bromeliads grow vigorously in good sandy loam, to which a little leaf-mould may be added, and they should be liberally supplied when growing with water at the roots. A little clear manure water, too, strengthens them in a marked degree, and assists them in producing strong flower-spikes. Bromeliads are easily propagated by taking the offsets produced by the old flowering plants, and potting them at once in small pots, which may be plunged in a gentle bottom heat until well rooted, after which they may be encouraged to make good growth, and will generally produce flowers the second year; but, for decorative purposes, this plant is always handsome either in or out of bloom.—Q.

FRUIT TREES IN VILLA GARDENS.

BEFORE many years have passed I feel sure that fruit trees of various kinds will be much more freely planted in ornamental grounds than they hitherto have been. The old prejudice against anything of a useful character being introduced into the ornamental portions of the garden is rapidly vanishing. In suburban gardens especially fruit trees may already be seen on lawns—remnants of old market garden orchards now converted into villa gardens. These old fruit trees yield both shelter and shade, and impart a cheerful, furnished look to grounds that would otherwise be comparatively bare—at least as far as ancient trees are concerned. I have lately seen several gardens in which all the trees of any size were old orchard trees, promoted in their old age to the rank of ornamental trees, and right well they looked amid their new surroundings. In one garden rustic seats had been put around their trunks, and their wide-spreading tops furnished ample shade, that in summer was most agreeable, and a plentiful supply of Apples in autumn, as well as rosy blossoms in spring. Pear trees of the ordinary orchard kinds also make noble specimens either on Grass or gravel; Cherries, too, do especially well on turf, as they dislike having their surface roots disturbed. Plums, including Damsons and Bullaces, are all available for the same kind of decoration. In fact, after the first few years, there can be no doubt that all these fruit trees are benefited by having turf permanently over their roots. Mulberries, Medlars, and Figs make capital lawn trees, and on the south coast very fine examples of the Fig may be found fruiting freely as standards, and even against walls they make fine-foliaged plants. Boundary walls indeed of villa gardens are everywhere being more generally covered with fruit-bearing trees than hitherto, displacing even in some instances the Honeysuckle and Jessamine. Hardy Vines are, I need scarcely say, both useful and ornamental, their fruit over a great portion of the kingdom arriving at maturity. Red, White, and Black Currants and Gooseberries make good and fruitful covering for walls, and give but little trouble. The walls should be wired, and the main shoots securely fastened thereto with tar string. Crab Apples make beautiful colour-pictures in autumn. In fact, with a little care in selection, one might combine beauty and usefulness to an extent hitherto unthought of in this phase of gardening. JAMES GROOM.

Striped Provence Rose.—In my collection of old-fashioned Roses I am happy to say I have this one. I was fortunate enough to meet with a plant of it last year, after having lost sight of it for a very long time. It has all the characteristics of the Cabbage Rose, except scent, and may be described as a striped variety of that Rose. The prevailing colour is white, with delicate stripes and splashes of pale pink. The flowers are very full, but do not expand well, which I attribute to the weak condition of my plant, which is as yet rather small.—C.

Rose Garden.

A BUNCH OF TEA ROSES.

Many are the beautiful forms that have been produced in this lovely section of our cultivated Roses; their beauty is undoubtedly of a more refined order than that of the Hybrid Perpetuals, while their individual characters are, as a rule, more clearly marked. Triomphe de Rennes, the subject of the present engraving, is a Rose of eminent merit, excellent in form, most delicate in colour—warm white deepening to full lemon colour—and unusually distinct in foliage. The leaves are deeply toothed and of a dark glossy green, with a characteristic waving or twisting, so that the identity of the bush cannot be doubted when out of flower; these features also give it a distinctly ornamental aspect. Its high value as a cut flower when easily arranged in a simple glass may be seen in the engraving. To be quite correct, Triomphe de Rennes is a Noisette, a subdivision commonly classed under the head of Tea Roses.

A bouquet of Tea Roses (Triomphe de Rennes). Engraved from a photograph for The Garden.

Large-headed Roses.—As a rule, I dislike standard Roses; their heads as usually seen are too meagrely furnished to be effective, and, in most instances, they are too short-lived. We do not care to lose our Roses almost as soon as we make their acquaintance; there is, however, no rule without an exception, and in the present case we would carefully preserve those kinds which develop large spreading heads. A standard Rose with a wide-spreading drooping habit always forms a pleasant picture either singly on Grass or in borders. Doubtless, some of the new Roses are capable of fulfilling these conditions, but all the Roses I know of large size and wide-spreading habit are old-fashioned ones. Gloire de Dijon is always good everywhere. Aimée Vibert, with its large clusters of white flowers, makes an effective standard, even though the individual flowers are poor. Bouquet de Flore is another good growing free-blooming clustered Rose, that quickly assumes large proportions. Jules Margottin, La Biche, and Céline Forestier are also suitable for standards, and all are hardy enough to withstand our severest winters. They should be budded on sound, healthy Briers, from 4 feet to 4½ feet high. If taller than this they are liable to be injured by wind. E. Hobday.

York and Lancaster Rose.—Amongst Roses now in flower, none, in my opinion, are more pleasing than this old semi-double striped variety. It is growing in a neglected border, and the position being somewhat shaded, the blossoms appear to come with a greater depth of colour than when the situation is fully exposed to the sun. When the flowers of this Rose are about half expanded, there is a beauty about them peculiarly their own: the two colours (white and pink) blend so well together, that no one fails to admire them.—J. C. C.

ROSES IN SOMERSETSHIRE.

Our best Rose this year has been Souvenir de la Malmaison. Contrary to previous experience, this fine old Rose yielded a great number of the most perfect blooms I have ever seen it produce in the month of June. They possessed the usual plate-like flatness common in the flowers of this Rose; but they were both large and full, and the petals expanded so as to show the most perfect outline. This Rose has thus shown its gratitude for an increased amount of good soil which we gave its roots eighteen months ago. Comtesse de Chabrillant is an old Rose, but exceedingly beautiful this season. The flowers have been large, finely cupped, and full of petals. It has been the nearest approach to a good pink that ever I saw. Its fragrance is not the least of its merits, there being not many sweet-smelling pink Roses. In Merveille de Lyon the colour is a little variable. Our earliest blooms came tinged with pink, but the later ones have been sufficiently pure to be pronounced the best white we have. They are very large on strong plants, and their form excellent; but I am afraid that it will prove to be a fine weather Rose. Captain Christy is another fine weather Rose. Therefore, taking into account what wonderfully warm and dry weather we have had for the last fortnight or so, there is nothing perhaps remarkable in its being so fine this year. In a general way one downpour of rain, and a day or two of low temperature just before the flowers are ready to expand, are sufficient to wholly spoil them. The fact is, the flowers are too full to be reliable during all weathers, although I admit that, when in good condition, few Roses of the same colour surpass it. Queen of Queens proves to be a grand Rose, vigorous in growth, ample in foliage, and a thorough perpetual. Notwithstanding the number of pink Roses which we now possess, this sort stands out conspicuously. It is bold in port, and I shall be surprised if it does not take a foremost place as a garden Rose. It is not an early Rose; but that is perhaps in its favour, and, being a full flower, it no doubt opens better in dry seasons than in wet ones. Its blooms are not so perfect as those of some kinds, but a peculiar blush shade pervades them that is both distinct and pleasing. Madame Sophie Fropot is a reliable Rose, and a most useful one. It grows well on the Manetti stock, and flowers with great freedom. Its blooms are above the medium size, moderately full of petals, and the form is excellent. The colour is a soft rosy pink, which, when looked at from a short distance off, has a satiny appearance, which is quite charming. In our case it has proved, amongst rose-coloured sorts, to be the finest Rose of the year. Ulrich Brunner has been grand in growth, foliage, and blooms. The latter have been exceptionally large, one, when fully expanded, measuring 17½ inches in circumference, and the colour a clear and bright cerise. Seeing that it is a seedling from Paul Neyron, the size of the flower is perhaps not noteworthy; but size, taken in conjunction with its other qualities, is a recommendation to those who are fond of large Roses. Marie Baumann, no experienced rosarian will be surprised to hear, has been in its best condition, and certainly one of the most beautiful Roses in our collection this year. Grown as dwarf plants, which most of our Roses are, this variety rarely grows satisfactorily, but this year it has done well and produced many perfectly-formed flowers. The colour, too, has been most brilliant and the individual blossoms large. It has certainly

this year made up for its disappointing behaviour with us in previous seasons. Pompone Blanc Parfait is a miniature Rose, remarkable for the exquisite form of its flowers and the freedom with which they are produced. We have it growing on a low warm wall, and it has been quite a sheet of white, so numerous have been its flowers, which are produced in large clusters on short, sturdy branches. They are pale flesh-coloured, quickly passing to pure white. For button-holes or for the boudoir this little Rose is well suited. Duke of Albany, without doubt, is one of the grandest of dark Roses of English origin. It is probable that its flowers may be too full to open satisfactorily in wet cold seasons; but one can afford to wait a year or two, if at the end of that time we can obtain a few perfect flowers of this Rose. It is large and excellent in form, and the plant is a fairly good grower—altogether a grand Rose. Abel Carrière has been the best amongst kinds having maroon-coloured flowers. The latter are produced with great freedom, and in form perfect, the substance of the petals being all that could be desired. Mrs. Baker this season has been unsurpassed in its particular line of colour. Not only have the flowers been exceptionally large, but their lively carmine-red colour has been more conspicuous than I have ever seen it before—a circumstance which shows that Roses of this colour do not object to heat if the roots are well supplied with moisture. This Rose has always been such an indifferent grower with us, that one cannot fail to notice its changed condition this season; it is clad in large and healthy foliage, and is making very satisfactory growth. J. C. C.

NOTES.

"Grim the Collier."—Miss H. Gatty in writing the life of her sister, the late Mrs. Ewing (author of "Jackanapes" and other stories) says, "One of the unwritten stories which I most regret is 'Grim the Collier;' this was to have been a romance of the Black Country of coal mines in which she was born, and the title was chosen from the description of a flower in a copy of Gerard's 'Herbal,' given to Mrs. Ewing by Miss Sargent." This, according to Gerard, is the English name of the plant we now grow as Hieracium aurantiacum, but which Gerard calls H. hortense latifolium *sive* Pilosella major, golden Mouse-ear, or "Grim the Collier," and he further states that "the stalks and cups of the flours are all set thicke with a blackish downe or hairinesse, as it were the dust of coles; whence the women who keepe it in gardens for noveltie's sake have named it 'Grim the Collier.'" It was Mrs. Ewing who formulated the aphorism, "a garden of hardy flowers is essentially the garden for cut flowers," and in one of her last "Letters from a Little Garden," in "Aunt Judy's Magazine," speaking of amateur gardeners, she said. "Others, again, among whom I number myself, love not only the lore of flowers, and the sight of them, and the fragrance of them, and the growing of them, and the picking of them, and the arranging of them, but also inherit from Adam a natural relish for tilling the ground whence they were taken, and to which they shall return." The above has given to me quite a new interest in a plant, the colour of which is, I believe, unique, an indescribable sort of reddish orange, and whenever I look on a plant of "Grim the Collier" I shall think of "Jackanapes," and regret the unwritten story of the mines.

The divining rod.—I neither affirm nor deny what has been said from time to time in the gardening periodicals under the above head, but I agree with "S. W." (p. 49) that a seance by Mr. John Mullens would be an agreeable addition to the usually prosaic trials which take place at our horticultural exhibitions. I should also like to ask wherein lies the supposed power of the stick? For example, any sort of rod, Hazel or Thorn, seems equally suitable to Mullens, so that I presume the power is in the man rather than in the rod employed. But can any man use the rod successfully, or must his name be Mullens? I should like to be one of a jury of twelve to test this water witchery, believing as I do that miracles of this kind are explainable on purely physical grounds. I do not doubt what "S. W." says, but I wish to know how the stick and the man and the water act or re-act on each other. Could "S. W." hold the stick as Mullens held it and find water, or did he try and fail? I certainly second the proposal that Mr. Mullens be invited to some horticultural exhibition, and that he there do display his water-finding powers. An irresponsible person at my elbow suggests that if the water was not found at such a trial, Mullens and his stick might be made to re-act on each other in some other amusing way! Seriously speaking, if "S. W." believes in the water magic of Mullens, he ought at least to afford us his opinions as to how it is done, or, better still, perhaps Mr. Mullens will himself explain.

Geranium sanguineum.—As a rule, our native plants are neglected in the garden. This Geranium, however, is quite beautiful enough to become a marked exception to the rule. On dry, rocky banks near the coast, where it is starved into dwarfness and coloured by a blazing sun, it is difficult to picture any alpine plant more beautiful than is this native of our own seashore. It is really a plant well worthy of careful culture in the garden, but like many other of our wildings it loses in beauty by being planted in deep, rich soil, and a system of judicious starvation is necessary if its fullest and richest beauty be desired. This is one of the secrets of the rock garden, and more especially of the pockets of the wall top garden, wherein the plants are fully exposed to sun and to wind, and are not overfed into leafy exuberance. Let us take the Edelweiss, for example. Planted out in a deep, rich border, you have a mass of leafy growth, and great bracts are the result, but the silvery beauty is gone, and this alpine is not more beautiful than a tuft of Sage leaves. On the other hand, plant it in sandy loam and lime rubbish on the top of a wall, and its bracts become as silvery as if from the limestone crags of its sunny home in the mountains. It is especially so with many of our native plants, which require full exposure and a hard diet in the garden in order to develop their highest beauty, as we see it by the roadside or among the stones of the mountain-side. As planted amongst stones, old lime rubbish, or granite rubble in full sunshine, Geranium sanguineum is one of the best of garden plants.

Lilium testaceum.—No Lily now in blossom surpasses the pure white L. candidum, but it is not always an easy plant to grow. One little secret in its culture is to transplant it soon after its flowers fade away, as so treated every two or three years we find it by no means hard to manage. One of the tallest and best of all good strong growing garden Lilies, however, is L. testaceum, as seen 8 feet in height, with from twelve to fifteen of its buff-reflexed bells on a stem. It is a good example of the added vigour sometimes observable in hybrid plants, for, as is well known, this variety is the result of a cross effected between the common Madonna Lily (L. candidum) and the scarlet Turk's-cap (L. chalcedonicum) (see "Flore des Serres," vol. i.). We are pretty sure of this parentage, since Col. Trevor Clarke has repeated the cross, and, as a scientific resurrection, raised L. testaceum over again. As a good serviceable garden plant I consider L. testaceum one of the best, since it grows well almost anywhere, and increases quite rapidly from its bulb scales which form flowering bulbs in two or three years, besides which its usual rate of bulb increase renders division absolutely necessary every other year. Some good masses of this Lily are now opening their soft elegant shaped flowers, and being backed by the towering stalks of some dark blue Delphiniums they show themselves to the best advantage. The dark claret-purple Martagon is also in flower (L. dalmaticum Catani), and is most beautiful. A good mass of it along with the ivory-white flowered kind would make a picture fair to see even in the time of Roses.

Gladiolus Colvillei albus.—It is not too much to say that this is one of the most beautiful and serviceable of all the flowers which can grace a garden. If forced, now is the time to pot up bulbs for flowering next March or April, after which the outdoor bulbs begin to flower in May in warm positions near sunny walls, while they linger on through June and even into July in cool and open or in shady places. Less than ten years ago this plant was well-nigh unknown in gardens; now it is grown by tens of thousands every year. Who can tell us the history of this white Sword flower? Parkinson mentions a Corn Flag with snow-white flowers in his "Paradisus," but it is doubtful if it is referrable to our present plant. All the early flowering Gladioli force well, but there is unfortunately a dearth of white-flowered varieties among them; but this is a drawback which the Dutch bulb growers may remedy for us at no far-off date. The Corn Flags as a class are woefully neglected in many of our best gardens, although wherever a collection is grown some of them will be in bloom for at least nine months out of the twelve. One very useful variety at least, viz., Gloire de Versailles, may be had in flower all through November and December, along with the Chrysanthemums, but of the whole genus as at present known none are more welcome than G. Colvillei albus, surnamed The Bride.

Daffodils.—Now is the best time to plant or transplant these bulbs if the best results are expected next spring. With home-grown stock this is practicable, but it is by no means easy to obtain bulbs thus early from the shops, and so much valuable time is lost to those who like to keep ahead of their planting work. Bulbs of any of the really good sorts, such as N. Horsfieldi, N. princeps, N. obvallaris, N. maximus N. Regina Margherita, N. pallidus præcox, or even N. nanus, may now be potted and placed under ashes in an open sunny place, and such bulbs may be expected to flower during next February and March at the latest; indeed, N. pallidus præcox, N. Regina Margherita, and N. Ard Righ, or Yellow King, might be forced into bloom soon after Christmas Day. As a rule, however, the less fire heat used in forcing these golden flowers of spring the better. All that is requisite are good, sound, early ripened bulbs—if from Italy or the south of France so much the better—and these in a sunny frame or greenhouse only will be in flower weeks before their namesakes out in the open borders. Good, strong, well-bloomed pots of Daffodils are always welcome indoors in spring, and now is the time to make preparations for such a floral display.

Calystegia sylvatica.—This is a strong-growing Convolvulus with white flowers, and is sometimes known as the Hungarian Bindweed. When established in good rich soil it will grow to a height of 20 feet to 30 feet in a single season, forming a fresh leafy mass or screen of growth, covered with great bell-shaped flowers. Beautiful as it is, however, beware where you place it in a garden. At the foot of a dead tree or near railings on the Grass it soon becomes at home,

and the mowing machine or the scythe keeps it within bounds; but if it once gets into a deep, rich border, among other things, it becomes a pest difficult to eradicate, and proves most destructive amongst other flowers. Planted at the foot of an Ivy-covered wall, it cannot do any harm, and its white bells are very beautiful from this date until the frosts of November cut down its stems. Three or four years ago we planted a few of its roots at the foot of a dead Fir tree in a corner, and the result is a leafy column 30 feet in height every year. This corner is devoted entirely to such troublesome, albeit beautiful, plants such as Musk, giant Hemlock, Comfrey, Oriental Poppies, &c., and the effect of all these massed together is a good one for the most part of the year. There is also a rosy-flowered Calystegia which is well worth a place with this giant kind.

Meconopsis Wallichi.—The blue Himalayan Poppies are again in blossom, but not nearly so fine as in former years, owing, doubtless, to the incessant hot, dry weather of the past five or six weeks. These Indian Poppies are never quite happy with us, except during a wet season, when they grow 6 feet or 7 feet in height, and are striking objects covered with their soft blue flowers. The yellow variety, M. nepalensis, is a very good companion for the above, but both are a little capricious, and can only be well managed by rearing seedlings every year. The seed itself is not easy to procure, and does not germinate equally well, even although sown as soon as the pods open at their points. It is a curious fact, that although seed ripens here quite freely, I never could raise plants from it; whereas that ripened in the Edinburgh Botanic Garden invariably yields us a good crop of healthy seedlings. When well grown we have no Poppies quite so delicately lovely as are these Meconopses with their satin-lined cups in which the golden anthers tremble at a touch, or as moved by the lightest breeze. They are biennials and die away after flowering. The smallest seedlings sometimes stand over until the third year ere they bloom, a by no means undesirable thing, seeing that these plants are very pretty in their rosette-like or leafy stages of growth.

Iris aurea.—A tall-growing rhizomatous or Flag Iris which, in stately habit of growth, reminds one of I. ochroleuca (=I. gigantea of some gardens), but its flowers are of a clear pure bright yellow colour, poised like great butterflies on leafy stems or stalks fully 5 feet or 6 feet in height. Iris ochroleuca is also a fine Iris wherever it grows well, its flowers being white, with a yellow disc or blotch on its fall petals. Both deserve a place in deep rich borders, since they flower at a time when other rhizomatous kinds are past their best. I give the palm to I. aurea, because it flowers quite freely every year, while its congener above alluded to is more chary of its beauty, perhaps, however, because our soil is too light and dry, for I have seen great clumps and masses of it quite showy about this season on the stiff clay soil of the Thames valley. Both species are strong and free growing, and are readily increased by division in August after flowering, or in spring before their growth is far advanced. Some Irises are much more floriferous if divided every second or third year, as they soon exhaust the soil near them, and it is a good plan to divide some of the Flag Irises every year. This season some of our old-established clumps did not bloom, while quite small divided plants did so. This is a hint we shall remember.

Dipsacus laciniatus.—Wherever tall and stately habited foliage plants are admired this is well worthy of a place. It is, perhaps, the most beautiful of all the Teazles, easily reared from seeds, and in deep rich soil it attains a height of 8 feet or 10 feet the second year. The opposite leaves are cut or lobed in a pretty way, and are connate at the base, forming a cup around the fluted prickly stems. These cups are full of water after every shower, although the utility of these natural water tanks, or reservoirs, is not quite so clear, unless, as in the case of some Bromeliads, they serve to isolate the flower-stems, and so prevent useless, or it may be injurious, creeping insects from reaching the blossoms. All the Teazles are interesting plants, and the Fuller's variety (D. Fullonum) is more especially so since its hooked bracts serve a particular purpose in cloth-dressing, and, so far, all attempts at imitating their action by mechanical means have failed. If seeds are sown as soon as they ripen, the young plants may be transplanted the following spring to the positions where they are to flower, or seeds may be sown at once in such places, care being taken not to leave the plants in too crowded a state. The flowering stems, if cut and dried, are useful for grouping along with dried Grasses, &c., for the decoration of large vases indoors during winter.

Veronicas.—All the Veronicas are good garden plants when well grown; even the Germander Speedwell is worth a place in the garden, or its seeds may be scattered in meadows near the house for the sake of its Forget-me-not-like blossoms among the Grass during May-time. On a dry and sunny bank this plant will make a lovely cloud of blue, and if planted in the garden, let it be in amongst stones where it may not grow too rampantly into mere leafage instead of flowers. Just now one of the most effective of all the species is V. exaltata, an herbaceous species with erect plumes of soft lilac-blue flowers. As seen in masses along with taller and deeper hued Bee Larkspurs it affords a perfect harmony in blue. The numerous forms and hybrids of the V. Andersoni section are well known and are useful shrubs in mild seashore localities, and then of late years we have quite a collection of species from New Zealand, some showy in flower, and others curious in habit. The golden green V. salicornioides looks much more like a Thuja or Retinospora than as being anything related to our native Speedwells, and there are others which remind one of Ericas or Epacrids in their habit of growth. One of the prettiest of all for the alpine or rock garden is V. Lyalli, forming masses of white or lilac flowers. V. saxatilis is also a beautiful blue-eyed species, quite at home among half-buried stones.

Actæa racemosa.—This plant is not at all common, although long ago introduced and grown in gardens under the name of Cimicifuga racemosa. It is now very striking, as its feathery white plumes stand up among the blue spires of its first cousins, the Delphiniums, and the Aconites or Monkshoods. Planted out in a deep, rich, partially-shaded border, this plant forms masses 6 feet or more across. Its leaves are of a fresh green colour, and above these rise the slender, Spiræa-like spikes to a height of 5 feet or 6 feet. It is especially useful, as it succeeds Spiræa Aruncus and its varieties, which are of somewhat similar port and effect. Our present plant, however, belongs botanically to the Buttercups; and its allies, the soft, yellow-plumed Thalictrums also deserve notice, since they are now most effective, as contrasted with Lilies, Foxgloves, and tall Mulleins, of which by far the best is just now Verbascum olympicum. All the above are worthy of a note, being in their way strong growing and effective plants for a shrubbery border, where there is ample space for their due development. Actæa spicata is readily increased by division, but as it takes a season to become well established, we generally adopt the old-fashioned plan of dividing one plant or two only every year. This is a good plan to adopt in dividing all sorts of garden plants, and may be taken as another reading of the old adage, "Don't place all your eggs in one basket."

Spiræa ariæfolia.—Either as a wall shrub or as a bush on the open lawn this Spiræa deserves culture as a beautiful thing. It is just now at its best, covered with oatmeal-coloured flowers forming feathery plumes as graceful in their way as an ostrich feather. The motion of these plumes in the wind is most interesting. I remember once a writer describing the plumes of this Spiræa as being as white as snow, and a friend replied at once that the whiteness, if that of snow, was of snow before a broom! Cuttings of the young wood planted in autumn root freely, and soon form strong plants, or if a plant be cut down it suckers up from the roots so freely that there is no great difficulty in obtaining stock. Planted judiciously, this shrub is most effective in the garden, especially so as contrasted with the purple-leaved Hazel or Beech. If it be so planted as to escape the mid-day sunshine, its feathery plumes will not fade so soon as they usually do. This is, indeed, the one great drawback to all the Spiræas, their fading so quickly if exposed in a hot position. Planted on an eastern or northern wall it grows well. A well-flowered mass of it on a wall here, topped with crimson Snapdragons, has been much admired.

Centaureas.—In the days of Parkinson and of Rea these plants were known under the homely name of Blewbottles, and some of the blue-flowered species are pretty enough in their way. Still more uncommon, however, is C. glastifolia, the half-developed flower-buds of which are just now of a silvery grey colour, glistening in a manner reminding one of large grey pearls. To my mind, it is more beautiful in this state than when its shining involucral bracts are hidden by the yellow flowers. The plant has hoary leaves, and its flower-stems are branched and about 2 feet in height, each branchlet tipped by a great silvery bud. A handful of these pearl-tipped stems form a really unique ornament. Another robust-habited species now in flower is C. macrocephala, which bears golden brush-like flower-heads 3 inches or 4 inches in diameter. Planted in deep, rich soil, the whole plant grows 6 feet in height, each leafy stem bearing at its top the bright yellow, boss like flower-head. The first-named plant is really well worth growing in quantity for cutting, but the latter is best adapted for some out-of-the-way corner, or for a sunny nook in a shrubbery border, where its rampant growth may not be a danger to plants more delicate. Both are easily propagated, either by division or by seeds sown as soon as they ripen.

Wall-top gardens.—Wherever low dividing or retaining walls exist, or are necessary in gardens, there may provision also be made for the growth of many pretty alpine plants. Bare topped walls are never strikingly beautiful, and there is in the garden no necessity for their existence. Among the plants which naturally enjoy growing on rough walls are Arabis, Aubrietia, Erinus, Corydalis lutea, Wallflowers, Snapdragons, Valerian, and a host of other things too numerous to name. All these, however, will establish themselves on any ordinary wall from seeds quite readily. Other good wall plants are the Sempervivums and many Sedums. There are many less effective plants in our gardens than Sedum acre and its golden variety. A good clump or mass of the common Houseleek (Sempervivum tectorum), made firm on a wall or ridge

of the roof with a little mortar, will grow and flower freely for many years. But wherever a little trouble is taken to form pockets of rough stones on the tops of low walls in gardens, there one may grow not only Cacti and succulents of many kinds, but also some of the choicest of all the alpine flowers. The Edelweiss is quite at home on such a wall, so also is a mass of Ramondia pyrenaica, which bore in all over seventy blossoms, and some of the Fig Marigolds in seaside localities grow and flower on such dry walls better than they do in pots indoors. I saw the crimson Valerian glowing like fire on the old walls of Conway Castle the other day, and in Anglesey the Foxglove was of a vivid ruby-crimson colour on the old walls and among the boulders on the Grass; and so in the garden some plants are much improved by the semi-starvation of a garden on the wall.

Seed-sowing.—A good deal of trouble would be saved in gardens if wooden boxes were substituted for the pots or pans in which seeds are sown. Again, whenever practicable, seeds should be sown at once as soon as gathered, and for hardy and many half-hardy plants the best seed bed is one specially prepared in the open air. A bed of 4 feet wide and any convenient length can be framed with boards and filled with the refuse soil from the potting benches, or with garden soil to which a little sand and leaf-mould have been added. In such beds the seeds can be sown in rows and, as a rule, germinate better and grow more vigorously than when coddled in pots or pans. We have two or three of these seed beds, and seed-sowing goes on in them all the year round. As one batch of seedlings is planted out a little fresh soil is added, and the whole is freshened up with a fork and raked level, and then in go more seeds. Now and then a batch of seeds does not grow, and that patch is forked over, and in go some other seeds, and it not unfrequently happens that after this stirring the original crop appears. The old plan of saving up a lot of dry, dusty, and worm-eaten seeds from summer until the following spring should by this time be an obsolete practice in the garden; better results will be gained by sowing all flower-seeds at once as soon as they ripen. There is no comparison between seedlings raised in these open-air beds and those coddled in pots and pans in a frame; the gain is in quantity as well as in quality, and the trouble is lessened considerably.

Iris juncea.—My experience of this lovely bulbous Iris is that it likes a warm, dry, sandy border, in fullest sunshine, and ample time to establish itself before it flowers. I saw it glorious in the sun on the rockery at Knockmullen, and on the 15th day of August, 1884, my friend, Mr. Peter Barr, sent me three bulbs in a match-box, which were at once planted as above described. I never saw any sign of growth until this year, when four strong-flowering stems appeared, each bearing a pair of blossoms, the brilliancy and richness of yellow colouring in which defy description. Of course, it is most probable that these bulbs produced leaves in 1885, but they are so slender that one might easily miss seeing them amongst other things unless one especially looked for them. Ordinary yellow Spanish Irises look quite pale and washed-out beside this Rush-leaved species, which is a gem of its order well worth a good place in the best of gardens. Another distinct Iris of this Xiphion group is I. filifolia, bearing flowers of a rich blue-purple colour, with a blotch of orange on the bent portion of the falls. In general appearance, especially in colour, it recalls I. reticulata Krelagei, but is, of course, taller and quite different in form. The English Irises have been very fine this season, although very short-lived on account of the drought. Best of all is the larger pure white variety, which is quite as fine in its way, as is Cattleya Trianæ alba. For cutting all these bulbous Irises are most valuable, the delicate satin-like texture and sheen becoming quite delightful as seen near to the eye indoors.

Veronica.

Flower Garden.

WHITE LILIES.

These seem to be blooming this year with an exceptional amount of freedom and vigour. In almost every garden in this neighbourhood one sees them in full beauty, their pure white flowers carried on stems 6 feet or more in height and as thick many of them as a good-sized fishing-rod. This is one of the noblest of hardy flowers when it does well, and I have often wondered whether we get it in its normal vigour in this country. We hear a good deal of the conditions in which L. auratum thrives in its native land, but I never remember to have seen anything on this matter respecting the old white Lily. If we knew the exact natural conditions in which it is found at home, we might possibly manage to make it flourish better than it now does in a general way in this country. This Lily being a native of the Levant, I have hitherto thought that, as in the case of many other Lilies, our damp, cold winters and changeable springs were the cause of the failures which so often occur in its cultivation. I fancy, however, that this is not the true solution, and that the cause of failure lies chiefly in the absence of sufficient warmth to mature the bulbs after they have bloomed. Last summer was exceptionally dry and the autumn was moist, so that after a longer period than usual of inactivity a free strong growth was made. It would be an easy matter to arrive at some satisfactory conclusion in this matter by planting bulbs in various positions, putting some where they would get the full force of the sun, and others in more or less shady situations. It would also be well to vary the depth at which the bulbs are planted, so as to see whether those nearest the influence of the sun bloomed better than those more away from it. This old white Lily is such a grand thing when it does well, as to make one regret that it should be so capricious. There is one way by which this Lily may be grown so as to ensure its blooming well. If good strong bulbs are put into 8-inch pots in good loam, potting firmly and not disturbing them for a season or two, they will throw up well. Some market growers do it in this way, and if well attended to no other Lily can match it in nobility of aspect. The wonder is, considering how long it has been in cultivation, that its merits as a pot plant have been so tardily recognised. Wherever the white Lily does well I would recommend its being planted in bold groups in conspicuous positions. Unlike most other Lilies, it does not seem to crave for shelter, the flower-stems being so strong as to defy the battering effect of rain and wind. The hardier kinds of Lilies are far too little employed in this way; their true worth is scarcely realised unless they are planted somewhat thickly. I fancy, too, that they do better in this way than when isolated.—Byfleet.

—— What a glorious display of white Lilies there has been of late in gardens of all kinds. The masses of them that one finds in cottagers' gardens that have not been disturbed for years testify that light well-drained soil will keep them in perfect health without any special attention. Those who wish to get a fresh stock should transplant about the end of this month, or as soon as the foliage decays. There is a great demand for the bloom spikes of this Lily for indoor decoration, and most lovely they look in large vases cut with good long stems and dropped in with the addition of a little foliage. We grow the majority of our stock of this Lily under the partial shelter and shade of fruit trees, as in this way we get a longer flowering season than when fully exposed. I may add that shell snails, slugs, and other garden pests are very fond of the leaves of this Lily, and will strip the stems quite clear; care should therefore be taken to plant it as far away as possible from hedgerows, Ivy-covered fences, or other places where such things find shelter. In places where the soil is naturally heavy road scrapings, leaf mould, or sand should be added to it. In this part of Hampshire this Lily grows with the greatest freedom in soil by no means rich, but very sandy and friable.—J. Groom, *Gosport*.

—— White Lilies are now just at their best, but with us they are scarcely so fine as last year. I have planted them in various situations, but they are most effective, I find, in large masses in mixed borders with their stems hid by other plants. They look well against a background of evergreen shrubs. We have them dotted about a large bed of Heliotropes, in front of a Cedar of Lebanon, and they look very well there, but still they seem more at home in the old-fashioned mixed border, sheltered from wind by other plants. They transplant best about the first week in October, especially if the bulbs are to be singled out. I have moved large clumps of them with success from one part of the garden to another in spring. I lifted them with a spade, and carried along with them all the soil that would cling to them, and planted them with as little disturbance as possible.—E. H.

PROPAGATING HOLLYHOCKS.

Summer is the best season in which to propagate named varieties of Hollyhocks. Striking them in heat in spring tends to weaken the stock. The flowering side shoots taken off now make excellent cuttings. Some judgment is required in their selection. If the wood is too soft they will damp off, and if too hard and fibry they may not start at all. They should be taken when half ripe—a condition reached about the time when the blossoms are opening. Where considerable numbers of plants have to be raised, the cuttings will do best in a frame under glass. Place a layer 2 inches thick of old manure or leaf-mould in the bottom of the frame; press it down, and then put in 3 inches of light sandy soil, and on the top a sprinkling of sand. The whole should then be made moderately firm by placing a board on the surface and applying pressure; then water with a rosed pot to settle the whole. Most Hollyhocks, besides sending up a main central flower-stem, throw out from near the bottom other stems. These side stems make excellent cuttings when the wood is getting firm. In the axils of most of the leaves there is a latent wood bud which, under suitable conditions, may be forced into growth, even though it might not under ordinary circumstances start into growth at all. In making the cuttings, first trim off all the leaves, leaving about an inch of the leaf-stalk; then begin at the lower end and cut up the stem into single joints or eyes, leaving about an inch of the stem below the bud and a quarter of an inch above it. The knife should be sharp enough to make a clean cut through the stem. Lines should be made across the bed in the sand 2½ inches or 3 inches apart, and in these lines the cuttings should be thrust up to the shoulder 2 inches apart. When thrust in the bed in this way the base of the cutting rests on a firm foundation, which might not always be the case if the cuttings were planted with a dibble. As each batch of cuttings is inserted, water to settle the soil, and shade if required. In bright weather, if the sand at any time looks dry, slightly dew it over in the afternoon with a fine-rosed pot, but too much water must not be given till it is ascertained that the cuttings are pushing roots. When well rooted they should be lifted carefully and potted singly in small pots, and placed in a close frame for a time to encourage root action; afterwards shift them into 5-inch or 6 inch pots, and encourage them to grow strongly. They should be wintered in a turf pit, or where some protection

can be given. If all goes on well, roots will be forming and the buds breaking through the sand in the course of three weeks or a month after the cuttings are inserted. Air should then be given and shading discontinued. In a general way seedlings make the strongest and most vigorous plants, and when seeds are saved from a good collection, the seedlings are invariably good, but it is obvious that, in order to preserve the best varieties, they must be increased by means of cuttings. All who grow a good collection of Hollyhocks, of course save seeds from the best flowers, and if sown in pans under glass, the plants will flower the following season. Even if sown now in a bed in the open air, they will flower next year. Sow in shallow drills 9 inches apart, cover lightly with light, sifted soil, and shade the bed with Rhubarb leaves laid flat on the surface till the seeds begin to germinate. E. Hobday.

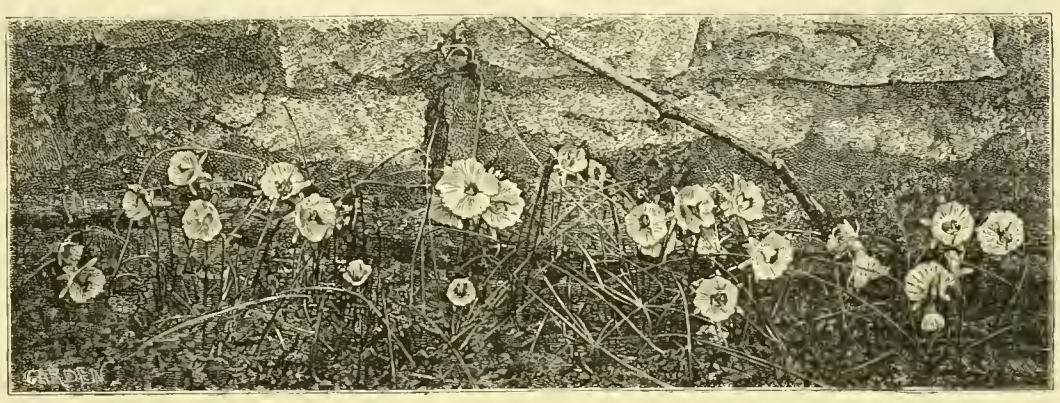
Climbers on trees.—I lately saw a very pleasing effect produced by covering naked tree stems with Virginian Creeper. The trees in question were Firs and Chestnuts, which had clear stems 30 feet or more in height, and which from the base upwards were completely covered with luxuriant foliage. Ivy-clad trees are common, but one does not often see free use made of the other strong growing climbers in a similar way. There is no lack of material for employment in this way, for in addition to the Virginian Creeper there are Aristolochia Sipho, Menispermum canadense (both of remarkably vigorous growth) such Clematises as montana, Flammula, the Traveller's Joy, and even some of the strong growing evergreen Roses might be thus used. The principal point is to get them well established by giving them a barrow-load or so of good soil to start in, and a good watering occasionally the first season; afterwards they would take care of themselves. In most gardens there are naked tree stems, the draping of which imparts an additional charm.—J. C. B.

Cornflowers.—Which is the true Cornflower, the blue Centaurea Cyanus or the yellow Chrysanthemum segetum? Both are variously termed Cornflowers, but, on the other hand, captious persons term the blue Centaurea the Cornbottle, which is, I believe, its correct appellation. We have few better blue hardy flowers for cutting from than the Centaurea just named, and I wish the lovely yellow Sweet Sultan was equally hardy. I greatly doubt whether amongst yellow flowers specially suitable for table decoration and similar purposes we have any more lovely or pleasing flower than the Sweet Sultan, and yet it is but little grown. The yellow Cornflower, since its adoption in gardens, has made considerable progress; the flowers are now often double the size of those found in the fields, and less formal because the petals are so much larger. I have found blooms 3 inches across. Once established in gardens, it gives ample plants yearly, and is less difficult to eradicate than Centaurea Cyanus, which seems to seed so abundantly, that no sooner is one lot of seedlings removed than others burst up. For this reason the Cornbottle should be restricted to some out-of-the-way corner where it can bloom and seed as it will from year to year. Without doubt in its case plants that have stood the winter give by far the best results. They are very hardy, which is more than can be said for those of the Chrysanthemum.—A. D.

CORBULARIA MONOPHYLLA IN THE OPEN AIR.

This, the most beautiful of the Hoop-petticoat Daffodils, as a hardy plant has been somewhat of a puzzle to cultivators. Not that it fears cold, for its home is in the snowy heights of the Little Atlas, but the difficulty in our climate is that it does not get the thorough dry ripening that is needful to its well-being.

In the case of the garden from which the subject of the engraving was taken, the difficulty was met by planting the bulbs at the foot of a west wall covered with Vines. The Vine foliage roofs the space where the bulbs are, so that no rain reaches them throughout the summer. By the end of October the leaves are off the Vines, the ground becomes moistened and the bulbs start. Snow lay on them last February, but the little flowers came bravely through, growing into full beauty as it melted. Probably the soil and situation (a warm sand, at 400 feet elevation in a southern county) are conditions unusually favourable; certainly the result has been most



White Hoop-petticoat Narcissus at foot of south wall in a Surrey garden. Engraved from a photograph for The Garden.

encouraging, and other tender Corbularias and the less hardy Narcissi are being tried under the same conditions.

Irises.—Both Spanish and English Irises are now well in flower with us, and very pretty many of the varieties are, especially amongst the Spanish section. The lemon and orange-coloured sorts contrast strikingly with the bright blues and purples. Some of the colours are also quaint, more particularly those with dark puce shades. I am somewhat disappointed, inasmuch as I have not a pure white variety amongst the Spanish sorts. The nearest approach to white is one named La Vestal, but this is by no means pure. It is also the weakest sort amongst them, not being more than 9 inches high, while some of the others are 2 feet. The English sorts are much more vigorous than the Spanish, and their flowers are also larger. The nearest approach to white in the flowers of this section is Mountain of Snow, but it is hardly so pure in colour as to justify its name. Still, it has bold, well-formed flowers. These Irises are not particular as to soil, provided it is fairly dry in winter and not too heavy. Ours were planted last September, and they have given us no trouble since.—Taunton.

Show Pelargoniums out of doors.—I recently saw a good sized bed of these treated exactly the same as ordinary zonal varieties, *i.e.*, old plants were carefully hardened off in spring and planted out in May, with the result that they had grown into fine bushes, and were covered with hundreds of lovely blooms and buds that promised to last for a long time to come, the increased root space having promoted both successional growth and bloom. We have long had such kinds as Lady Scott, Pretty Polly, and Unique out of doors, but the beautiful soft colours of the show varieties are but seldom made use of in that way. In fact, it is more the result of accident than design that one does find them thus employed. I have sometimes planted them in large rustic baskets, in which they look well in pleasure grounds, and I feel sure that a more general use of this kind of Pelargonium would add quite a fresh charm to our flower beds in summer. I need scarcely say, that if intended for open-air bedding they should be kept as cool as possible during the winter and spring, so that they may not be too far advanced at bedding-out time. There is amongst them such a variety of colours, varying from the clearest white to the most intense crimson and rose, that a really effective flower garden might easily be made by means of these Pelargoniums alone.—J. G., *Hants.*

CROSSING SWEET WILLIAMS.

Notwithstanding suggestions made respecting the intercrossing of Sweet Williams with other members of the Dianthus family, certain it is that our old garden favourites will long yet remain much in their present state. But without the aid of intercrossing, Sweet Williams have not stood still; indeed, a good strain now-a-days exhibits a vast improvement on the strains of twenty years ago. Sweetly scented as Wallflowers, Violets, Pinks, Stocks, and similar old-fashioned flowers are, it would be difficult to imagine an old garden without Sweet Williams. Whether, however, in old gardens or in new ones, Sweet Williams are ever in place. Old strains were prolific in the way of dark colours; in modern ones lighter hues prevail; but still the dark hues may be had if need be. Light flowers show a greater variety of marking than dark ones. No one could describe fully the variations to be found in the colours and markings of Sweet Williams now-a-days. Auricula-eyed flowers may have white eyes, and red, carmine, purple, violet, or some other coloured ground, and a thin margin of white. There may, moreover, be ringed forms, as in Hunt's strain, the ground colour being more narrow and bordered by a broader margin of white. There may also be found white, pink, red, scarlet, crimson, or purple selfs, but far beyond these come the mottled or flaked flowers, which are almost endless in variation and yet very beautiful. These mottled flowers are, I think, the most striking of the whole. In any case a good strain should have the greatest variety allied to size and quality and broadness of truss. Plenty of kinds now have pips 1 inch across; any good strain, too, will produce some double flowers, but these are more curious than beautiful, and can never take the place of good singles in a stand of Sweet Williams at a show. It is pleasant to find Sweet Williams so widely encouraged at summer shows as they still are. As to seed-sowing, my own practice is to sow towards the end of April in the open ground, and I am now awaiting a little more rain to enable me to plant out about a thousand plants from such sowings

into beds consisting of five rows each, so that they may grow together in masses, and thus when in bloom serve to hold each other up. Plants put out now, if strong and in good soil, will throw up some half-dozen or more heads of bloom, and thus form an almost solid mass of flower. One drawback incidental to hybrid Dianthuses is that they fail to give us seed, or, if they do so, in no great quantity. The old mule Pink furnishes evidence of this defect. One of the prettiest Pinks we have is the single form of Dianthus plumosus, the flowers of which have deeply laciniated edges and ringed or coloured centres, the ground hues being white and pink. This seeds freely and is well worthy the attention of all who have to decorate vases, epergnes, &c. For this purpose it is one of the lightest and most elegant of flowers. I propose to see how far it may be possible to engraft the rich hue of Dianthus Heddewigi Brilliant upon this hardy perennial. Could we get rich-hued flowers upon it, I am sure that it would prove to be one of the most popular of border plants. A. D.

NOTES ON HARDY PLANTS.

Œnothera macrocarpa.—This is one of the neatest and showiest of the evening Primroses, and one which deserves to be largely grown. It is not, however, at all common, and one often hears complaints that it cannot be increased very readily. That it is not easily divided is true, but besides seed raising, it may be got in quantity from cuttings. These should be taken, slip-fashion, from the crown before the growths get long or show buds. On strong plants many shoots will now be 3 inches or so in length, and just suited for rooting. If put in a close frame for a week roots will be made, and there is plenty of time to grow them into strong plants before winter sets in.

Lithospermum petræum is a brave little shrub in our trying climate if the plants are grown strongly before they are exposed. Its exquisite flowers need no praise, but are, alas! too seldom seen. It loves the sunshine and the breeze; one or two plants of it forwarded in shelter are promising seed. On this, however, we are not alone dependent, though it is said cuttings are hard to strike, but in my opinion they need not be so; the mistake too often made is that they are kept close and moist in the same way as most other cuttings. The foliage of this species will not stand moisture scarcely two days without injury: the coating of adpressed hairs turns soft, and the leaf is soon covered with fungoid growth. The better way is to take short, but firm, young wood with a "heel;" such cuttings or slips should be set firmly in sandy soil and in a warm place; the leaves will flag and perhaps shrivel, but the results are better than are obtained under confinement and moisture.

L. graminifolium.—This is a distinct and charming species with a spreading or forked raceme of highly coloured flowers, not unlike those of L. petræum. It stood last winter well in the open, and may therefore be considered to be fairly hardy. It makes Grass somewhat freely, and it may be increased by division as readily as the summer Forget-me-not.

The Ferulas.—In planting these conspicuous and showy foliaged plants it is as well to study their leafing and fading periods, or objectionable gaps may occur just when and where one would least desire them. We are all delighted with the early verdure of F. communis, but it does not last through a dry summer. The variety gigantea is scarcely more reliable. The foliage of tingitana is not so finely cut as that of the two former, but it is both bold and lasting. Why are not the Fennels more grown in borders and shrubberies than they now are? They belong to that class of garden objects which, when once tried, are felt to be indispensable.

Primula Rusbyi, referred to but a week or two ago in these notes, is found to be a successional bloomer, a feature in a Primrose which, at this advanced season, is worthy of note. The smallest plants seem to be floriferous, sending up mealy scapes and violet-purple, but spare-flowered, heads more freely than capitata. The scent is rich and agreeable.

P. obconica may not be hardy enough for the open air all the year round, but I find that self-sown seedlings of it under hardy conditions grow as freely as weeds, and it will be interesting to watch if these plants stand the winter any better than those otherwise raised and nursed.

Æthionema coridifolium.—This stood out all last winter in pots plunged in sand, but otherwise quite exposed. Our plants of it, now three years old, are finely in flower. I have always found the age of plants belonging to this genus to be a chief point to be observed, as there is a tendency amongst them to be biennial. Anyhow, so far I have always found it best to raise plants from seed, and treat them as we do Wallflowers.

Campanula valdensis.—This is a most desirable variety. It is early, showy, and lasting. It may be described as intermediate between C. cæspitosa or pusilla and rotundifolia. It is about 6 inches high and the perfection of neatness. Its stems are numerous and slender, but though the glistening pale blue bells are large for such a small plant, they are always well held up. It has none of the weedy habit at the root which characterises rotundifolia; in fact, though free the growth is but moderate, and in dryish, sunny places, which it seems to enjoy, it proves a model alpine, so far as cultivation is concerned. Its flowers have been open five weeks and are still in good condition. I should say that few things are better suited for exhibition in pots or pans than this Bellflower. Hitherto I have always divided it as soon as done flowering, placing a pinch of the roots in 3-inch pots, with some grit and leaf-mould; the pots soon fill with roots, and the plants flower well the following season.

Calceolaria Kellyana.—What a grand little plant this is for a cool, moist crevice in rockwork, or to place between taller plants with sparse tops and a compact habit. It thrives in a stiffish loam and flowers more or less from June to September. I used to winter some plants of it in a frame, but from some cause or other they did not thrive there so well as in the open ground, where, in the worst of winters, I have always found this Calceolaria alive, though sometimes much injured.

The Master-worts (Astrantias) are fast becoming favourites; the flowers of even the commonest seem to be liked where cut material not of glaring colours is in request. The clustered varieties mix well with leaves, and the one or two-umbelled stems of A. maxima associate charmingly with Grasses. I mention this use of the flowers, because in the borders they are anything but effective, and there, if allowed to seed, they soon become trying weeds. I find also that the flowers develop best in partial shade, and therefore it might be as well to give them a suitable corner to themselves, or associate them with plants of similar requirements. The tips of the involucral leaves are very liable to turn brown; an umbel will last in good condition for a week or a fortnight, but often on the second day these blemishes will occur. It is a good plan to cut the flowers early; if before they are quite open, no matter, they will expand in water.

Gillenia trifoliata.—This, as seen in flower, nodding between some Hollies, which protect it from the midday sun, but which do not overshadow it, is much fresher and fairer than when more exposed. If not a showy plant it is both effective and beautiful, especially when cut for the table. Unless sheltered in the way just stated, it does not grow freely, and the flowers and leaves are wanting in size and freshness. J. W.

Monstrous Foxglove (*F. C.*).—The bell-like flower of the Foxglove sent is a monstrosity, not unusual in the case of the Foxglove. It is no doubt caused by the fusion of several flowers into one at the termination of the spike. We need hardly add that the occurrence has nothing whatever to do with the Campanulas that grow, as you say, amongst the Foxgloves.

GLADIOLUS COLVILLEI ALBUS.

Frequent complaints are made that this Gladiolus cannot be induced to flower properly; but such complaints only show that the treatment is wrong. No plant can be more easily cultivated successfully than this when its requirements are understood. The chief, and probably the only, cause of failure arises from keeping the bulbs too long out of the ground. In the case of imported bulbs, they should be obtained along with Hyacinths in autumn, and potted as soon as they come to hand. Continental bulbs complete their growth earlier than those of English growth, and that being so, they suffer from long confinement in drawers or paper bags. The first lot of roots of this Gladiolus I ever dealt with came from Holland in January in the shape of dry bulbs, but they had grown out in some cases as much as 4 inches, and all had started into growth more or less. As I wanted them for flowering in the open ground, I had them potted at once, putting seven bulbs in a 6-inch pot and then placing them in a cold pit, where they were secure from frost. There I allowed them to remain until the middle of May, when they were planted out where they were to flower. Even under this kindly treatment they did not, however, flower so satisfactorily as home-grown bulbs. When one has once got a stock of this Gladiolus, it increases rapidly, and if it is to be grown altogether in pots, it must have plenty of root moisture until the foliage gets quite yellow. The best place for it to stand during summer is in a cold frame, from which the lights are removed during fine weather. When the leaves have died down cut them off close to the pots and pack the latter away somewhere under cover, for if moisture gets into the soil they will start into growth again in September. They will not sustain any harm if kept dry until the end of October; but they must not be neglected at that time, or the bulbs will be weakened. They must have fresh soil every year; therefore, all the old material must be shaken away from them. If the plants are taken to a warm greenhouse early in April, they will be in flower by the end of May. In some gardens this Gladiolus will live in the open if planted near a warm wall and the position is somewhat sheltered. But I find if it is planted in exposed beds, that if a warm moist time occurs after it has rested a few weeks, it commences to grow again, and if a hard winter follows, the growth thus made is killed and the bulbs permanently injured. If, however, I take the bulbs up early in September, and keep them dry for about two months, and then put them in pots for the winter, to be transferred to open beds late in the spring, they succeed satisfactorily. J. C. C.

Diseased Humeas.—I send you a stem of Humea elegans killed by some disease, concerning which I know nothing. Can you kindly help me in the matter? I have grown Humeas for over twenty years as easily as we grow Cabbages, and almost to any size, but for these last seven or eight years I have not been able to grow a decent plant. Our treatment and soil have been the same from the first. The plants show signs of distress just as they begin to flower, and, finally, go off altogether, which is a great loss to us, as we grow them specially for standing under a large front portico, and for that purpose, when well grown, they are most graceful. For any information respecting the cause and remedy I shall be greatly obliged.—William Sangwin, *Trelissick, Truro.*

*** We regret our inability to explain the cause of sudden death in Humeas. Their disease and death are, however, but too well known to cultivators of these plants. We have repeatedly examined examples under the microscope, but have never seen either fungus, insect, or nematode likely to be the depredator. We have never seen anything like a Peronospora; the fungus threads (sometimes present) belong to acremonium. Death arising from this disease in Humeas seems to be simply a sudden failure of vitality. When we get the plants for examination, all parts, from the tips of the rootlets to the tips of the newest leaves, are

quite dead. If our correspondents would send us examples just as the disease is putting on its first appearance, some cause might be found, but this possibility is, to us, doubtful. It is a case of sudden and complete disorganisation and death of the tissues, possibly brought about by bacteria. We have seen the same state of things in other plants, as, for instance, in Violets, but the cause has in all cases eluded us.—W. G. S.

Trees and Shrubs.

LAWSON'S CYPRESS AND ITS VARIETIES.

No better proof of the qualifications of Cupressus Lawsoniana as an ornamental evergreen tree can be given than when it is stated that in Britain it is annually raised from home-grown seeds by the million, and that it is to be met with almost everywhere, in place, and out of place, in the gardens of the poor as well as in those of the rich—here as a single specimen of almost unrivalled grace and beauty, there in groups, or adding variety to the mixed shrubbery; and often, but as yet not too often, forming beautiful and ornamental hedges. So accommodating is it as a stock, that not only are all its own distinct varieties grafted on it, but also other species of Cypress and members of very distinct, but, of course, of cognate genera. Singular, however, as it may appear, it will have little or nothing to do with what botanists consider its nearest blood-relative—C. nutkaensis, though the latter, as a scion, unites kindly with C. Lawsoniana, but the union is not a happy one and very soon comes to an end through the death of the scion. C. nutkaensis makes a perfect and lasting union with Juniperus virginiana and J. communis.

Mr. Murray, who originally discovered the Lawson Cypress, found trees of it in Upper California, in some instances upwards of 100 feet in height, with trunks 2 feet in diameter. In this country it has already attained a height of from 20 feet to 30 feet; but although its timber is said to be good and easily worked, it will never, I fear, excel as a timber tree with us in Britain. Its proper place is as an evergreen decorative plant, and as such it has, at least among Cypresses, few if any equals. Being perfectly hardy, and not too particular as to soil, it luxuriates almost anywhere, but prefers a rather heavy, damp soil to a light or dry, sandy one. In the latter it is subject to premature sickening of the leaves, and, ultimately, defoliation. But this Cypress, like the majority of coniferous plants, is less fastidious as to soil than it is to climate; it delights in shelter rather than exposure to cutting winds.

As a cheap and ornamental hedge plant it has few equals. Its shade of green is more cheerful than that of any other plant at present devoted to such a purpose; and its gracefully recurved feather-like branchlets form a pleasing relief to the rigid shoots of the Holly and even the Yew. Plants of large size may be advantageously used for this purpose, but small ones, say from 18 inches to 4 feet in height, are preferable, as they can be clipped and headed back until a proper base is formed on which to build the superstructure. A distance of from 12 inches to 18 inches apart (according to the size and habit of the plants) will be found sufficient; but of course a greater distance is requisite where large specimens are required to screen unsightly objects. About the beginning or not later than the middle of September, and again in spring when the shoots show signs of new life, are good times for clipping; but of the two early autumn is probably the better time, as the shoots then clipped are not so liable to be displaced and bent down by snows in winter, which would, were the shoots left untouched, give the hedge an irregular and ragged appearance.

This Cypress is often seen of a sickly hue and partially defoliated; and people very naturally attribute such a condition to the occurrence of some constituent in the soil that does not suit the plants. It will, however, generally be found that mishaps of this kind are the result of poverty at the roots, and will in nine cases out of ten disappear after a generous top-dressing of well-rotted manure. Many plants when under diverse cultivation present a greater or less degree of variation from the normal type, and particularly is this the case with the Cypress under consideration. In the short space of time during which it has been under cultivation in Europe many very distinct varieties in habit and colouration have been obtained, and are now extensively cultivated. But, unfortunately, all the varieties named in trade lists do not deserve the consideration of planters; I shall, therefore, briefly describe a few of the best.

Varieties.

Erecta viridis.—This in an erect, tapering tree of moderate growth, thickly and closely inlaid from base to top with compressed twiggy branches and branchlets of the richest green; indeed, it is quite unique as regards beauty, and never needs pruning or clipping.

Argentea.—In this we have a dense, oval shrub of a silvery bluish green, with the points of its branches gracefully recurved. It is of moderate growth, and doubtless never will attain any great size; it is therefore a suitable subject for planting in small gardens.

Gracilissima.—This has the same habit of growth as the preceding, but is characterised by thinner and more twiggy branchlets; it is also of moderate growth.

Alba spica.—This possesses a dense, pyramidal habit of growth, with the bark and leaves of the vegetating shoots of a chalky whiteness. Although of good colour when exposed to the sun, it will, unlike golden variegated Conifers generally, be improved by being planted in shady positions.

Albo-variegata.—This is of an upright habit, without ever reaching to any great height, with branches almost regularly blotched and striped with yellowish white. It is consequently rather pretty and a most befitting subject for enlivening a shrubbery.

Aureo-variegata.—This differs from the preceding in its branches being loosely spreading, and in the variegation being of a golden yellow.

Filifera.—A form remarkable for the long attenuated branchlets, which gives it a pendulous habit of growth.

Intertexta.—In this the growth is more robust than usual, and the foliage possesses a peculiar glaucous tint.

Gracilis pendula.—This is of an elegant pendulous habit on account of the branches being long and slender.

Argenteo-variegata is a form having creamy-white foliage intermixed with the deep green branchlets. It is a handsome variety, and particularly suitable for small gardens.

Flavescens differs from lutea in having pale greenish yellow foliage, but it is not nearly so effective as that variety.

Nana.—This form has been in cultivation almost as long as the species, and yet is seldom to be seen over 2½ feet in height. It is of an ovate shape, with stiff, erect, flattened branches and branchlets. It is represented by two distinct seedlings, the one bright green and the other bluish green; the latter is the best. Its synonyms are pygmæa and minima. There are two forms of nana, one called alba and the other glauca. The former has yellowish white foliage, and the latter is very glaucous.

Lutea.—The peculiarity of this form is its colour, which is throughout the growing season a rich golden yellow, and even in the autumn and winter months it is only slightly converted into greenish yellow. It is of good form and vigorous, and indeed all that can be desired for relieving the monotonous green of our shrubberies; but to do it justice, it is necessary that it be fully exposed to the sun. There need be no fear of it being scorched, for it is as immutable as the parent. It is also called aurea.

Stricta.—This is a most distinct form as regards the habit of growth, which is columnar, similar to that of the Irish Yew. It is one of the most desirable of the varieties.

There are other varieties, but the foregoing are the most distinct. This list will no doubt be much extended, as every bed of seedlings invariably yields forms more or less distinct. W.

Lebanon Cedars for churchyards.—Why are not Lebanon Cedars planted more frequently in cemeteries or churchyards? For the higher grounds of our country churchyards, many of which are so picturesquely situated, this Cedar seems to be well adapted. In rapidity of growth it far exceeds the Yew, and probably it yields very little to it in point of longevity. The slowness of the growth of the Yew, especially in the open spaces generally devoted to the burial of the dead, is probably the principal reason why so few are now to be seen springing up to take the places of those falling into decay.

Lawn trees.—In The Garden (p. 60) "D." observes that Laburnums are "somewhat unsuited for lawn planting." I have one planted some twenty years ago. I raised it from seed, and carefully trained it to a single stem. I never cut back the leading shoot, and simply cut away straggling side shoots. The result has been a very handsome tree with pendulous branches, which hang down almost to the ground. Care must always be taken to destroy the seed-pods by cutting them off immediately the flowers are over. Thus, and thus only, a handsome show of flowers will be insured for the next year. Any tree allowed to ripen its seeds will be a failure in the next flowering season. I remember seeing some years ago, on an old-fashioned garden lawn, a very fine Elder tree. It had been grown to a single stem, and had attained a great size. Its trunk was as large as an ordinary orchard Apple tree. It was annually covered with a profusion of flowers, and formed a lovely object. In the autumn its huge bunches of fruit quite weighed down the branches. It was really a sight worth going some distance to see. The age of the tree must have been considerable. Surely the example might be followed, and the lawn adorned with a handsomely grown Elder tree?—Richard Hooper, *Upton Rectory, Didcot.*

Cut-leaved Alder.—Only those who have been fortunate enough to see a really fine plant of this tree (Alnus glutinosa laciniata) can form a true idea of what a noble specimen it makes when it finds itself in a locality to "its liking." Near here there is an exceedingly grand plant of it growing within 10 feet of a small river, upon soil only about 18 inches above the surface of the stream; its lower branches overhang the water, and are just high enough to walk under on one side, while on the other side they feather to the ground. The expanse of the branches measured 36 feet in one direction, and in other directions nearly as much; and the height was found to be about 47 feet.—W.

Cryptomeria elegans.—This differs extremely in habit and general appearance from C. japonica, but produces cones which—as we learn from Veitch's "Manual of Coniferæ"—are indistinguishable from those of that species; C. elegans is in many respects a more desirable tree. In the first place it is much hardier than its relation, and will succeed in places where the other almost refuses to exist. The remarkable change in colour from the bright green of the summer months to the bronzy crimson of the winter, and its pleasing habit of growth, place this tree amongst the first rank of ornamental subjects of

small proportions. In Messrs. Veitch's manual there is a good illustration representing a fine specimen at Linton Park, near Maidstone; this was 20 feet high in 1881; it would be interesting to have the present measurements together with the history of this tree. To the late Mr. J. G. Veitch is due the credit of having introduced this useful tree; he sent it from Japan in 1861, but never found it in a wild state; according to the work above quoted, it was only met with in cultivation in Japanese gardens.

ORNAMENTAL JUNIPERS.

Among the Junipers are some of our most ornamental as well as useful shrubs. Upwards of twenty species are known, most of which, like our native Junipers, are of low stature, although a few species often attain the height of ordinary trees, and afford welcome shade, as in Syria and several other warm countries. The common and dwarf Junipers (J. communis and J. nana) are the only species indigenous to Britain, of which, however, several well marked and distinct varieties are commonly cultivated.

The common Juniper (J. communis) is chiefly found growing in England on sandy or chalky soils or on open downs, while in Scotland, its native home is amongst the granite or trap hill and mountain sides. It is, with us, usually low and small, seldom much larger than the Furze; but where it attains some size the wood is very fine and compact. It is now seldom used, although in former times spits and drinking vessels were made of it, as it was thought to impart a pleasant flavour to meat or liquid.

The dwarf Juniper (J. nana) is a very distinct and pretty plant, seldom found over a foot in height, but more commonly half that size. It is of a low, dense mode of growth, and soon spreads to a great width in proportion to its height, thus rendering it a plant well adapted for rockwork. It is less common than J. communis. On the high Welsh rocks above Ogwen Lake I have frequently met with this plant, but never very abundantly.

The Irish Juniper (J. cemmunis hibernica) is a most desirable and highly ornamental variety, and of inestimable value in landscape gardening generally. The growth is close and compact, as in the Irish Yew, and the foliage of a peculiar silvery-grey tint. It succeeds best on rather damp soils; indeed, the finest and healthiest specimens with which I am acquainted are growing on well-drained peat soil, on an estate in the north of Ireland. A dwarf and very compact variety of this Juniper, named compressa, is extensively used for rockwork planting.

The Weeping Indian Juniper (J. recurva) succeeds well at Penrhyn, and frequently attains a height equal to that in its native habitat. At Brynmeirig, near the Penrhyn slate quarries, there is a number of this gracefully-drooping plant, which, for size and healthy appearance, are perhaps not excelled in Britain. The soil is composed of loam and peat in equal preportions, and resting on shaly slate rock. The situation is shady, and has a northern aspect, which, by-the-by, seems to suit not only this species, but the male form (J. recurva densa) as well. This ornamental shrub deserves to be cultivated more extensively than it is at present, especially where a suitable soil and situation can be conveniently provided. It should, however, never be planted on dry warm soils, as in such situations it presents a miserable dusty appearance, and soon dies out.

The winter-flowering Juniper (J. chinensis).—This is certainly the most ornamental of the genus; indeed, in this respect it is perhaps not excelled by any evergreen shrub in cultivation. During winter or in early spring, when covered with its golden male flowers, this shrub is particularly beautiful. It is perfectly hardy and of the easiest cultivation, succeeding well en good loamy soil and in a partially sheltered situation. Several beautiful and distinct varieties of this plant are in cultivation, amongst which the golden and silver variegated forms are well werth a place in any collection.

The Frankincense Juniper (J. thurifera).—In this species we have another distinct and highly ornamental plant—or rather tree—for in its native country it frequently attains a height of 40 ft. As a lawn specimen it is invaluable, and frem its dense, conical shape associates well with trees of a more loose and spreading appearance. It should be extensively planted, for, apart from its value as an ornamental tree, it is uninjured by any amount of frost in this country.

The Prickly Cedar (J. Oxycedrus) is by many writers supposed to be the tree rather than the so-called Cedar of Lebanon, from which the Cedar-wood, so famed in former times for its durability, and of which statues were made before the use of marble was introduced, was obtained. It is found plentifully along the Mediterranean coast, and is highly valued, as well for its ornamental appearance as effect for planting in greups. Perhaps, amongst the whole range of Junipers none is more highly esteemed for its utility than

The Red Cedar (J. virginiana).—It is of the easiest culture and seems to succeed in almost any situation, though attaining greatest perfection when planted near the sea-coast. It is a native of North America, where it becomes a large tree, with a bright red, aromatic wood, the value of which is well known from its use in cabinet work and the manufacture of pencils. A. D. Webster.

Wellingtonias as nurse trees.—I should like to see the Wellingtonia planted as a nurse tree, as bas long been done with the Larch. Independently of seeds, which can be got and often imported in very large quantities, no tree of recent introduction can be propagated faster, as it grows very readily from cuttings, which soon make proper and handsome specimens. From what I know of the Wellingtonia I feel satisfied that if planted and brought up amongst other trees it will do better than planted singly on Grass lawns, as we are accustomed to see it. It is said that the wood is soft on account of its free-growing nature; this may be the case in its native country, but in a climate like this it grows more slowly, and its wood, in consequence, may be fitted for many useful purposes.—J. M. N.

Poplar hedges.—The black Italian Peplar is admirably suited for a fence in moist soils. Plants one year old, which are generally about 4 feet in height, will form a tolerably good hedge the first year. If the soil is dug over and manured several months previous to planting, strong cuttings may be inserted about a foot apart, and these will make shoots varying from 3 feet to 5 feet in height during the first season. At the end of the second year, during the month of November, the top of the fence should be regularly reduced with a hedge-bill to the height of 5 feet. This will strengthen the sides of the fence, and consequently increase the stability of the stems. A very good plan is to tie rods of wood to the young trees at 2 feet or 3 feet from the ground until they have become sufficiently strong of themselves to resist the pressure of cattle. When properly attended to, by keeping them free from weeds and trimming them regularly every autumn, these fences become highly useful and ornamental, and are at once amongst the cheapest and readiest of any that can be raised. The form of the hedge should be the same as that of the Hawthorn, only a little wider at bottom, and trimmed up in a wedge-like shape, which renders it firm and neat in appearance.—J.

Planting trees on mounds.—It is somewhat remarkable that even practical men of experience advocate the method of planting trees on mounds. I maintain that it is altogether unnecessary as far as success in planting is concerned, although it may with advantage be carried out on a modified scale on naturally wet, stiff, clay soils; on dry, light soils, mounds are wholly unnecessary, particularly abrupt, high mounds, which would be detrimental rather than otherwise by encouraging the evaporation of moisture from the roots, which, probably, during an extremely dry, burning summer, would suffer so much from drought that the trees would be found to die outright. There is no better plan for planting ornamental trees and shrubs than turning the soil and subsoil to a depth of at least from 18 inches to 24 inches, and a yard or two more in diameter than is required for the roots when planting, turning out stones, roots, on very bad subsoil, and replacing them by fresh soil or turf, well chopped up and stirred in with the original soil. On stiff clayey lands inclined to be wet, the trees should be planted on the surface, covering the roots with fresh soil so as to form a slightly raised mound over the roots, and outside or beyond the latter, not less than a yard or so. The method of surface-dressing trees every few years with turf, leaf-mould, or other enriching material and gradually forming easy mounds, is preferable to planting on mounds at the outset.—O. F.

GARDEN FLORA.

PLATE 554.

HARDY HYBRID GLADIOLI.*

The accompanying plate represents two and a glimpse at a third variety of these most free-blooming, easily cultivated, and very beautiful hybrids, which have been all raised by M. Victor Lemoine, of Nancy, from seed obtained from a variety of G. gandavensis as seed parent fertilised with the pollen of the hardy species known as G. purpureo-auratus, and sent out by him during the last five or six years in batches of from eight to ten varieties each year. As to the respective merits of these beautiful Gladioli, I have furnished the result of my observations and comparisons in a series of descriptive notes contributed to the columns of The Garden during the autumns of the last five or six years. For full descriptions of the varieties here figured, I may refer your readers to Volume XXVIII. of The Garden, page 364, for the two first named, and fer the third to page 314 of Volume XXVI. As to culture, I find the following simple method answers best. Never dry off the bulbs, but plant again the same day as they are taken up (for the removal of offsets and spawn bulblets which are most abundantly produced) in a bed of light rich compost made up of leaf-mould, sod mould and a little sand. They increase very rapidly, both by offsets and seed, the production of which does not seem in any way to weaken or fatigue the bulbs. I have never known them to be affected by any kind of disease, and they bloom in so small a state, that frequently small offsets forgotten in the bed send up nice flower-spikes the following year. The best time for taking up and replanting I find to be from the middle to the end of the month of October. My first flower to open this year is Cléopatre, which expanded its first bloom yesterday, and from this onwards for the next six weeks or thereabouts I hope to have a succession of beautiful blooms. The set of novelties for this year is an unusually large one, numbering no fewer than thirteen varieties, as to which I shall hope to have some descriptive notes to send to The Garden about October. W. E. Gumbleton.

Belgrove, Queenstown.

Camellia General Pescette.—In the journal of the Royal Tuscan Society of Horticulture is published a coloured plate of a new Camellia named General Pescette. Signor M. Grilli, who describes it, states that it is "floriferous, and has the merit of constantly maintaining the characters that distinguish it; every flower opens regularly and presents the same form and dimensions, the

* Drawn in Messrs. Veitch's nursery, King's Road, Chelsea, Aug. 25, 1885.

NEW HYBRID GLADIOLI

1. LA FRANCE. 2. L'ALSACE. 3. MASQUE DE FER.

same streakings with red and carmine on petals with a flesh coloured ground." He strongly recommends this variety, which he terms a grand acquisition, and urges that Camellias as a class are more worthy of special attention than Chrysanthemums, which just now find so much favour.

Flower paintings.—The practice of offering prizes at flower shows for flower paintings by amateurs, especially ladies, merits much wider adoption than it has hitherto done. From the first establishment of the Chiswick Horticultural Society prizes have been offered for paintings, and the competition has been invariably good. Fruits and foliage as well as flowers are invited, but of fruits few have been shown. Probably it is more difficult to depict fruits well than flowers. At a recent exhibition of this society about a score of plates, tiles, vases, &c., were submitted for competition. Some few were of a rather elementary school-of-art-instruction kind, and showed none of the finish of the real advanced artist. The colours were laid on too thickly, and in some instances were what may be termed dauby. On the other hand, some were admirably done, notably a large round platter, painted by Miss A. Finch, of Wimbledon, but which was by the art connoisseurs, who acted as censors, put third. This artist had selected white Clematis flowers associated with foliage of one of the spring blooming kinds, and added autumn-tinted sprays of the foliage and vine of the Virginian Creeper; the combination naturally was incongruous, but artistically it was charming. The first prize went to Miss Matthews, of Richmond Hill, for a very faithfully depicted portrait of Lælia purpurata, stiff, but true, even the spots on the leaves of a badly grown plant being rendered. Mrs. Harry Turner, of Slough, worthily came second with a fine vase, upon which was beautifully depicted flowers and foliage of a mauve Clematis.—A. D.

NOTES FROM KNOWSLEY.

Orchids, notably Odontoglossums and other kinds that thrive best in a comparatively cool atmosphere, are cultivated here by hundreds. A lean-to house attached to a north wall would appear to suit them best, the staging or shelves facing the south, and as most of the species require but little space, quite a small house holds a large quantity of plants. A few good Cattleyas and other Orchids were blooming strongly in a mixed plant stove, conspicuous among them being a good plant of Oncidium crispum. This had formed a strong erect spike bearing about thirty-six large coppery red blooms, and was very handsome. No drying off is advisable with this useful Orchid, and, in common with several of the Oncidiums, it well repays any trouble taken with it. A small-flowering plant of Epidendrum radiatum quite scented the whole house, and is worthy of cultivation for that property alone.

Jasminum gracillimum.—A good many growers have failed to properly manage this lovely and most useful stove Jessamine, but at Knowsley no such difficulty has been experienced. One large plant of it trained over a balloon-shaped trellis is never out of flower, and its trusses of large pure white blossoms, expanded at the time of my visit, were stronger than with us. It delights in a rough peaty soil, and the less fibre there is in the lumps the more need of a plentiful admixture of charcoal and large crocks. The plant just mentioned is growing in a large, well-drained pot, and this would appear to answer better than small brick pits. Fragrant white flowers are always in demand, and those who have hitherto failed with this Jasmine ought yet to give it another trial.

Eucharis amazonica.—An extra large quantity of this is grown, and all are in a very healthy state. They are repotted rather oftener than many may think advisable, but this does not prevent their flowering as often as they do anywhere. It seems to me that if kept free of disease, and rooted in a fresh loamy mixture, no difficulty whatever would be experienced in flowering it when most wanted. It likes plenty of water when growing freely, but this must pass away readily, or many of the roots will perish. Here it is, I believe, repotted annually, and it is never dried off. Before flowering, rather less water is given than at other times, and this induces the formation of flower-spikes, which either an increase in the water supply or a slightly raised temperature fully develops. Many of the plants have been recently repotted, not necessarily shaken out and divided, this being practised only when the pots are getting too crowded with bulbs.

Table plants.—Large numbers of these are required, and abundance of very suitable plants are prepared for such purposes, amongst which many narrow-leaved Crotons, one of the best being C. interruptum aureum, are now in capital colour, yet the majority of them have been propagated quite recently. Strong, moderately firm tops are taken off and placed singly in small pots, then they are placed in a close, hot frame, where, if kept shaded from bright sunshine, they strike root in a very short time. They do not lose their lower leaves, and are therefore nearly large enough for table work directly they are rooted, but a small shift further improves them. The tops of Draccenas can be converted into handy little plants in a similar manner. The elegant Reidia glaucescens is much liked for table decoration, and when well grown it certainly is a most desirable plant for such purposes. Strong tops of this are also rooted in heat, and this is a much quicker and better way of securing serviceable plants than by raising them from root-cuttings, or even side-shoots. Pandanuses, Geonomas, Cocos Weddelliana, and other elegant Palms, Ferns in variety, and large quantities of the pretty close-growing Selaginella apoda are all prepared especially for house and table decoration, and are all in excellent order. They are not crowded amongst larger plants, but all receive fair play, and are in a presentable condition accordingly.

Greenhouse climbers.—There are few good gardens in the country where an attempt has not been made to grow Lapageria alba, but in very many cases the result has been anything but encouraging. It is a lovely flower, and ought to be in every conservatory or greenhouse in which climbers are grown. At Knowsley it is equally as vigorous as the red variety; in fact, the two are indistinguishable except when in bloom. Lapagerias are really shade-and-moisture-loving plants and should be treated as such, and not placed on a dry shelf and in full sunshine, as is too often done. Two years ago several were planted against the north wall of a cool house, the roots being confined to a narrow raised border, and already the wall is fairly well furnished, the young growths now forming being exceptionally strong. Another example, planted three years, now well covers a roof area 15 feet by 6 feet, and blooms most abundantly. This plant is rooting in a small brick pit. Lapagerias must have abundance of water at the roots, but anything approaching stagnation sours the soil and ruins the plants. Only the most fibrous portion of either peat or loam should be used, the two in about equal portions, and to this should be added a good sprinkling of charcoal, broken crocks, and half-inch bones. Lumps of sandstone also serve to keep the compost open and sweet. Lonicera semperflorens is rarely out of flower at Knowsley, and this also is worthy of more extensive cultivation. With us it is much liable to be infested with small green and black aphides, but here it is clean and healthy, although growing in the neighbourhood of decorative Pelargoniums and other conservatory plants. It is very elegant and showy, and particularly good in a cut state.

Justicia flavicoma.—It is not often that this old-fashioned greenhouse flowering plant is met with in good condition, but at Knowsley it is grown extensively and well. It produces its bright yellow plumes or spikes of bloom for at least four months during the very dullest part of the year in an ordinary greenhouse temperature. Cuttings of young wood strike freely in heat, and these after being stopped once or twice make neat plants the first season, but are more useful the second year. At present the whole batch of plants is growing freely in frames, where they will remain till late in the autumn.

Cannas. In this country these are not largely cultivated for the sake of their flowers, but at Knowsley they are employed extensively in the conservatories. They appear to be particularly well adapted for mixing among Camellias, Palms, Ferns, and other flowering and fine-foliaged plants; either planted out in large beds or grouped on the ground level, Cannas are not to be despised as fine-foliaged plants, but some of the newer varieties introduced by Continental nurserymen also flower freely and continuously for several months, the spikes being strong and branching, while the Gladioli-like flowers are large and handsome. C. Noutini with rich crimson blossoms is the best I have yet seen, and C. Ehemanni is also very fine. The latter has Musa-like foliage and deep crimson flowers, while C. grandiflora picta with yellow flowers is also effective. To these several other new sorts may well be added, and even some of the older varieties grown for open border decoration may be given a trial. They pot up safely from the open borders, and in an ordinary conservatory temperature will flower for several months. They delight in a rich loamy soil and require plenty of moisture at the roots.

Ivy-leaved Pelargoniums.—We are often informed that these are particularly well adapted for hanging baskets, but we rarely meet with them in good condition. At Knowsley not only are baskets well covered with their growth, but the suspending wires are also beautifully furnished with them; and a series of baskets in full bloom hanging round one compartment of the conservatory proves most attractive. All are semi-double sorts, which never fail to bloom well when given plenty of light and air. Under these is a good assortment of noble conservatory plants.

Foxgloves in shrubberies.—A long walk leading from the mansion to the lake was at one time most monotonous, but near this has been placed at intervals large beds, and these are planted with a great variety of handsome, rare deciduous and evergreen shrubs, amongst which are interspersed Foxgloves, and very effective they now are. Seedlings raised early this year grow into strong flowering plants for the following year, and with a very little trouble they are thus made to beautify the shrubberies.

Grape-growing.—Of Grapes a supply is maintained all the year round, and several well-designed vineries as well as some that are very old-fashioned are devoted to their production. In one of the earliest houses Black Hamburgh and Foster's Seedling are bearing grand crops, both bunches and berries being good and well finished. Muscat of Alexandria, Alicante, Lady Downes, Gros Maroc, and Madresfield Court are the sorts principally grown for the later supplies. For bottling, Lady Downes is the favourite, and for this purpose rather small, well-thinned bunches of this firm, long-keeping sort, as well as of other late varieties, are much the best. All at different times have undergone a renovating process in preference to a complete change of both border and Vines. Those that last autumn had their roots lifted to within about 3 feet of the stems and relaid in a nearly fresh compost are cropped lightly this season, and have formed remarkably good wood, which should produce extra fine crops next year. Where the sorts are worth preserving this plan of thoroughly renovating Vines both at the roots and top is preferable to a complete clearance followed by the formation of new borders and the planting of young Vines. It is much the cheapest, and by no other plan can a whole house of Grapes be so quickly and simply secured. If done properly early in the autumn while the foliage is green and sound, a light crop may safely be taken from them the following year, and a full crop the next. The best of borders and the best of Vines wear out in time, and Mr. Harrison's method of renovating just recorded should

commend itself to other Grape growers who find their crops falling off both in weight and quality.

THE PEACH AND NECTARINE trees at Knowsley are the largest and best I have yet seen. There are several fine Peach houses, and throughout the trees are good, and the crops, where still ungathered, perfect in every respect. Every year the whole of the trees are partially or wholly lifted, commencing with the earliest some time in August, and finishing all before the leaves lose vitality. Being an annual proceeding, the trees do not receive a very severe check, as all are furnished with abundance of fibrous roots about the reserved balls, or say at about 4 feet from the stems, more or less according to the size of the trees operated upon. Very little fresh soil is added to the borders, the principal motive for lifting being to loosen the soil, though the operation is accompanied by other good results. It may seem strange to advocate looseness of soil for Peach and Nectarine trees, but Mr. Harrison is of opinion that when a border becomes close and hard it cannot be sufficiently moistened to meet the demands made on it by the roots—it becomes impervious, in fact, to both air and water; whereas a loosened border absorbs moisture readily, including fertilisers. The lifting of Peach trees annually is new to me, but the results fully bear out what has been said about its efficacy. Grossness is nowhere apparent, yet some of the young growths are a yard long or more, and the foliage is remarkably good. One of the finest trees, a Violette Hâtive Peach, occupies a trellis space fully 24 feet by 14 feet, and several others are nearly as large, all being well furnished throughout. A seedling Peach placed nearly three years ago where it is now growing covers a space 14 feet by 14 feet, and would, if permitted, soon fill a large house.

FIGS AND OTHER FRUITS.—A range of lofty and wide lean-to houses is devoted to the culture of Cherries, Plums, and Figs. The bulk of the trees are bush-shaped, and these are kept clear of each other, all perfecting heavy crops of good fruit. One house of Cherries had been cleared, but the trees in the next compartment presented a most beautiful appearance. Under good treatment failures never occur, and what is more tempting than a handsome dish of choice Cherries? There are also numbers of bush-shaped Fig trees which are always fruitful. Given a roomy house and a fair amount of space, these bushes are more profitable than trees trained either on the roof or up the back walls.

YOUNG CARROTS AND WATERCRESSES.—I have linked these together simply because they are both cultivated in one quiet corner. A long row of frames is first cropped with early Potatoes, and as these are cleared off the frames are sown with French Horn Carrots, the latest being now just coming up. Watercresses are cultivated here in ordinary frames, and at the present time these present a rather seedy appearance. A short time before the Cresses are wanted in the autumn the beds are taken in hand, and a cleaning over and a good soaking of water quickly put new life into the plants. Any fairly rich soil will grow them, and they like plenty of moisture at the roots, but there is no necessity for them to be constantly in water. In these frames the Cresses grow quickly, are perfectly clean, and are most tender. They can be easily raised from tops, root cuttings, or seeds, and there is no reason why every private establishment in the country should not be well supplied with Watercresses, even although there is no running water in which to grow them.

W. I.

Choice bulbous plants.—A gathering of flowers of various bulbous plants sent to us by the New Plant and Bulb Company, of Colchester, includes the uncommon little Gladiolus biflorus, not showy, but interesting; the Fire-cracker bulb, Brodiæa coccinea, a really showy plant, easily grown, and quite hardy in light soils in the south; B. ixioides, with heads of small yellow flowers, not a plant for general culture; Calochortus venustus citrinus, a most lovely Butterfly Tulip with bright golden yellow cups 3 inches across and blotched with brown; Sparaxis grandiflora varieties, all beautiful and worth growing in a frame or pots for the greenhouse; Ixia conica, bright yellow, blackish centre; Babiana rubro-cyanea and B. disticha, both excellent bulbs, especially the former.

WORK DONE IN WEEK ENDING JULY 20.

JULY 14 AND 15.

SUNNY and drying, and the half-inch of rain that fell but a couple of days ago seems to have done little good other than affording a day's rest from the labour of watering, which work we have still to continue. Wall fruits and recent plantings of winter Greens, Broccoli, and transplanted Lettuce have already had renewed soakings of water applied with garden hose, besides which, and the gathering of small fruits for preserving, little other outside work has been done. There is little change as regards work in the houses; watering and syringing form the great bulk of our daily labours, the little intervening time being made out in keeping Chrysanthemums tied to their supports, layering Strawberries, potting on Poinsettias, Primulas, and Cinerarias, putting in cuttings of Pinks, Carnations, and Roses, and thinning shoots in Peach houses; only sufficient is left for next year's fruit-bearing, and being thus exposed to full light and sunshine thorough maturity is a certainty.

JULY 16 AND 17.

The heat is still great, and the rain, too, in districts near us, but none comes here; hence we keep on watering and plodding away at such work as hoeing and carthing up of Brussels Sprouts and French Beans, and staking late lots of Peas, and cleaning up and cutting the Grass edgings of coach roads, and cutting back overhanging Laurels, Rhododendrons, and branches of trees that are getting too low for the safety of drivers. Pegging out plants in flower beds, and spreading out Sedums and other groundwork plants in coloured foliage arrangements by a gentle pressure with the hands. The growth of all plants is this season most satisfactory, and for once we seem likely to have summer bedding plants in perfection by the end of July. Herbaceous flowering plants have long been so, but their beauty is now waning, but in their place we have now beginning to flower Stocks, Asters, Zinnias, Salpiglossis, Scabious, seedling Verbenas, Petunias, annual Chrysanthemums, Everlastings, &c. Roses we have cleared of all faded flowers, and thoroughly drenched both plants and soil, which will help to start them into new growth and early autumn blooming; some of the longest shoots have been partly cut back and others pegged down to fill out blank or thinly furnished places in the beds. Completed the layering of Strawberries, and those first layered are already sufficiently rooted to be severed from the parent plants, but the work will be postponed till we get rain or a dull time, as exposure to heat when first cut off would so check growth as to take several days to repair the damage. The sun is so scorching that we have again had to apply shading to vineries and to all Pines, as even the most robust plants are getting browned. Scalding of berries has begun on Lady Downes Vines, and preventive measures have been taken to stop it; abundant ventilation night and day, a little fire-heat by night, and but slight atmospheric moisture never fail in staying the injury in this direction. Other work has been of a routine description.

JULY 19 AND 20.

Another 0·42 in. of rain on the evening of the 19th has revived everything, and we have on this latter date been busy planting out the remainder of Broccoli; thinning out Parsley, French Beans, Lettuce, and Endive, and cut the first-layered Strawberries away from the parent plants, and which for the present are stood closely together in a half shaded position. Our oldest plot of Strawberries we have cleared off with spades, and after drawing drills between the lines where once grew the Strawberry plants we have planted out Autumn Giant Cauliflower, Snow's Winter White Broccoli, and late Savoys. Pulled up Shallots and Garlic, and on ground lately occupied by them sowed Endive, early Cabbage, and Coleworts. On the first-named date all hands were employed with Pines, some potting and top-dressing; others clearing out the plunging material, and adding to it fresh leaves and litter, the walls meanwhile having been given a coating of limewash. There is a quantity of Queens in flower, and, warm as it was, we thought it wisdom not to let them be exposed to the air whilst the clearing out of beds and limewashing of pits were going on, and therefore they were stood in vineries till needed for plunging in beds. Fruit near the ripening stage we have put in the warmest vineries to complete their ripening; thus our arrangement of plants in Pine pits will not be interfered with for a considerable time. Other work has been the same as for some days past.

HANTS.

FRUITS UNDER GLASS.

FRUITING PINES.

THE weather of late having been favourable to liberal ventilation and closing at a high temperature from solar heat alone, the frequent use of stimulating liquids will have told upon the fruit without forcing the crowns into an elongated growth, as is too often the case in dark, dull seasons. When Pines are deeply plunged in fermenting beds of tan or moist leaves, their succulent nature does not render frequent waterings necessary; but when the roots do require feeding, mild stimulants, including clear diluted liquid guano and occasionally a dash of soot water, should be given in sufficient quantity to thoroughly moisten every particle of soil quite down to the crock roots. The time generally devoted to watering is the hour preceding closing for the day, as the ammonia from the stimulants used is then confined in the structure, when the fruit and foliage as well as the roots receive the greatest possible benefit throughout the night. On fine, bright non-watering evenings the atmosphere should be charged with ammonia by syringing a little warm liquid into the axils of the lower leaves and over the surface of the bed, care being observed that the spray does not reach the fruit. Overhead syringing or dewing at closing time with pure soft water will also be necessary; but this should fall very light, as getting the plants too wet about the collar is no difficult matter even at this season. When the fruit begins to show signs of changing colour, remove the plants, if in pots, to a drier and cooler house—a vinery, for instance, in which ripe Grapes are hanging—where they will ripen gradually and keep for a long time if not wanted for immediate use. Queens ripened in this way will keep good for three weeks, and Smooth Cayennes nearly double that length of time.

Successions.—If any of the plants intended for starting early in the spring have not received the final shift, they should be taken in hand as soon as the state of their roots will admit. Of two evils, over or under-potting, the last is the least; therefore lest any of them should persist in growing when they ought to be partially resting, it will be safe practice to err on the side of small pots, which they can fill with roots before the end of the year. Give established plants plenty of room, and gradually inure them to as much sun and light as they can stand without becoming too brown in the foliage. Ventilate freely to keep them dwarf, broad, and fleshy in the leaf, and supply mild stimulants as often as the pot-bound roots require feeding. Where the good old Black Jamaica is still grown for winter use, extra small pots well crowded with roots always furnish the finest fruit. Pots 9 inches in diameter are quite large enough, and enjoying, as the plants do, an abundance of bottom heat and light, they should always be plunged in the hottest and driest part of the house. Remove the strongest suckers from old stools and pot them at once in 7-inch pots.

Use the soil rather dry and rough, ram well with the potting stick, and plunge to the rims in a bottom heat ranging from 85° to 90°. When plunged, give a little warm water to settle the soil. Keep them rather close in a pit or frame in preference to a large house, and shade for a few hours on bright days. If the plunging material is moist, no more water will be needed until the suckers are rooted, but a light dewing overhead and damping the sides of the frame as well as the surface of the bed will be necessary on bright afternoons at closing time. Stools of the true Smooth Cayenne, always shy, can often be induced to throw a few suckers from latent buds if shaken out and laid in in a bed of warm fermenting leaves, or, divested of all their foliage and buried as close as they will lie together in shallow boxes filled up with sandy soil, peat, or leaf-mould, a fair percentage of the buds will start and grow into useful stock for potting off in the spring.

Melons

have had a good time of late, and the rapid growth of vine and foliage under a bright sun has favoured the quick development of clean, handsome fruit. When Melon plants grow quickly and set freely insect pests do not make much headway, but it is well to be always on the alert, as green fly spreads rapidly through the early stages, and spider soon destroys the lower leaves when the plants begin to feel the strain of the crop. Smoking if possible should be avoided, but prevention being better than severe remedies, the appearance of the first fly should be the signal for fumigation in a very mild form. When smoking has been decided upon the house should be freely ventilated and kept open rather later than usual to ensure the foliage and atmosphere being perfectly free from moisture and as cool as may be consistent with safety. Reduced to this state, a very light volume of smoke will stupify the insects, and good syringing with clean soft water before the sun strikes the roof the following morning will cleanse the foliage and render heavy shading unnecessary. The best preventive of or remedy for spider is good syringing with pure water every fine evening until the fruit has attained its full size, liberal feeding during the time it is swelling, plenty of fresh air and early closing with sun in preference to fire heat. Another important point is the preservation of all the old leaves from the base of the pots or bed upwards, and a liberal allowance for settling after the vines have taken to the trellis. Some houses, it is true, are pronounced subject to canker, and syringing is suspended; but in nine cases out of ten it will be found that ventilation on the level of the bed has been overlooked, the thick fleshy leaves have been mutilated, or the settling of the bed has tightened the main stems to the tension of fiddle strings. One of these defects is quite potent enough to produce an attack of canker, but when all three are in full force, it would be matter for surprise if some of the plants did not suddenly collapse, or ripen their foliage before the fruit was fit for table.

Late Melons.—Young plants raised in accordance with my last remarks will now be taking to the trellis, over which, aided by fermenting leaves, they will travel rapidly. If in pots they will most likely show and set plenty of fruit before they reach the extremity, otherwise constant pinching and keeping the roots slightly on the dry side will soon produce the desired effect. Two to three fruits to each pot plant will be found quite sufficient, and these should be of uniform size at the outset, to insure their swelling away evenly together. When the size of pigeons' eggs, top-dress with fresh loam and bone dust, water copiously with diluted liquid, shut up and syringe in time for the temperature to touch 90°. Plants from which the latest crop of fruit is to be cut should always be grown in pots, or on very small hills placed immediately over the hot-water pipes, from which they will derive great benefit through September and October. For the present, fermenting material, consisting of leaves and a little short stable manure, will produce a moist genial heat which will rush them on rapidly, and insect pests will hardly put in an appearance.

Pits and frames.—One of the great secrets of success in the management of the frame ground is the performance of every operation at the proper time. Earthing up, for instance, should be completed as soon as the young vines have started away freely and the roots begin to creep through the sides of the hills. If the latter are in a moist growing state from a preliminary watering, rather dry soil which will stand firm ramming may be kept sufficiently moist by daily syringing until the new roots begin to work through it, when tepid water in moderation will produce fine wiry growths, whose first break of laterals can hardly fail to set a plentiful crop of fruit.

The Cherry House.

If the long spell of hot dry weather did not necessitate the removal of the roof lights from the Cherry house proper, they should now be taken off to give the trees the benefit of cool refreshing dew and summer rains. Water in moderation must be given to the borders, and the latter should be well mulched with manure, rich or poor, to keep in moisture and prevent the roots and foliage from ripening prematurely. Cleanliness and freedom from spider are, of course, important factors, as the annual forcing of an excitable tree like the Cherry produces a tendency to autumn flowering. These, then, must be secured at any cost by a liberal use of the hose after sunset, or an occasional washing with soapsuds from the laundry. If any of the pot trees require a shift, this is a good time to take them in hand. The compost which suits them best is sound calcareous loam, rather inclining to heavy than light, but where this cannot be obtained lighter soils can be corrected by the addition of marl, burnt clay, and old lime rubble. The principal points to be observed are well-moistened balls, good drainage in clean dry pots, and firm ramming to prevent the possibility of the escape of water. If the trees can be kept under glass for a fortnight where they can have slight shade and daily syringing the roots will soon take to the new soil, when they will be fit for plunging in the open air for the remainder of the season. Trees which do not require repotting should be taken out of the house as they are cleared of fruit, well washed with the hose, and while lying on their sides examined to ascertain that the drainage apertures are not clogged. These also may be plunged in the soil to keep the roots cool and moist as well as to economise watering, and old trees crowded with spur wood will take no harm from a surface covering of rotten manure.

Early Plums

from which the fruit has been gathered may be treated precisely the same as Cherries not only through the autumn and winter, but quite up to the flowering period next spring. When pot Plums become aged they make very little wood which requires pinching; consequently the spurs increase and require annual thinning. The dormant season is generally considered best for this operation, but I prefer thinning as soon as the fruit is gathered, as the spurs left then have the benefit of exposure to sun and air and the flower buds fill up and ripen well. When early and mid-season sorts have been removed, the late varieties, which have not been allowed to root into the borders, can be re-arranged, top-dressed, and well fed until the fruit is properly coloured. Then, if kept moderately moist at the root, in a dry atmosphere and safe from birds, Golden Drop and some others will hang for a long time and improve in quality.

Strawberries.

If runners that were pegged down on the fruiting pots early in the season are still attached, all that have made good progress should be removed forthwith to their ripening quarters. It is not a good plan to detach them too soon, as they derive great assistance from the parent stools, but unless they are quite clear of shade and convenient to water, strong growth will be no advantage where perfect maturation of the crowns is doubtful. The station for these plants should be high and dry, fully exposed to sun and light and worm-proof. We sometimes see long rows of plants placed near the margins of garden walks, and very nice they look, but gravel kept constantly moist by frequent waterings soon becomes infested with worms, ever on the outlook for good living. This all good Strawberry composts contain, and soon they will pass the slight barrier of soot placed over the crocks, unless measures are taken to circumvent them. An occasional soaking with soot or lime water will most likely have the desired effect, but the best way to escape these enemies is to avoid them by placing the pots on blocks on properly prepared stations. When arranged with plenty of room for the air to pass through the lines of pots and the foliage to assume its flat natural habit of growth, they must be kept free from weeds and runners. In course of time, a general turn over to give them still more room and prevent the crock roots from striking into the bed of ashes or gravel will be necessary; indeed, where time admits, the more frequent the change of position, not only of Strawberries, but of all other pot plants, the better. Watering is, of course, a very important operation, as Strawberries are great lovers of moisture, and should never feel the want of water from the beginning to the finish. This element, then, must be given with a liberal, but careful, hand—never in driblets, but thoroughly and effectually when needful, and as often as the state of the weather renders necessary. Evening watering, after the sun has gone down, answers best through July and August, and the watering pot is more suitable than the hose, as wetting the foliage in hot weather can be avoided.

Eastnor Castle, Ledbury. W. Coleman.

Fruit Garden.

GOOD STRAWBERRIES.

With new varieties of Strawberries, as with most other fruits, the general tendency for a long time has been to attach importance to size, and weight of crop, rather than to good edible properties. If a new variety is raised that produces fruit unusually big and good looking, it comes out with a glowing description. Numbers of people are tempted to procure it; the fact of its being new is sufficient, even after it is tried, to cause many for a time to overlook what defects it may have. Strawberries being so easily raised and taking so little time to come to a bearing state, coupled with the rapid rate at which they increase, have resulted in the numbers of acid, flavourless varieties that now abound. The descriptions that are usually given of much the greater number of the sorts now grown, and which in reality have nothing except appearance to commend them, are that they are pleasantly acid, brisk in flavour, and the like. When anyone names a new Strawberry to me, I ask, is it sweet when fully ripe? As they now exist we have a great deal too many varieties that require sugar when eaten, which, in my estimation, is sufficient to condemn them, as most of the natural flavour is thereby destroyed, and though tastes differ in the case of this, as in that of other fruits, most people that I have met with who have had sufficient opportunity of judging of the merits of fully ripe fruit of good kinds think as I think. A Strawberry that needs sugar is not worth growing for anything, except cooking. Unfortunately with Strawberries, as with most other fruits, good varieties are less easily grown than inferior ones. Strawberries are more affected by the nature of the soil than most fruits, particularly the best sorts, which are less able to thrive and bear well in all sorts of soil than most things. Take, for instance, British Queen—the variety *par excellence*; it is not nearly so accommodating as the generality of kinds. Proverbial as Strawberries are for liking strong heavy soil, this variety seems to be least able to thrive where the soil is light, unless in the case of land that is newly broken up. In such the Queen will usually be

found to answer for some years, provided it is replanted as often as required. But it is only for a limited time that it will succeed in light land, the plants beginning to die off, and those that live not bearing as they should; whereas if the soil is heavy enough—the heavier the better—it will continue to thrive and bear well. In this locality the soil is a heavy tenacious yellow clay, that when newly dug, even after being broken up for many years, looks more like earth about to be prepared for the brick-maker than anything else. As an evidence of how the variety named will continue to answer in such land, I may mention a field in the hands of a market grower that has been eighteen years occupied by this sort with no change of crop, the old plants being destroyed when they showed signs of weakness, the ground re-trenched and again planted. In another field near the one just mentioned, after being broken up from Grass, the first lot of plants put in stood for eleven years before they were renewed, and, needless to say, those who grow for market do not indulge in fancies or put off clearing away anything that has become unprofitable.

From the time that the British Queen became fairly known I always grew it, in old gardens where the soils varied from light sandy loam to such as was of a black description, approaching to peat, and never until I came to this part in soil that was naturally suited to Strawberries. Yet we continually hear people saying that they have been obliged to give up growing this finest of all Strawberries on account of its refusing to thrive, and not unusually complaining that other sorts that at one time answered well do but very indifferently. The fact is that, except where the land is not more than ordinarily heavy and adapted for Strawberries, new material must be added if the Queen and others of the best sorts are to answer as they should do. What I have used was marl where I could get it, and where not, clay. There are few places where the latter cannot be had at little cost in sufficient quantity for the requirements of Strawberry growing in private gardens, and clay is so little inferior to marl in its effects on the soil in old gardens, that it is not worth while incurring much expense in procuring marl. Five or six inches of clay should be laid on the surface, either in winter or before the plantations are made, and allowed to lie until it has become mellowed by the weather; then the March winds or summer's sun, followed by a little rain, will soon pulverise it sufficiently, when it should be forked in and mixed with 6 in. or 8 in. of the top soil. Before the clay is put on, the ground should be dug deeply, putting in a good dressing of manure. At the same time, the fact of Strawberries liking heavy land points to the necessity of their having the soil made solid; this will be best done by treading the surface before planting until it is close and hard. A dry time must be chosen for this as well as digging in the clay, otherwise, instead of its mixing evenly with the soil, it will lie in large soft lumps that the roots of the plants will not enter so freely as they should do. Those who have not tried, or have not had an opportunity of seeing what can be done in growing Strawberries in old gardens, where the soil is light, by clay dressings, may rest assured that the little cost and labour involved will be repaid to an extent that they could not have looked for. I may, however, say that it would not be reasonable to expect that a dressing of this kind will enable a plantation to last so long as it would do in land that was naturally heavy. Three years will usually be found long enough to allow the plants to remain, when they may be cleared off and the ground replanted after being re-dug, but not deeply, unless more clay is added, or that which is already present will get down too deep to be within reach of the best roots. It is scarcely necessary to say that in light, hardworn soil, such as that under notice, it is good practice, each time a new plantation is to be made, to prepare a fresh piece of ground in the way advised. By this means a garden in time can be renovated in a manner that will effect a marked improvement in other crops as well as Strawberries. In dry summers Strawberries suffer in light land unless means are taken to water them. Where the leaves flag from want of moisture, as is sometimes seen, it is not to be wondered at that the plants go off where the soil is light and has been subjected to a long course of cropping.

Those who grow Strawberries for market give preference to the kinds that have big, good-looking fruits and that are the freest growers and heaviest croppers. In addition to this the fruit must be hard in texture, so as to bear packing and carriage without bruising. Needless to say, these properties are much seldomer present in sweet, high-flavoured varieties than in the coarser acid sorts. Those who do not grow their own Strawberries, and consequently have to procure such as they require from the ordinary sources, may be said never to taste the fruit in the condition it should be in, as, even if the varieties obtained are good, the fruit is gathered before the full amount of flavour and sweetness natural to it is present, and which it only acquires in the last stages of ripening. When Strawberries have arrived at this state they are too soft, and too near the stage when decay begins to be of any use to retailers.—T. B.

Strawberries for Forcing.

Opinions differ as to whether it is best to grow Strawberries for forcing in large or small pots, but, according to my experience, pots of fairly large size are better than small ones. I do not object to 5-inch pots for the earliest crop, which ripens at a time when there is not much solar heat to dry up the soil, but unless there is an unlimited supply of labour it is better to have larger pots; they hold a greater amount of soil, and consequently do not require watering so often as pots of smaller size. These are considerations which should influence the cultivator according to the circumstances under which he is placed; for the most part, growers who advocate the use of small pots are those who do not find any serious difficulty in keeping them well supplied with water during the trying months of April and May. Those who want large fruit and desire to keep their houses clear of red spider should use 6½-inch or 7-inch pots, and should put two plants in each pot unless they can comfortably command sufficient labour to keep the watering-pot going. We had a number of plants fruiting in 4½-inch pots in May last, and although in bright weather they were watered twice a day, the number of fruit which they bore was not in proportion to the amount of labour involved compared with those in pots 2 inches larger and with two plants in each pot. We are now engaged in preparing our stock for next season's forcing, and are only using 6½-inch and 7-inch pots. Instead of putting the plants in the centre of the pot we put them on one side, about 2 inches apart, so that when in fruit the trusses may hang over towards the light.—J. C. C.

Different sorts of Strawberries.

I have sent you a collection of Strawberries, some of the varieties of which are neither so well known nor so generally cultivated as they ought to be. Some of the earlier well-known kinds are past their best. Just now we have Crimson Queen, Dr. Hogg, Unser Fritz, and John Powell at their best. I place the fourteen kinds cultivated at Gunton thus as to ripening, viz.: Mr. Radclyffe, Sir J. Paxton, Vicomtesse Héricart de Thury, Countess, and President, followed by Auguste Nicaise, James Veitch, and the Comte de Paris, the rear being brought up by Amateur, British Queen, Sir C. Napier, Dr. Hogg, John Powell, Unser Fritz, and Crimson Queen. The varieties just enumerated are all so good, that I should scarcely know which to discard if called upon to do so, every one of them being prized either for size, colour, or flavour. As to the last, which is to many the most important desideratum, I would place, first, Vicomtesse Héricart de Thury, Mr. Radclyffe, President, Sir J. Paxton, Countess, British Queen, and Dr. Hogg in their order of ripening. If one would keep up the fruitfulness of one's Strawberry plantations, it seems a mistake to layer young plants from any but those full of fruit. Blind plants generally give the strongest runners and should be avoided. When I first cultivated James Veitch, 50 per cent. were blind or barren; while, from observing the above rule, out of a hundred plants this year I have only noticed one barren. I would also suggest to those who have failed with British Queen, from the soil having proved to be too light, to try the following: clay, dried and reduced to powder, and then applied as a top-dressing to the quarter or piece of ground intended for its cultivation. I have found most beneficial results from this practice, British Queen and Dr. Hogg fruiting as freely under such circumstances as other varieties, whilst formerly they proved to be very shy croppers. Our Strawberry crop this season has been unusually fine. Of fruits of James Veitch and President, the first weighed 3 ozs. and the last 2 ozs. each. Through mulching when in flower, and giving a good soaking of water before the nets are put on, they have not suffered from drought. I ought to have stated earlier that Mr. Radclyffe and Countess are nearly over, and that the fruits sent are only one-third the size of those of the first picking. These two Strawberries are not much grown, but they, nevertheless, deserve a place in every collection where earliness, colour, and flavour are desiderata.—Wm. Allan, *Gunton Park, Norwich.*

*** Mr. Allan sends us a most interesting contribution to the Strawberry discussion in the form of some fine specimens of kinds little known, for which we thank him very much. Like all his things, they show cultivation of quite an exceptional order. We have never seen more remarkable or more perfectly ripened fruit. Mr. Radclyffe is not a large fruit, but possesses a pleasant and distinct flavour. Auguste Nicaise was not so ripe as the other samples, and therefore we could not judge of it fairly. Countess is very well coloured, moderate in size, fairly well flavoured, with not much acid. James Veitch is large and fine, but in this case flat and dead in flavour. Dr. Hogg is large, almost a monstrous fruit, angular in form, and though occasionally with an agreeable acid, has an unpleasant after-flavour. John Powell is a big well-coloured fruit, rather monstrous, but decidedly not well flavoured—a somewhat unpleasant acid. Crimson Queen is highly coloured and large, with a pleasant flavour, and without the subtle acid noted in some of the other kinds. Unser Fritz is well coloured, well grown, large and wedge-shaped, rarely monstrous. The flavour of this is decidedly on the good side, with the faintest suspicion of after-flavour; on the whole, it is a kind which we should like to taste when quite fresh and compare with others, though it seemed not quite so good in flavour as Crimson Queen, which we happened to taste before it. Lastly, comes the British Queen, which, though a little past its best, consists of the finest specimens that we have seen this year. Mr. Allan's hint on the cultivation of this will be most valuable. Every gardener should try all he knows to grow the British Queen. It is the best of all Strawberries, and it is useless to say anything about its high flavour, which can only be known to those who get it in good condition. If our powers were extensive enough, we should set all those who are spoiling the Tomato by raising new and monstrous varieties, sending out what they call seedling Melons, one worse than the other in flavour, and crossing the distinct delicate little Brussels Sprout with the flat Dutch Cabbage, to raise a few Strawberries as worthy of English gardens as the British Queen. The fact is, the monotony of the common market Strawberry is intolerable and the flavour poor. If we cannot go forward to better things let us go back a bit towards the varieties that are even possible to us with our present knowledge of Strawberries. The little despised Four Seasons Strawberry, so seldom grown, has a better flavour than most of those commonly grown for market.—Ed.

Loxford Hall Seedling Strawberry.

Mr. Walker sends from Dunorlan some notes on Strawberries, and at the same time some speci-

mens of the Loxford Hall Seedling, not in quite such good condition as those referred to above. The fruit seems to be seedy, but on the whole we think distinctly an advance in flavour, and well worthy of trial. If one gets delicate and good flavour, little defects, such as green points, are not of much account. The British Queen itself has a greenish point.—Ed.

PEACH BUDS DROPPING.

Anyone who has watched the behaviour of Peach trees in different soils and climates will have noticed that there are other conditions besides dryness at the root during winter that cause buds to drop just as they are on the point of opening, and an observant cultivator will have no difficulty in assigning one cause at least to be a rich border, and its attendant results in the shape of gross wood, which scarcely ever gets ripened. From such wood buds invariably drop. How, therefore, to prevent this grossness in the wood should be the aim of every Peach grower. It is well to remember, too, that vigorous immature wood is more liable to be injured by severe frost than smaller growth that has been properly ripened. There is, therefore, more than one reason why the condition of the roots, as indicated by the growth of the branches, should be carefully noted, and any undue luxuriance checked by timely attention. In the case of trees carrying good crops that are producing stronger wood than is desirable, some of the vigour may be taken out of them by allowing them to carry a greater number of fruit than would be allowed on weaker trees. The advantage of this will be manifest later in the season in a more even growth, and better ripened wood. Peach trees are sometimes encouraged to make too much growth through the application of rich mulchings. The latter should not be applied to young, vigorous trees. Old Peach trees are very different, especially if carrying a good crop. In that case, a rich mulch over the roots not only increases the size of the fruit, but assists in sustaining the vitality of the tree. It should be as much the business of the cultivator to nourish and take care of the branches that are to furnish the next season's crop as it is to take care of the fruit of the present year. Only by such a course can one hope to meet with uninterrupted success. In some gardens a too free use is made of liquid manure—*i.e.*, old and young trees are alike treated to regular supplies of it regardless of growth. Young trees occupying newly made borders are induced to grow much too vigorously, and owing to such growth being immature at the end of the year the buds are imperfectly nourished, and fall off just when they are expected to open. In dry, hot weather young trees may require root moisture as well as old ones, but the condition of the growth should decide whether it should be liquid manure or clear water. There is no more trying time for Peach trees on open walls than the month of August; many sorts during that month will have finished stoning, and the fruit will be swelling fast. It is at that time that there is the heaviest strain on the tree, and any assistance that can be given then in the shape of root moisture, or surface mulchings, should be given with no sparing hand. Much also may be done to help the trees by the judicious removal of weak and useless wood. In many cases short branches of last year's wood on which there are no fruits may be cut out, and the strongest of the young growths made to take their place. It is timely attentions of this kind which go far to secure success. Deep borders in which the soil is naturally strong have more to answer for when the buds of Peach trees drop than some are willing to acknowledge, especially in the early life of the trees. When the roots work deeply in a good soil, the growth is always stronger than when the soil is not so rich nor so deep, and for that reason judgment is required in the management of both roots and branches. I am far from advocating a poor medium for the roots; on the contrary, I prefer giving them 2 feet in depth of the best loam I can get, and this I like to get firm about them, and not to disturb them in any way afterwards; but a greater depth than 2 feet is not required for the production of medium-sized branches, and as regards strength of wood, that is all that should be aimed at in Peach culture. As regards root moisture, more trees suffer from want of it than from its excess in ordinary seasons. While borders are cropped with vegetables to within a foot or two of the trees (no uncommon occurrence) no one can feel surprised if the trees do not thrive satisfactorily, for it is impossible for the roots to get either the warmth or the moisture that they require. Under such circumstances if the buds do not fall off, they get so weak that they cannot stand the trying spring weather. Red spider is a serious enemy to Peach trees, and if allowed undisputed sway it not only injures the present season's crop, but the succeeding one; for if the leaves get much infested by it, they fall off prematurely; the consequence is, the bud to which they were attached does not become properly mature, and then it falls instead of opening. In the management of Peach trees it is not safe to wait until red spider appears before the remedy—syringing with water—is applied. "Prevention is better than cure," and if the trees are syringed on the evenings of fine days from the beginning of June onwards, red spider will not effect a lodgment, and buds falling from that cause will thus be prevented. J. C. C.

Ranunculus glacialis. Flowers yellow.

Reinette Abry Apple.—This is a local kind which appears to have originated in the neighbourhood of Montlignon. It is said to be exceptionally fertile, and the quality of the fruit, which is of moderate size, is stated to be excellent, the flesh being white, tender, juicy and very agreeably perfumed. The tree is a vigorous grower, but naturally assumes a compact form, and for that reason it is recommended to be employed where double grafting is necessary.—J. C. B.

ALPINE CROWFOOTS.

With the exception of the Primrose, perhaps no genus represented in our native flora is more familiar to us than the Buttercup, which is a good example of the Crowfoot family. The genus taken as a whole is an extensive one, being represented largely in nearly all temperate countries. The prevailing colour of the flowers is yellow, but there are also some good whites, of which R. alpestris may be taken as an illustration. Some are dwarf and creeping and well suited for rockeries; others are large and well adapted for flower borders and beds; under this head may be included the Persian Turbans, amongst which are some of our choicest flowers, and although rather difficult to manage successfully, we have nevertheless seen very creditable shows of them in many places, even in the neighbourhood of smoky London. Some also do well as bog plants, including that New Zealand wonder, R. Lyalli, which has flowered at Kew in a cool house, but we believe it also shows signs of blooming in the open air there. The water-section of the genus which inhabits our lakes and streams, and clothes them with sheets of white flowers during summer and autumn, is well worth the attention of all who have artificial waters. The species known as Bachelor's Buttons (R. aconitifolius) may be seen of various sizes in almost every cottage garden, as well as R. asiaticus, of which there are a few really handsome forms. The alpine section, including R. glacialis, the species here represented, is largely grown in our gardens, so much so that we could ill dispense with it in spring. The great difficulty with alpines generally, and Ranunculi in particular, is the want of pure air, a want of course most felt in the vicinity of large towns, and, what is just as important, keeping them in a comparatively dry state during winter. Choice of a position should be carefully made; the highest and driest fully exposed situation has proved to be the best. In the soil, which should be gritty, sand should predominate. Many alpine Ranunculi ripen seed with us, but the readiest way of increasing them is by division, which they stand to almost any extent. Autumn, after the leaves have become brown, is the best time for the operation. The divisions should be simply dibbled in at the required distances apart; care will, however, be needed in the case of R. glacialis; it forms finger-like tubers that are readily damaged. R. amplexicaulis is a very ornamental species, and a very desirable one; it grows about a foot high; the upper leaves, which are of a pretty glaucous colour, clasp the stem, which is surmounted by large delicate white flowers. It is a native of the Pyrenees and flowers in April and May. R. anemonoides, which is rather a new species and dwarf in habit, has finely divided leaves, which, forming as they do a dense tuft, are of themselves ornamental, and the flowers, which are produced freely, often measure over an inch in diameter. They are white tinged with purple or rose, and very handsome when

about to open. This species, which flowers in early spring, does well on rockwork in a light position in fine gritty soil. R. montanus is a well-known garden plant of dwarf growth, very easily managed, and well worth growing in large quantities. It has large yellow flowers and forms a good companion to the fine white-flowered R. alpestris. Amongst others may be named R. ophioglossifolius, parnassifolius, rutæfolius, and Thora. K.

Kitchen Garden.

POTATOES, EARLY AND LATE.

At present it is doubtful whether or not we shall secure very good crops of Potatoes. Many of the second early sorts especially are ripening prematurely, and the very latest, notably Magnum Bonum and Scotch Champion, are, as a rule, making poor progress. The weather at the commencement was very much against them, the ground being both wet and cold, and then before they had properly recovered a long spell of hot and dry weather completely stopped their growth. In our district we have not yet had sufficient rain to well soak the ground, and unless we get more soon the tubers generally will be much smaller than usual. In many cases the rain came too late to benefit early and second early varieties; in fact, it has done more harm than good, as where left undisturbed they commenced growing again, and two crops of tubers together is almost worse than disease, as they cannot be separated; nor are they really fit to eat. Our plan, and one which others should also adopt, is to anticipate the second growth, either by lifting or storing at once, or by drawing up the haulm—the former preferably, as, if they have already started, drawing up the haulm may not completely check the tendency to grow again. The worst offender in this respect is the Edgcote Purple. On examining the rows of this variety about three days after the rainfall on July 12, we found that the majority of the tubers had already sprouted badly. In the southern and midland counties I should say all early and second early Potatoes may now be safely lifted and stored for future use, as they are sufficiently ripe, and if left on the ground are both liable to become diseased and to form a second growth. According to my experience, Potatoes never were better in quality; even the soapy American varieties, including the old Early Rose, which some of the cottagers still cultivate, are fit to eat. Particularly good are the Ashleafs, and on the whole these are the most profitable; we have this season some of them even larger than we care to send to table, and all of them are cropping heavily. Where garden ground is of limited extent growers will do well to plant the Ashleaf varieties extensively; they require but little space, mature early, and keep well. We have had them of excellent quality at midwinter, and so convinced are we of their superiority that each season a larger piece of ground is planted with them than previously. True, they are more liable to disease than sorts with stronger haulms, but it frequently happens that they are ready for lifting before disease makes much progress. By early lifting we avoid the evil, and the ground is ready for being planted with Strawberries, Broccoli, Savoys, and winter greens, or for being sown with Turnips, Spinach, Endive, Lettuces, and other quick-growing vegetables.

Home-grown seed best.—Many advocate a change of seed, and in the case of the rounds and late sorts generally it may be an advantage, but I much prefer to save my own sets of the Ashleafs, as well as of Lapstone Kidney and any sorts resembling that good old Potato. Trade growers necessarily store in large heaps, and consequently the valuable first sprouts are spoiled, or if stored thinly they cannot, or do not, attempt to preserve the sprouts when packing the tubers. We always try to plant the kidneys just named with the strong central sprout intact, all others being rubbed off, and if this is not injured by frost an early and extra good crop is the result, while if damaged by frost it yet recovers, though a lighter crop is the consequence; this, however, is superior to that obtained by planting sproutless and previously weakened sets. My advice, therefore, is to save as many of the medium-sized tubers of the Ashleafs as can possibly be spared, or if these be scarce to buy at once while they are yet cheap and plentiful, and to store them thinly in boxes or on shelves in a light airy shed or room. No attempt to green them by laying them on the open ground for a few days should be made, as if disease is at all prevalent it may affect them, and, besides, nothing is gained by greening sets. If the old Ashleaf can be procured, that is the best for frames and early borders, and this season it has been remarkably good both as regards weight and quality, but this good old sort is not fit for use long after it is lifted. The next best for frames, warm borders, and open quarters is Veitch's Improved Ashleaf, and of this well-known sort we have lifted six sacks of tubers for use and seed purposes. Myatt's Ashleaf is usually a heavier cropper than the last named, but this season the tubers are somewhat smaller. They are, however, still quite large enough, as we always prefer medium-sized tubers of any variety to large ones, unless they are to be baked. If the true Myatt's Ashleaf is obtained it is sure to give satisfaction; both this and the old Ashleaf have been cultivated in a large garden near here without a change of seed for fourteen years, and the crops are as heavy and good as ever. According to my experience, Mona's Pride and Veitch's Improved are synonymous, but an experienced cultivator assures me that they are quite distinct. Mona's Pride is a great favourite with him. Of early rounds I prefer Early Border; this forms but little haulm, and produces a good crop of handsome tubers of excellent quality. Sutton's Early Regent, as a successional variety, is also worth cultivating, as it matures early and the tubers are of extra good quality. The Dean, a round purple-skinned kind, grown for the first time this season, is cropping heavily, and the tubers are very handsome. Amongst new sorts it is one of the most promising, and if it proves of good quality it should be grown extensively. The well-known Reading Russet has also done remarkably well, and we have abundance of handsome tubers of it fit for exhibition. Lapstone, Cosmopolitan, Welford Park, and Woodstock Kidneys are all clean and good this season, and if our later sorts turn out equally well we shall have no reason to complain.

Successional crops.—Our late varieties of Potatoes are cultivated principally outside the walls, and are liable to be attacked by all sorts of game and vermin; only the early and second early sorts occupy ground that has to be cropped a second time in the same season. The Ashleafs are in rows 3 feet apart, and between some of the rows are planted Broccoli of different sorts, while the stronger growers just mentioned are given another 6 inches between the rows. Between the latter also we plant winter produce, principally Broccoli, and directly the Potatoes are lifted, if the weather is dry, the Broccoli receive a soaking of water (liquid manure might be given with advantage on poorer ground than ours), and they are then heavily moulded up, which serves to preserve the moisture and to steady the plants. Then, as the Broccoli do not require all the space, the ground previously occupied by Potatoes is planted with a row of either early Savoys or Coleworts. These, as well as the Broccoli, derive much benefit from a sprinkling of superphosphate, which was given to the Potatoes when planted, and which has not been much exhausted. Our successional crops are really of more value than the Potatoes, but they take more out of the ground, and this fact must not be overlooked by those who are anxious to maintain their garden in a fertile, and therefore profitable, state. Where it is intended to follow early Potatoes with a new Strawberry plantation, all that is necessary is to level the ground as the crops are lifted, breaking it up finely and clearing off all rubbish. Then if the ground is well trampled, shallow drills can be drawn, which may be filled with water if the ground is dry and "nubbly," and in the course of a few hours the plants may be planted firmly and properly. This will be found a better plan than manuring and deep digging at this time of year, as what manure the Strawberries eventually require may be given in the form of mulchings and top-dressings. Ground just cleared of Potatoes is usually very dry, and when sown with seeds of Turnips, Lettuces, Endive, and Spinach, much time will be gained by well watering the drills prior to sowing the seed. This insures a good even start, and is much preferable to watering after the seed is covered.

Somerset. W. I. M.

WINTER SPINACH.

Next to a good breadth of Brussels Sprouts for furnishing a supply of green vegetables during winter is a corresponding space devoted to winter Spinach. For this an open position is desirable, as drip from trees is very injurious to it in winter; a moderately rich and deeply moved soil is also essential. In naturally retentive soils it is desirable that means should be provided for allowing surface water to get freely away, for ground under Spinach is necessarily much trodden upon in all weathers, and if very moist it becomes pasty and unfit for root growth. In the early part of my experience I used to sow my winter Spinach in drills 1 foot apart, but in strong ground I found that width to be a mistake, as the leaves extended on each side of the rows so far that it was impossible to get between them without injury, which, in winter when the plants are growing slowly, is a loss. When, too, the rows are so close together the leaves have not room to grow so large as they would otherwise do, and at any time one large thick leaf is better than two small ones. I now place the drills 16 inches or 18 inches apart, according to the character of the ground, and I get more satisfactory crops every way. With regard to the time of sowing, there should no doubt be a difference between the north and south of the kingdom. For the latter the 12th of August is the old-fashioned date, but I need hardly say that a few days either way—before or after—do not make much difference, and no doubt a week earlier than the date just given would best suit the north. From experience I am satisfied that where there is a large demand it is best to have two sowings, one a week later than the other, the first in the open quarters and the other on a border facing the west. That in open quarters should be the first to be used, while that on the border should be reserved for use early in spring. I like a reserve in a sheltered place; although frost does not, as a rule, injure the plants the cold north and east winds do, and often so wither up the leaves as to render them useless. A border facing the west and sheltered by a good wall will often furnish a supply of Spinach when there is not a green leaf on more exposed plants. If ground on which it is to be put has been recently dug up it is best to tread the surface along the lines where the rows are to be in order to firm the soil, as if the surface is loose and the weather dry the seed would be long in ger-

minating. The plants should be thinned as soon as they are large enough to handle. I like them to stand 6 inches apart. In gardens in which wireworm is troublesome it is a good plan to sow a little soot along the bottom of the drill before the seed is put in. If soot does not drive them away altogether it at least checks their attacks. The variety of Spinach with prickly seed is supposed to be the hardiest; I have, however, tried both that and the round-seeded sort, and I have not found any difference between them.

J. C. C.

TOMATOES AS CORDONS.

After trying various plans with Tomatoes, I am decidedly in favour of the single stem, or cordon, which does away with the growth of useless wood and leaves, and thus concentrates the energies of the plant on the crop. If all side shoots are kept cut out directly they are large enough to get hold of, nothing is left but stout single stems clothed with large leaves from base to summit; after these stems attain a height of about 2 feet they cease to grow rapidly, but make very short joints, at each of which there are bunches of flowers, so that there is no difficulty about getting the requisite quantity of fruit. Few crops are more easily grown than Tomatoes, which come in well for filling up glass structures that may not at the moment be required for other purposes. Our plan is to sow the seed in February, and to grow the young plants on in a genial temperature until they are in 6-inch or 7-inch pots and beginning to set their fruit. We then fill boxes of any kind with rich soil, and, after making the drainage hole at the bottom of the pot sufficiently large for the roots to pass readily through, we plunge the pots half way into the soil, and by this means can get a good crop on stages, or in any position where it is not possible to plant out in regular borders. It matters not what the receptacle into which they are plunged is so long as a good rooting ground can be provided for them. We have a double row of huge plants in 7-inch pots, rooting through into large flat baskets filled with rich soil, and as a catch crop I do not know of anything so useful. We have several varieties, both new and old, but the main thing is to get a good large, smooth Tomato without the deep furrows so conspicuous in the imported kinds, and in this respect we do not find many to excel a good selection of the old smooth Red. It is good in colour, and all that can be desired as regards quality when well grown. Tomatoes are not usually difficult subjects to keep free from insect pests, but a sharp look-out should be kept to check the first symptoms of aphides, as it is surprising how soon they disfigure the young fruit if they happen to get established on the plants while the fruit is small and tender. "Prevention is better than cure," and, therefore, slight fumigations should be given before any fly is visible. We find liquid manure from the stable or cow house to be one of the best and safest stimulants that can be given for increasing the weight of the crop; failing this, a sprinkle of guano or of any highly concentrated manure sold in a powdered state, and watered in, will be of much benefit. As regards water, Tomatoes like an unlimited supply during bright weather. Of new sorts that promise well may be mentioned Earliest of All. This crops well under glass, and it is also said to be exceptionally well suited for open-air culture, but of this it is too early yet to speak.

Gosport. J. Groom.

Peas, old and new.—I am this year growing amongst other Peas some Champion of England. It is not long since this Pea ranked amongst the best and most popular. Now it is seldom grown, a circumstance not to be wondered at when we compare its pods with those of the newer sorts. It is as prolific as the best as far as number of pods is concerned, but we want bulk as well as number now-a-days, hence in Telegraph, Telephone, Duke of Albany, Prodigy, Giant Marrow, President Garfield, Reading Giant, and other tall Peas we find in addition to fair quality in some really excellent quality in others, all having fine pods. Duke of Albany has been shown on several occasions in very fine form, and it seems to be a first rate Pea. Mr. Eckford has recently come to the front as a Pea raiser, and has produced some fine kinds, both tall and dwarf. Mr. Laxton has given us quantities, good and otherwise; and Mr. Culverwell some superb Peas; therefore, there is no lack of sorts difficult to excel, and I feel sure that all Pea growers will say that for all purposes their pods are big enough; indeed, if varied at all, they may be if longer rather thinner, as big Peas in the pods are not desirable. It is strange that in the matter of first early kinds for general cultivation we should have made so little progress. I find that market growers who have tried the later novelties all complain that the pods are too small, and that none are so good as a well-selected stock of Sangster's No. 1 for their purpose. It is of little use to provide small podded Peas of which so many are required to fill the bushel.—A. D.

WASTE OF GARDEN PRODUCE.

At the present time, when things are ripening off so rapidly in the kitchen garden, it may be well to remind our readers of a fact to which we have before drawn their attention—that is, the great loss of vegetable produce in its best state, owing to our habit of not cutting things when they are ready. We think people would be surprised if they knew the amount of loss that takes place owing to this. Even in the small gardens of poor people one sees lines of Peas and other valuable produce allowed to ripen off and become useless. It is too often the custom not to cut the crop until it is too large, and inasmuch as two or three hot days suffice to make it useless when it arrives at that state, the major part of many crops is often lost. The remedy is, we think, to use things generally in a much younger state than is commonly the case. Many things are not half so good in quality when allowed to get old as when young—Radishes, Cauliflowers, Cucumbers, Peas, and Beans to wit. But even this way of using things when very young is not enough. We think that in many cases the only way out of the difficulty is to gather all the vegetables ready, whether they are wanted or not. To merely depend on the order of the cook or housekeeper for what is to be gathered is a mistake; she may not know what is in the garden. No amount of care in urging on gardeners that things should be eaten young will suffice. If we wanted to eat gardeners or human beings, it would be easy to convince people that three-year-old babies were more toothsome than old tough adults; but it is extremely difficult to explain to them that the difference between young and old vegetables is quite as important. We have known men lose their places because they would persist in sending up things when too old. The whole thing is bound up with the ridiculous false estimate as to the value of size and weight. The best plan is to lay down a rule that in summer time all crops that quickly perish should be gathered daily, whether wanted or not. In large places it would be well worth while to have a woman or boy continually engaged in gathering the produce, which should be placed in some cool or pleasant place in or near the house, and submitted to the cook. Then, after she has taken all she wants for the day's supply, it will be better to give the rest away as presents, or to adopt some such mode of preserving green vegetables as the Dutch do, than to let it destroy itself in the garden. It is not only the loss of the present day's crop that is to be deplored when daily gatherings are not made, but there is the injury to the successions which should follow, because, if we allow vegetables, such as Marrows or Peas, to ripen, there is little left in the plant for the young crops. Readers who have any doubts in the matter could probably soon set them at rest by making a few experiments in the garden.—*Field.*

Tomatoes for winter.—This is a good time to put in cuttings to make plants for bearing early in the new year, as unless well attended to old plants that bear heavily all through the autumn will be exhausted by Christmas, and under any circumstances I would rather begin the year with young vigorous unchopped plants than old ones. Insert the cuttings, which should be taken from strong leading shoots, in small pots singly, using light sandy soil, setting the plants in a close frame, and shading them till rooted. Shift them into larger pots as required, and keep them in a sunny position in the open air till the end of September; they should then be placed in a warm greenhouse and trained near, *i.e.*, within 12 inches of the glass. During the time when the plants are going through the preparatory stage in the open air, a stake should be placed to each plant, as if blown over and the stem injured the growth will be weakened.—E. H.

BUSH VEGETABLE MARROWS.

It is singular how slowly really good things spread amongst horticulturists, while worthless novelties are found all over the kingdom in a very short time after their introduction. This variety of Marrow is not new nor rare, but it is apparently very little known. During the past season I have received scores of inquiries as to where it can be procured. I do not mean to say that it is better than other Vegetable Marrows, but I can safely assert that it possesses qualities that commend it for general use. In the first place, I have proved it to be the hardiest Marrow I have grown. This spring we have put out plants of this variety, the custard, the long white, and the green striped; the nights were extremely cold and the days parchingly dry; consequently Marrows made slow progress; a good many, indeed, of the three just named died outright, and the rest looked more dead than alive until a sudden outburst of tropical weather infused fresh life into them; but during the whole time the Bush variety made steady progress, and anyone, even at a distance, could tell by its dark green look that it had withstood the chilly blasts much the best; moreover, as soon as warm weather set in, we had plenty of Bush Marrows fit to cut, but it will be some time before fruits of the other varieties are fit for use. Thus much as to hardiness, and I find its ability to withstand heat and drought is just as great. Last season when we had a vegetable famine by reason of the protracted drought, Vegetable Marrows were the only things we could get at a price to suit all-comers, and the Bush variety was then brought prominently into notice through great quantities of it coming into market. It is grown here in the open fields without any ridges of manure or special preparation, but simply planted between rows of early Peas about 4 feet apart each way. The Peas give shelter during the early stages of growth, and when cleared away the Marrows soon form large tufts of leaves resembling at a distance Rhubarb clumps. This variety does not send out running shoots; on the contrary, the fruit is borne in clusters, lying in heaps around the stem on short stubby shoots. For anyone desirous of growing a full supply of a good hardy vegetable capable of withstanding the trying character of our fickle climate, I can safely recommend the Bush Marrow. For amateurs with limited convenience as regards glass structures, or for growers for market, it is of the utmost importance to have vegetables that can be grown fully exposed after the middle of May; this season, however, those who exposed ordinary Custard or long Vegetable Marrow before the end of June found them to make but little progress. Marrows of any kind do not require nearly so much manure as is generally supposed they do; they are, in fact, more fruitful on good kitchen garden soil than on a manure heap. They should be planted in good soil and mulched with half decayed manure, which keeps the roots cool and moist, and helps the swelling crop.

Gosport. J. Groom.

American Tomatoes.—In the account of the American Tomato trial published in The Garden last week quite half the sorts were unknown to me. Some of these at least must be good, judging by the results of the trial. Would it not be worth while for some of our seedsmen to introduce some of the best sorts there named?—G.

MARKET GARDEN NOTES.

HYDRANGEA PANICULATA GRANDIFLORA.—One of the finest floral displays that I have ever seen was a large houseful of this Hydrangea in fine bloom last May. The plants were in 6-inch pots about 18 inches high, were furnished with well developed foliage to the rim of the pots, and carrying from two to four large heads of pure white blooms. As regards perfection of growth, each plant was the counterpart of its neighbour, and the effect of this mass of white blossom was almost indescribable. This Hydrangea is propagated from cuttings of the partly ripened wood, taken off in August, and inserted a dozen together in 6-inch pots in sandy soil, placing them in frames or in a cool house, giving a good bit of air in the morning when mild, and at night in very hot still weather. In this way ninety per cent. of the cuttings strike, and being wintered quite cool they are potted off the following year and grown along in the open air, becoming well established by the autumn in 4½-inch pots. Early in the year they are pruned in rather hard, and when they come into growth are shifted. During the early months of the year a temperature sufficiently high to keep them moving is maintained, and when the days increase in length they get from 65° to 70° by day, according to the weather. At this time and especially when developing their flower trusses, they require abundance of water, and from the time the roots touch the sides of the pots they get constant supplies of weak liquid manure. Without this constant feeding such a vigorous habited plant as this Hydrangea could not be grown to such large dimensions in small pots. Managed in this way, plants are in fine bloom ready for market by the end of May. As the flowers of this Hydrangea are very persistent, it is not so necessary to keep up a succession of bloom by the introduction of fresh batches of plants into heat, as is the case with many other flowering plants. If a portion of the plants are removed to a cooler house as soon as the flowers begin to expand, and especially if they are shaded from hot sun, the season of blooming may in this way be extended over a period of two months or more. Another mode of propagation is to take the tips of the growing shoots made in warmth in spring. In a good bottom-heat these will make roots in the course of a month, and if they are potted off and grown along in a genial temperature till June, hardening off gradually and getting them into the open air about the middle of that month, they will make nice plants by the end of the season. Good loam, with a liberal admixture of rotten manure, is the most suitable compost, which should be pressed in firmly.

NEW YELLOW CARNATION.—I lately saw in a large London market garden a yellow Carnation, which has undoubtedly a great future as a market kind. I cannot give its name, as this is kept secret; but I know that £30 was given for half the stock, which is a sufficient proof of its superiority. The habit is good, the flowers are large and of a bright clear yellow, and it is said to bloom more freely and continuously than any other yellow Carnation now in cultivation. The grower alluded to is increasing it for the express purpose of growing it in pots for cut bloom for Covent Garden in winter. Up to the present time no yellow Carnation has quite fulfilled the requirements of market growers, but this one is said to do so, and to be the very thing so much wanted.

CARROTS.—These, the dry weather notwithstanding, look uncommonly well. In most of the large breadths of Long Surrey Carrots grown in the neighbourhood of Weybridge and Byfleet, in Surrey, the plants are set out, and one may go over many acres of them without finding a thin place. During the last few days there has been a welcome change in the weather, and refreshing rains have exercised their usual effect, and the long rows of tender green leafage have a pleasant appearance and indicate, by their perfect verdure, a crop of good roots. Nothing is more wished for by the grower of Carrots for market at this time of year than good rains, as these give the young roots a start which in a short time places them beyond the reach of the grub, which is their arch enemy. If the weather is very dry during July the roots remain so small, that a single grub will destroy a dozen or more of them the course of a week. Although the Carrot grub has always been known, its ravages have increased wonderfully during the last few years, and it is now by no means uncommon to see a field in which two-thirds of the crop are destroyed. This is, of course, a great loss, as the hoeing and thinning out of Carrots is a costly affair, involving an expenditure of £2 per acre. There is no remedy known to growers at present but hand-picking, which is, of course, a tedious process, and is performed by taking the rows through, passing the finger round the crown of each plant just underneath the soil, as it is just at the union of the leaves with the bulb that the grub makes its attack; did it work from the point of the roots upwards, there would be no means of grappling with it. At one time Carrots were "cut out" to nearly 6 inches apart; now they are left very much thicker, so as to allow for loses; and some growers endeavour to make sure by not thinning out at all, merely going along and pulling the weeds out of the rows after they have been "flat hoed." The roots do not, of course, come so large as when each plant gets more space; but better a crop of small roots than none at all. Moreover, big, long Carrots do not take the fancy so much as formerly in the London markets. A few years ago it was useless to take anything but long, straight, bright-coloured roots into London; now consumers have found that the eye may be gratified at the expense of the taste, smaller kinds, such as the Intermediate, being of better quality.

PEAS.—Pea culture this year is not likely to have proved satisfactory to market growers. The inclement winter was against the early sowings, the majority of which were complete failures, owing to the melting snow, which kept the soil in a sodden condition during the first two months of the year. When Peas are once through the soil they are able to take care of themselves; it is just when they are swelling that they are in danger, a period of cold, very damp weather at that critical time being fatal. The unusually unfavourable weather had the effect of throwing the season back quite three weeks, and it is probable that for many years London has not been so badly supplied with Peas from the middle of May till the end of June as this year. Those who happened to sow later were this year better off, and there were plenty of buyers for moderately well-cropped breadths at £7 per acre. The Peas which supply the London market are partly grown by market growers and partly by agriculturists, who do not market them, but sell to the middlemen, who furnish the pickers or "podders," as they are called. As times go, the price above named may be considered to be good, as the vendor has the haulm left, which makes good feed in winter for the cattle. A Pea crop at from £6 to £8 per acre will certainly pay better than any Corn crop that can be grown at the present time, although it should be borne in mind that Peas are an uncertain crop. Still, if a Pea crop fails there is always time to get in some Turnips or Swedes, so that the season need not be lost. The hot, dry weather of late has been against late Peas, which are likely to be scarce. During the last year or two a considerable quantity of late Peas has come into London from the northern counties, principally from Yorkshire. Last year on one day 500 bushels came into Covent Garden from there. It is useless sowing late Peas on any other than good holding ground; in light soils they go off before they can turn in. J. C. B.

Paris Daisies.—I grew this spring plants of Etoile d'Or in 4-inch pots 18 inches through, and they carried continuously for three months from two to three dozen good blooms, and from a plant in a 6-inch pot I should think that I cut during winter and spring nearly 500 good blooms. I may add too that the colour of this variety much depends on the culture and feeding which it gets. Starved plants give pale straw-coloured blossoms, but in the case of liberally grown specimens they become almost golden.—J. C. B.

Books.

HOW I MANAGED MY ESTATE.*

THIS is a more than ordinarily useful little book, and one which deals with many things likely to interest our readers; the author seems to understand what he is writing about, and the only fault that we can find with the book is, that there is not nearly enough of it. Notwithstanding the use of what printers call "bumping out" and of large type, it is only a small book, consisting of little more than a hundred pages, in which many subjects that would prove useful to country people are left untouched. The author seems to have done very well with his estate after improving it for some years; but this, in times when estates generally are going down in value, is doubtless a matter of luck. He was fortunate in getting a good price for his timber and in making things pay. We quote the chapter on timber as a sample of his work.

There are three principal points to be regarded in the management of the large timber of an estate—ornament, profit, and the way in which it affects the profit of underwoods; and as my timber was thick where it should have been thin, and thin where it should have been thick, I was compelled to consider these points well. The planting of thin wood for timber is involved in planting up the underwoods; the healthiest young trees being left, when the first crop of underwood is cut, at intervals of from 20 feet to 25 feet apart. The relative values of timber and underwood differ greatly in different parts of the country. In Hop-growing counties like Sussex the underwoods are of more consequence than the timber; and, therefore, as a rule, the Sussex woods do not bear much more timber than is necessary to make them look like woods. Nothing could look more rich and beautiful than my woods, yet the large timber averaged only about £24 an acre. An acre of land, however, under the best circumstances of soil and aspect, and if planted all at once and kept duly thinned, ought to carry eighty Oak trees, worth £10 each, at the end of about fifty or sixty years; that is to say, the crop would be worth £800.

Such crops have been in England; but they will probably never be again, for no one in his senses would dream, in a state of political instability like ours, of planting any of his land in this way. Oak timber is, indeed, quickly disappearing, and fast-growing "soft wood" taking its place. An Oak tree which at fifty years might be worth £10 is probably not worth above a shilling at twenty; but Fir poles are useful at all stages of their growth. People in general do not know how quickly the destruction of Oak is going on, for the reasons I have just noted; there is little difference in external appearance between an Oak wood worth £24 an acre and one worth £800.

Sussex Oak rarely grows large, but in quality it is the finest in England. I have seldom seen a Sussex Oak so large as one which grew on my ground. It was 13 feet round; but this would not be a great size in some parts of the country. Not only is Sussex Oak exceedingly sound and hard, but it is fast-growing during the comparatively brief period it takes to ripen in this county. I felled one Oak which was more than 7 feet round at 5 feet from the earth, and there were only thirty-five rings of annual growth in it; two or three of these rings indicating a growth of more than 2 inches in the diameter of the tree in one year. In some years the growth of timber, as tested thus by the rings, is three or four times as great as it is in others.

Very interesting statistics, concerning the growth of timber and its relation to weather and soil and other conditions, might be arrived at by the simple method of collecting and polishing discs out of the trunks of various trees, dating the rings and comparing their breadth with the meteorological records of each year. For aught that I know, this may

* London: George Bell & Sons, York Street, Covent Garden.

have been done in Germany, where woodcraft is a science; but I have never heard of its having been even suggested.

The action of Ivy in diminishing the size of timber is very great. A heavily Ivy-bound Oak loses about one-third of its natural power of expansion. Few woodreeves attend to this. I did so myself, going through the woods with a bill-hook and chopping through the Ivy-stems carefully, so that the bark of the tree should not suffer, as I found it often did when I left this work to others.

Another work I found it expedient to take into my own hands was the measuring of the timber. The usual way, I found, was for the woodreeve or bailiff and the timber merchant to go over the timber together, the merchant measuring the "girth" with his own string, and the bailiff taking note of the size and marking the trees. In selling some timber, I myself accompanied the party, and observed that there were several disadvantages in this plan. The merchant's measuring-string was an old and very much frayed cord, which would stretch 2 inches or 3 inches in as many feet if tightened strongly; as I fancied that it was when applied to the tree, but not when applied to the measuring rod or line. Again, there was generally a dispute about the quantity of timber in the "head" of the tree—that is to say, above the point at which the "girth" of the trunk is seriously diminished by the departure of the first large branch. This part of the tree, which often contains a considerable proportion of the whole contents, is always measured by sight; and the eyes of the merchant generally saw less timber than those of the bailiff did. So I resolved to dispense, in measuring and setting value on the timber, alike with bailiff and merchant. I went through the woods with someone to hold my measuring rod—a lath of 18 feet or 20 feet long, used to ascertain the height of the main trunk when it is above reach—and the little sliding-rule which gives the cubic contents of the tree from the measure of the circumference; marked the trees, put the numbers and sizes in my note-book, set my own price upon them, and found that I had never any difficulty in getting it.

Not only did I thus sell the timber at my own measurement, but I found that, somehow or other, timber-buyers would always give me some twenty-five per cent. more than they gave to big proprietors in the neighbourhood, who left the transaction wholly in the hands of their reeves. I never had any personal haggling or any other direct communication with buyers. I gave my bailiff my notes of measurement and price, and the merchant took or refused the offer as pleased him best. The price of standing Oak at the time I am writing of was about 3s. 6d. a foot, but I believe that it is less now; not, probably, through any legitimate fall in its value, but through a better understanding—such as now prevails among butchers—between the purchasers of timber.

A ripe Sussex Oak seldom exceeds in its contents a "load" of 50 cubic feet. By the time it has reached that size, in my part of the county at least, of which the substratum is the "Hastings sandstone," its roots are commonly checked and probably more or less poisoned by the "iron pan," which usually intervenes between the soil and the rock. An intelligent and somewhat practised eye is required to decide upon the fitness of an Oak for felling. A tree with only 10 feet of timber in it may have quite done growing, while another of five times the contents may be putting on a great bulk of wood every season.

A "ripe" tree has always a "stodgy" appearance, especially about the topmost branches, among which small leafless twigs will begin to show themselves. If the work of selecting trees for felling be left to subordinates, the biggest, not the ripest, trees will generally be chosen. But this involves very serious loss; for the larger a tree is the more wood it will put on every year, if it is still "growing;" and, since an Oak is usually not timber at all until it is twenty-five or thirty years old, every additional year's growth, up to fifty to sixty years of its age, ought to be reckoned as containing two years of its entire increase.

Another point requiring the eye of the master is the thinning of trees when they stand too close together for free growth. I found this a serious problem sometimes. There were belts of Scoth Firs, Spruce and Larch extending for about half a mile on either side of the high road. They had been planted about fifty years before I came into possession, and had never been properly thinned. They had therefore run up to a great height, but three out of four of them were fit only for scaffold-poles. The stronger trees would have still grown into good bulk had it been safe to thin them; but I found it best to leave them alone, for I had quite ruined a two-acre plantation of similar trees by the attempt. The mass of tall thin trees was able to resist the south-westerly storms only so long as it stood against them altogether. As soon as I had removed a few of the trees from one corner, the wind got in amongst the rest; and the whole plantation had to be felled, much to the disfigurement of that part of the estate and of the view from the house.

There are comparatively very few well-timbered woods in Sussex. They are commonly either grievously under-timbered or as grievously over-timbered. One healthy tree, fifty or sixty years old, standing with a clear space of 25 feet about it, will probably be worth ten times as much as ten trees growing together upon an equal area. When a public road runs through an estate, it is a considerable point of economy as well as beauty that belts of timber shou'd run alongside of it. The trees throw their roots to the centre of the road, and utilise the ground as effectually as if it formed part of the estate. A mile of road means probably five acres of land, and these may be considered as being practically added to the property by timber so planted. I acted upon this consideration in my planting operations. A stream, like a road, may be made very productive in timber. The white Poplar sells at a high price, and grows at a wonderful rate in good soil and near a stream in a sheltered position. I sold one only thirty-five years old for £10, but I did not plant any, because they spoil the look of the adjacent timber, soon overtopping and dwarfing all other trees with their great sparse-leaved grey heads.

Grubbing timber is a matter of considerable importance in the management of a heavily wooded estate—especially at this time, when everything tends to render the retention of woods immediately unprofitable, and we see grubbing operations going on everywhere on a large scale. The process will not improbably, and at no distant period, end in practically denuding England of its woods, and in changing its climate very much for the worse, as has already happened in large tracts of Spain and other countries—tracts which have been converted into deserts by the loss of the moisture-absorbing and moisture-supplying power of forests.

This fatal wood-destroying process received a strong impulse from the strange and most ignorant legislation in the matter of woodlands some dozen years ago. I remember well the character of the debate, though I do not remember the year of it. It ended in rating woodlands—which, for good reasons, had not been rated before—at the agricultural value of the circumjacent land which was under culture. Had a single sensible woodreeve been among the members, he could have turned the debate. He could have told the House that many thousands of acres of woodlands do not pay one penny to the proprietors, being in such low condition that they do not return the expense of hedging and ditching. "Why," the inveterate Cockney would have asked, "not put them in better condition?" Because it involves a large outlay, for which not a farthing can be expected to come back for at least twenty-five years, at the end of which no one knows what will have become of the land. "Why," responds the Land Reformer, "not grub your unprofitable woods and put them under the plough?" Because, answers the woodman, to do so would cost, in many cases, the fee-simple of the land, of which in many parts of Sussex the agricultural value is not £10; and, furthermore, because a large proportion of woodlands is upon hill-sides and rough ravines, old quarries or gullies, or other uneven places, where nothing else would grow.

But there was no woodreeve in the House of Commons, and so the English woods were voted to destruction.

FERNS.

TASSELLED AND CRESTED FERNS.

I am somewhat at a loss how to account for the abnormal forms among our native Ferns—forms which we do not find among exotic species. What, therefore, causes Ferns that grow in British soil and in a British atmosphere to sport in the remarkable manner in which they have done with us during the last fifty or sixty years? These are questions difficult to answer in a satisfactory manner. I have heard it asserted that we at home are not in a position to say, with any degree of accuracy, that foreign Ferns do not sport into the crested and tasselled forms to as large an extent as our indigenous species do, because their habitats have not hitherto been so thoroughly explored by collectors as those of our native Ferns, a statement in which there is certainly some truth; but it is not sufficiently convincing to satisfy me, for, having had frequent opportunities of examining large herbaria, I cannot bring myself to believe that exotic Ferns (although subject to great variations) are liable to become altered in form to the same extent as our native kinds are, or we certainly should have received some of them from our numerous plant collectors long ere this. This fact was deeply impressed upon my mind a few years back during a walk over hill and dale between Halifax and Todmorden, especially in the neighbourhood of Luddenden Foot; there I saw Ferns growing everywhere, particularly Athyrium Filix-fœmina, but although any amount of varieties were to be found, it was quite an exception to see the recognised normal state of the plant; there were forked fronds, tasselled fronds, depauperated fronds, miniature fronds, and gigantic fronds; it, therefore, occurred to me that if exotic Ferns varied to this extent we must have received abnormal forms from our collectors, who are ever on the outlook for new plants of commercial value. Some assert that we are indebted to the Fern cultivator for the numerous varieties of British Ferns which we possess, and to some extent this is true; but yet some of the most beautiful and distinct of our crested and tasselled Ferns have been originally found in a wild state, the same form, in some instances, occurring in widely separated localities. I have previously stated that I am inclined to believe that the majority of these forms have sprung up during the present century; and one of my reasons for this belief rests on the fact that old British botanists are silent upon the subject. Had such varieties been known to them, some records of them would have been left behind. True, some few varieties of British Ferns are noticed; but that only serves to strengthen my supposition in regard to the non-existence of the great number of varieties which now serve to beautify and adorn our rocks and glens, and which, when tastefully arranged, produce such a charming effect in our rock gardens during the summer months. Another remarkable fact, and one which goes far to support a notion which I entertain that changes in form, such as have been recorded, are brought about through some peculiarities existing in the atmosphere or soil, is that in other parts of Europe these self-same species do not acquire such protean forms as are to be found in our own country. Again, the majority of exotic kinds which are crested and tasselled are the results of home cultivation, and have not been introduced, but have originated in our plant houses. G.

Names of plants.—*C. A. M.* (*Southampton*).—Euonymus fimbriatus.——*W. R.*—Periploca græca.——*R. Maries.*—Cephalaria alpina; a fasciated Linaria purpurea (not common); 2, Psoralea orbicularis; 4, Erigeron speciosus.——*G. H. F.*—Amaryllis Belladonna.——*W. R.*—1, apparently Lavatera Olbia; 2, Geranium pratense; 3, Verbascum Chaixi; 4, Erigeron macranthum; 5, Verbascum phlomoides.——*A. C. B.*—Larger growing Campanula is C. Tenori. Please send better specimen of the smaller kind.——*T. Cripps and Son.*—Gladiolus cardinalis.——*R. Ashcroft.*—Stanhopea tigrina.——*G. S. S.*—Sequoia sempervirens.——*J. W., Pinner.*—Labiate is Galeopsis Tetrahit; other is Sisyrinchium bermudianum.——*A. C. B.*—Lathyrus sativus.——*T. D. and Sons.*—We do not, as a rule, attempt to name Roses. The buds you send appear to be those of Maiden's Blush.——*J. S. S.*—1, Astrantia major; 2, Aster pyrenæus.

Woods & Forests.

PINES FOR PROFITABLE PLANTING.

Our knowledge of the qualities of the Scotch Fir is not limited to twenty, thirty, or even to one hundred years, and our opinion of its utility in the economy of our timber produce is immutable, as it is amongst the oldest and most tractable of native trees, and has been and is still among the most valuable of Firs which the British timber-grower can plant, when planted in certain soils, &c. Rich soils are not essential to its best development. Whatever "Yorkshireman's" acquaintance with the Scotch Fir may be, it is not so comprehensive nor so conclusive as to prescribe this tree to exclusion from a place in the plantations of the future ; and it is not likely to be less planted, in spite of all the excellent qualities "Yorkshireman" says the Corsican Fir has to commend it to culture. Thirty years is the very limit of "Yorkshireman's" experience of the Corsican Fir, and from that experience he has reached the conclusion that the Corsican Fir is better fitted to realise the consummation of a timber tree and the incongruous states that belong to our woodland areas than the Scotch Fir.

"Yorkshireman" does not state what is the nature of the moorland soil in which the Scotch Fir fails to grow in the highlands of Yorkshire. It is in vain so far that this information has been solicited. The Scotch Fir does not require to be pampered in a secluded corner of a garden to attain its finest dimensions ; nay, almost the most meagre of Scottish moorland soils will suffice. The Corsican Fir, on the other hand, delights to live on richer fare. As a tree for general planting, the Scotch Fir has no equal among the Pines, and its value in that sense is of the utmost moment to the British timber grower.

As a tree for local areas and favourable situations, the Corsican Fir will also become a tree of profit to the timber grower, but to say that it will accommodate itself to all conditions under which the Scotch Fir flourishes would be making a statement without facts to prove it.

It appears that "Yorkshireman" has converted a hitherto sceptic nurseryman to his views respecting the excellent attributes of the Corsican Fir. Well, that is no matter of ours ; still, this said nurseryman may not be deaf to a word of warning probably, or if he be, it is just possible he may find himself in the same fix as the other nurseryman found himself concerning the Douglas Fir. He had been told that the Douglas Fir was to take the place of this, that, and the other tree, and that the man who had the largest stock of this Fir for sale would make the largest fortune. It all looked very promising, so he went on multiplying his stock of the Douglas Fir until he had at last a vast and excellent stock. But, alas ! the vicissitudes that intervene in the way of demand and supply are perplexing. So it was in that case ; the supply was profuse, but the demand was next to nothing. It is not insinuated that "Yorkshireman's" nurseryman will find himself in the like predicament. Perhaps "Yorkshireman" will point out where "J. F." has said that the Corsican Fir is more ornamental than the Scotch, for his opinion of that tends, too, in favour of the Scotch Fir. J. F.

The Sweet Chestnut.—It may not be generally known that the seeds of the Sweet Chestnut should never be sown in autumn, as the germinating power is apt to be destroyed by the frosts of winter. The best course is to place the nuts intended for seed in layers of sand in a dark cellar, and then to plant them out in spring as soon as all danger from frost is gone. The best seeds for planting in the British Isles are those produced in Devonshire, and next to them German seeds may be recommended. French and Italian seeds do not produce good trees in this country. The best German seeds are grown in the valley of the Neckar and in the vicinity of Heidelberg. The trees produced from seeds yield only small nuts, and to obtain good fruit they must be grafted upon Pear, Apple, or Cherry trees.—W. H.

GATES AND STILES IN PLANTATIONS.

Where there is a public footway through a wood or plantation gates should always be used. Where a public pathway exists, if it is at all practicable, the sections of the wood should be fenced off, and only the pathway itself left open to the public. In some cases the operation would be too costly, as the distance to be fenced would be too great. What advantage there was to be gained by privacy would be more than counterbalanced by the too great outlay. Whether fenced off or not, if the owner's necessities do not render it imperative to have a horse or carriage entrance where there is a public footpath I should always prefer a stile to a gate. The particular form which it should take would, of course, be decided by circumstances ; but it is always unsatisfactory to leave an unlocked gate to the caprice of the public. In all cases even a lock is not altogether a guarantee that the gate will remain closed, as there is often ingenuity enough abroad to either knock it off, or to lift the gate from its hanging post. When a strong stile is erected in the place of a gate this anxiety ceases, as there are few who would so far trouble themselves to lift a structure of this sort bodily out of the ground. On the other hand, in such places as this, where a public right of road exists, it is well that a little thought as to general convenience should be given. The real object of the barrier at all in such instances is of course the prevention of trespass by cattle. When the path is completely fenced in for the whole distance the form of stile is not so great a consideration, but when the interior of the wood or plantation is entirely unprotected, it becomes imperative that the barriers at each end should be capable of without any doubt answering their purpose. In the first case, what is known as the "Yorkshire" stile, formed of two almost vertical, but slightly curved, posts, will answer as well as anything, but in the case of the open interior, a thoroughly substantial barrier can only be made of strong vertical posts and horizontal rails. The less sawn wood there is used in erecting stiles the better. To have sawn posts is quite unnecessary. Sawn under rails may be used, but I prefer a round or a half round rail for the top—if the latter, with the round side uppermost. Any knots or excrescences should, of course, be removed, and the surface made as smooth as possible. Stiles made in this way often last for very many years, and when it is necessary to replace a rail it can be done with little difficulty.

Gates require to have more labour expended upon them, and when made entirely of horizontal rails all the wood must be sawn. When vertical pales are added—and it is necessary they should be for plantation gates—it is optional whether the framework only be sawn or the pales as well. In any case the framework must be. With respect to the vertical pales, these may either be sawn out about an inch in thickness, or they may be made of half-round sections of Larch poles. For plantations this does very well—in fact, being so finished, with the rough bark upon the poles, is often preferable to sawn and painted work. The size and, to some extent, the form of gate must be regulated according to what it is wanted for. For a mere bridle path, a gate wide enough to comfortably allow a horse and horseman to pass through will be quite enough. Where carts and wagons have to enter, of course a much wider gate will be wanted. If the traffic is at all considerable, it is very often better to have a pair of gates instead of a single long one. As a rule, any entrance over 10 feet should be supplied with double gates, as the strain upon a single post and a single set of ironwork becomes too much. A short stump post in the centre of the gateway is the only objection to double gates, and this is a decidedly smaller one than that of the heavy strain upon the single post. D. J. Yeo.

GAME COVERT IN IRELAND.

In Mr. B. Hartland's pamphlet on reafforesting Ireland he gives some pertinent remarks on the game coverts. He says: "Beyond doubt our country, if planted, would form the most valuable coverts for game in the kingdom. In passing from Killarney to Kenmare before daybreak, over the mountains near the Upper Lake, I saw in the early dawn large numbers of deer ; they were in front, crossing, and at both sides, bounding to the woods. On Mr. Buckley's splendid preserves I have seen whole herds ranging the lofty mountains, pheasants abounding in the lowlands, and crossing your path at every turn, while hid among the covert, with abundance of running streams, the cocks flock in surprising numbers, ranking the Galtee Castle preserves among the finest and most valuable in this country. Again, Sir Henry Beecher's famous duck preserves, with flocks which positively darken the sky when hovering round, are another illustration how waste moor lakes can be converted into grand preserves by planting.

"It is only necessary to name the splendid cock woods at Muckross (Killarney), Glenbower (near Youghal), Castle Cooke (near Kilworth), as they are each famous for the numbers of birds that are annually shot, and are commercially of great value. Unquestionably our hill-sides and sheltered glens, abounding in running streams, if planted, would in a few years give shelter to the immense flocks of cocks which every winter pass over our island to the French and German woods, and alighting here would afford the most magnificent shooting, and prove a source of very large revenue to the owners. I speak from experience, having many a time at dusk, or at night, watched great flights of these birds, positively countless in number, passing low and noiselessly away to the south, and doubtless the waste and barren state of our country drove them to better sheltered lands. The reader will pardon my laying so much stress on this subject, but I believe it to be one of far greater importance than is generally supposed. Our winter climate being so mild, and feeding grounds abounding everywhere, Irish cock preserves would soon rival our neighbours' grouse moors, and could be annually let for very large sums. A few years ago I was asked to purchase a winter's shooting, and £300 was paid for a very indifferent one in Kerry, and for another small one near me the same party paid £80 a year during three years, but here the woods, though not extensive, afforded excellent sport."

THE SCOTCH PINE.

My opinion is that if the cold and wintry uplands of the north are to be brought into cultivation, it will be by the aid of this tree, either in hedges or strips, or in larger masses as nurses to other trees. In no soil does it refuse to grow. In peat, sand, gravel, granite, and all thin soils it rises rapidly, and forms a strong rough fence in the course of six or seven years. In the neighbourhood of Thetford and Newmarket, in Suffolk, where the soil is miserable, it is quite common as a hedge tree ; but in those places it is pruned in the same way as the White Thorn, which is certainly disadvantageous, it being well known that of all trees the Pine is the most impatient of the knife. It is only where a better tree, as a fence, will not grow that I am led to recommend the Scotch Pine, and this I do, as already stated, because it is admirably adapted for ameliorating the climate in exposed situations previous to the introduction of others. My plan with this tree is as follows : The soil requires no preparation whatever. The plants to be used should be four years old, and they can be had of nurserymen for 4s. or 5s. per 1000. Those plants

I insert in a straight line at 2 feet apart from each other, so that when they get up, the stems may form the chief part of the fence. Planted at this distance, there will be very little room for branches between the trees in the lines, but they will push out luxuriantly on each side and produce sufficient spray to keep the plants in a healthy state. The tips of the strongest side-branches should be cut off, so as to induce smaller ones to break forth, but no regular system of pruning should be adopted. Another parallel line is to be formed and planted in like manner, about 6 yards distant from the other; this distance I adopt so that the roots of the trees may not impoverish or reach the soil in the centre, which, at the proper season, should be planted with the White Thorn or Beech after the ground is trenched in the usual way. Between the parallel lines, at considerable distances, there should be cross lines planted so as to break any currents of wind, which are oftentimes hurtful in open avenues of this description. If the soil is tolerable, and the climate permits, the White Thorn hedge may be introduced three years after the planting of the Pines; but in the more exposed places it should be deferred for a year or two longer, when the screen on either side will be in a more complete state to protect it. At the end of the three years the Beech may with every prospect of success be introduced. J. M. N.

THE CARE OF UNSAWN TIMBER.

The preservation of timber from the time it is felled until wanted to be sawn for use is a matter of importance. After it is sawn, it is of course requisite that still greater care should be taken of it, but it is not to this part of the work I now wish to direct attention. The time which trees have to lie before they are brought to the saw will vary very much according to circumstances. It is certain that a proportion will have to remain unsawn for many months, and some, perhaps, for years. The amount of wood in this country, which lies long enough as it fell to be absolutely spoiled, is probably not very large, but there can be no doubt that an appreciable quantity has each year to be assigned to the fire, on account of its being too long neglected to be of any value for other purposes. This probably arises from the falls being, from some cause, too heavy to be grappled with in due time, or from a customer not being forthcoming at an acceptable price. When it is known that timber has been lying an abnormally long time in this way, or is likely to do so, the difficulty may be overcome by giving close attention to the kinds most likely to receive damage, as well as a general eye to the whole.

The Oak is, without doubt, the tree which will lie longest with impunity, but even this will not remain unscathed for an unreasonable length of time. Much depends upon its age and condition when felled. A young sapling Oak which has been cut down in the spring and deprived of its bark is anything but a durable article, and, if left about simply because it is Oak, it will very soon become useless, as decayed Oak sapwood generally makes a very poor fire-wood even. The time for which small trees of this class—composed as they are of very little but sapwood—may be left, before they become unfit for any useful purpose, will, however, vary considerably according to the soil upon which they grew and the position in which they are left. Although a strong, heavy clay produces Oak of capital quality, when young sapling trees grow upon it are left to lie upon such retentive soils, their durability will be much lessened. Remaining continually in the damp, and on the soils of which I have spoken, the wet has little chance to escape; it will only be a matter of a few months before irretrievable mischief has been done. On the other hand, where the soil and subsoil has been open, and the water consequently has had the opportunity to drain off, I have known sapling Oaks lie for two or three seasons without suffering greatly. In these cases the abundant summer growth, which is generally found in plantations, has served to protect the wood, and in some measure supply the place of the bark, and, perhaps, answer better, as it would not be close enough to the tree to retain the damp. On the whole, to keep this class of wood for any length of time, if, as I said, the soil is free and open, I would prefer to leave it in the covert lying scattered as it fell, than to draw it out to the covert side. In these cases, however, it is well to be clear that there is no probability of its being wanted during the resting season, otherwise, it would be very awkward to get at. With Oaks which are larger in size, and consequently more matured and with less sapwood, so much care is hardly necessary. With regard to this, however, it is unsatisfactory to leave it too long in the damp, and, on the other extreme, to expose it too much to wind and sun. The damp would certainly be detrimental to what sapwood there may be upon it, and the sun and wind would most likely crack and split it. This is, perhaps, not so important as with some other wood to which reference will be made; but it is, nevertheless, worth attending to if circumstances admit of it. In drawing trees together, from the covert or the field, it is also well to take the precaution of having some transverse logs laid upon the ground upon which the first layer of trees may be placed. When the soil is very dry and it is not intended for the trees to remain during the winter season, this may occasionally be dispensed with, but in addition to keeping the timber off the too moist soil, it greatly facilitates subsequent removal to have them a few inches off the ground. The same fact would, of course, be true of other trees than the Oak.

With regard to the Elm: although a tree which would not stand so long neglect as the Oak, there is a wide difference in the length of time it will lie unsawn without being appreciably damaged. A very material thing in its favour in this respect is the season at which it is almost always felled. There are two advantages in this direction. As the bark has no commercial value, there is no reason or necessity for waiting until the sap rises, therefore it is cut when there is little or no activity in the sap, and what is, perhaps, more important, the bark itself remains upon it and serves to protect the wood. It will have been observed by those who have given attention to the point, that merchants and others, who have to keep unsawn timber for any length of time, are always particular to preserve the bark entire as long as possible. It will in almost all cases become loosened after the first season, but so long as it covers the wood it saves it from the effects of sun and air. In this connection a word of caution may not be amiss, and that is that whenever possible, Elm timber should either be drawn to the yard, where it has to be sawn, when it is green and the bark firmly adheres to it, or if it is left until the bark has become loose, and a large proportion will be detached in transit, it should be sawn up immediately it is brought in. A couple of months' exposure in the yard, with the bark absent, would probably harm the wood a great deal more than a whole year with the bark upon it. There is not only this, but the condition with respect to age and soundness to be looked at. If a tree is in a vigorous state of health when felled, it may safely be left a longer period before being sawn than when it has passed maturity and has begun to show signs of incipient decay. I am not sure that this rule would hold good with very young trees, but even with them I would prefer to run the risk, to having to do so with very old timber.

The Ash in many respects is a different tree, as although it very soon damages under unfavourable conditions, and becomes split and torn with the weather, it will remain unsawn a very considerable time without actually going to decay. As with the Elm, it of course makes a very appreciable difference whether the tree is in health or is on the road to decay. In the latter case a little lying about is the last blow to its usefulness. I have advised, where the situation is dry enough, the leaving of Oak in coppice or covert, and I think the same treatment would apply to the Ash. A very great protection to it is its bark, which the Oak ordinarily does not possess; but screening it from the direct effects of sun and air by means of foliage is an additional advantage. Where this is not possible, in open yards for instance, I have often seen the practice of white-washing the butts adopted. This may do if we lack anything better, but on estates it will be seldom necessary to resort to this. If the trees cannot be kept in the covert, there is generally an abundance of branches and other green stuff which may be thrown upon the trees during especially trying weather. Such a plan as this could not of course be very largely adopted, but occasionally a single day's work for a woodman may be the means of saving ten times its cost.

The Beech is a capricious wood to deal with as regards keeping in the round state for any great length of time. If necessity compels it, however, it should, if possible, be kept either wet or dry, that is to say, not in a moist position or where it will be alternately wet and dry. I do not in this sense speak of the alternate wetness and dryness caused by rain, which of course cannot be prevented out of doors, but of its lying in low, moist spots where water may sometimes collect, and at others be absent. Kept entirely under water Beech would probably last for an indefinite length of time, but this plan would be impracticable beyond here and there a log. I remember the case of some Beech trees a few years ago which were left for perhaps a couple of seasons in a small watercourse. One section of them was completely buried in the grit and soil of which the bottom of it was composed, whilst the upper section was alternately wet and dry, as it was only after rains and in the wet season that there was any water in the ditch. The result was that the sections which had been buried and were kept from the action of the air were tolerably sound, whilst the upper parts of the trunks were entirely decayed.

The Sycamore belongs to still another class, viz., one where the colour of the wood being preserved is a great consideration, and if this is lost the value of the timber, if otherwise sound, falls very materially. This being so, it is well to make fairly sure of a market before the felling is effected. It has been said by some one that from the way Sycamore often lies about, it would appear that it cannot take much damage in this way. From this I differ, and I have no doubt that on offering it for sale the vendor would readily enough discover the fact that Sycamore which has laid about long will most probably have lost almost a half of its value. The use the Lime is generally put to does not make it quite so important that the colour be preserved; still, for the most choice uses, if it is discoloured and otherwise damaged, it cannot be expected that so much will be realised for it. The Plane falls into something the same group, but commercially this and the Lime are not so important as the Sycamore, as the character of the woods make them unsuited to many of the purposes for which Sycamore is used. Another important group,

the keeping qualities of which have to be considered, is that which comprises the Larch, Scotch, and Spruce, the type of Conifers which in this country have a timber value. So much has been said and written about them—too much, probably, in comparison to the attention given to our common British woods—that it will not be necessary to dwell at length upon them, but the question of preserving the trees in the round, between the time they are felled and when they are sawn out, is worth attention. The Larch as a timber tree undoubtedly comes first, and no doubt the amount of exposure it would bear before it becomes damaged is greater than either of the other two; but it is a mistake to assume, merely because Larch timber has been known to last a long time, that it has a complete immunity from the action of the weather. The reverse is true, especially with young poles, and if they are left as they fall for a season or two in many cases they will be spoiled. I have had plenty of such cases come under my notice. Larger trees, where the wood has matured, will generally stand a longer delay in cutting up. Between the Scotch and the Spruce in the matter of damage by lying about, I should not like to draw too marked a line, as I believe the difference in positions which they may respectively occupy, their age, and the soil upon which they were grown, would be quite enough to make any remarks which may be made upon them interchangeable, or, in other words, that sometimes the Scotch would decay before the Spruce, and *vice versâ*. In this glance at the keeping qualities of woods, I suppose it would be unfair to pass the Acacia entirely unnoticed, as though so comparatively rare, there can be no gainsaying the fact that it lasts for very long periods under very trying conditions. Besides all that has been written about it, I have had enough personal experience of the wood to know that it merits a great deal of what has been said about it in respect of its durability.

A totally different class of woods are the Poplars and Willows, and although they are looked upon as very second-rate kinds of timber, the length of time they will sometimes keep sound after being felled is rather surprising. I do not mean to imply by this that they may safely be left for an unreasonable time lying about haphazard; but I have met with trees of Poplar and Willow which have lain for years apparently without serious injury. The Birch and the Alder do not generally attain a very large timber size, but generally go off as poles. Their character is somewhat analagous to the Poplars and Willows, and in respect to the time they will remain uninjured are practically the same. Such woods as Walnut, Apple, Pear, and Cherry vary considerably, but each of them will stand a fair amount of keeping, the Walnut probably the most, as the sap-wood, being of comparatively little worth on account of its lack of colour, may decay, but the heart-wood will be intact. If possible, however, the bark should be kept on to prevent its splitting. D. J. Y.

Warm coverts.—I am afraid that the stumbling-block of many keepers, and not a few woodmen, in the matter of providing shelter for game, especially pheasants, the most expensive to rear, is the want of a little knowledge of the natural history of the subjects they have to provide for. I believe that on gentlemen's estates where pheasant rearing is carried on extensively, the success attained varies very greatly, all things being equal, except covert, and perhaps soil and situation. There is not much difficulty in keeping pheasants and other game in any wood in the summer time, but when the deciduous trees shed their leaves the game will not stay in it of their own accord, unless it has plenty of evergreen shelter in the shape of Spruce, Holly, Yew, and other evergreen trees, nor will they remain long in a wood lying in a northern aspect. At this season of the year it is warmth the birds are in search of, and where they find that they will find also most natural food. In planting for covert, therefore, Evergreens should always form a large portion of the wood, and it should be well distributed throughout its extent, and occupy the warmest spots as well as shelter the cold ones. The birds come to the sunny margins of the coverts at this season to bask in the sun when there is any, and to seek warmth, and whole coveys may often be found at such places when few are seen anywhere else in cold weather.—Y.

WOOD FOR RUSTIC WORK.

There is a considerable amount of wood used in rustic garden structures, such as summer-houses, out-door seats, trellises, porches, arbours, and the like. As a general rule, the less labour bestowed in preparing the wood the more satisfactory will be the result. The work of the axe and the saw should be as little seen as possible. It is, however by no means uncommon to see wood which, although used in its natural state, is entirely out of harmony with Nature through being used in the wrong way. The great principle to be observed is to so use it that the object for which it is employed be at once apparent, and the work itself useful and in harmony with what may be seen in Nature. Some people have a great notion as to the ornamental properties of old tree stumps or roots. In some cases they are quite admissible, and even desirable, but a great deal lies in the way they are used. I have occasionally noticed the roots of old trees turned entirely upside down on the borders of lawns, the surface where the tree was sawn away being in contact with the ground. The idea is utterly absurd, as such a thing would never occur in a natural forest. If, however, this same tree-root had been laid upon its side in the way in which it would remain if blown down in a gale, and the sawn surface buried in a bank or otherwise so concealed that the fact of its being severed from the trunk could not be seen, the impression, instead of being that of something incongruous, would be that the root was lying where it had fallen. The propagation of suitable plants in the soil between the roots could just as easily be carried out in this position as the other. I only mention this as an illustration. The same thing can be seen over and over again with other objects which, though proper in themselves, become ineffective and an eyesore through the want of a little thought in their arrangement. It is not, of course, possible to place everything in the position in which it grew, but when it is not it is better to make no attempt to do so; a bad imitation is always a palpable failure. In some cases it is best to leave the bark on the wood; in others it is better removed. The objections to the use of the wood with the bark upon it are that the bark has a tendency to harbour the damp, and consequently hasten the decay of the wood, and it also provides an asylum for vermin. On the other hand, when the bark is left intact it certainly has a more natural appearance. The smaller branches of the Oak is material which has always been much used for garden purposes, and from this the bark is in most cases removed for the sake of the product itself. It is probably better for the wood that it should be when it is formed into garden structures. The amount of heart-wood is relatively so small, that there is little but the sap-wood to be depended upon. Were the space, therefore, between the bark and the wood constantly full of moisture, the whole would soon become so rotted away as to be useless. It is for garden-seats and rough trellises that this Oak wood is mostly used, and the contorted way in which it grows adds to its value in this respect. The Yew is a capital wood for posts for garden structures, as it is durable and has a good appearance. For corner-posts of arbours or summer-houses there is scarcely anything better. It is not always, however, that it is to hand when wanted; when it cannot be obtained, the Scotch Fir is not a bad substitute. Both Scotch and Larch wood comes in well for trellises and screens, and when the work has to be finished in straight lines it has the advantage of growing in a more convenient form for using than the Oak. When it is intended to cover the erections with Ivy or any other kind of climbing plant, rougher or less durable material may sometimes be pressed into service. I do not much like the idea of Elm and Ash for such work, but sometimes small Ash poles may be used. In thinning in shrubberies or ornamental ground such woods as the Laburnum and many others of a similar class have to be cut away. Discretion, of course, must be exercised in these cases as to what may or may not be properly used. In some cases Maple, and even Elder, may be made to answer where it is difficult to obtain better. Woods such as the Beech, which damp will rapidly decay, it would be more profitable to leave to their more legitimate use. D.

REMARKABLE GROWTH OF SPRUCES.

There is an interesting account of the growth of some remarkable trees in Dallally Den by "J. F." (p. 570, June 19). He also writes about a peculiar growth of a Spruce, which had taken the form of an upright stem, as also throwing out fresh roots from the prostrate stem at 14 feet from the ground.

In visiting woods in various parts of Scotland, I have observed many such trees in all stages of growth similar to the one "J. F." describes. The most remarkable tree I have seen is one growing on an old turf wall at Muirward Wood, Perthshire. The original stem having been blown down, the root remained intact, and maintained the growth and circulation of the sap, which continued with more or less activity, according to the quantity of roots left to support it. Those branches which were most upright then took the form of suckers, and some ultimately attained gigantic proportions; one or two even grew as large as the parent stem, while the remaining branches either became much spread and flattened, or ultimately died down altogether. The probable explanation of this occurrence is this: when the original tree stem became embedded in the ground it gave rise to the formation of roots, which as they increased in development, ultimately supported the newly-formed stem, giving it a great stimulus, which would not be attained were the stem only depending upon the original roots. This newly-formed stem and its new roots became, therefore, independent of any assistance from the parent roots, and, were it considered necessary to cut away the original stem on each side of the young stem, the original tree would live on as formerly.

Such trees as these are often to be found in the primæval forests, and have led travellers and explorers to greatly exaggerate the age of some of our remarkable Coniferæ, which have been found, as they described, with a young tree growing over the prostrate stem of an old one; whereas, by careful observation it might have been found to be exactly the same as I have described. Again, I have observed in cases where trees have been torn up by storms in Scotland of late years, more especially in glens, dells, and hillsides, that where *débris* and other rubbish has fallen on the stems, roots of considerable size have been formed at all parts of the stem, which have led me to believe that roots could be produced on any part of stem or branch, provided they are brought in contact with soil favourable to their development. Along the coast side in Aberdeenshire, where some young plantations were formed some years ago, the Larch became partly covered by blown sand, on its removal, it was found that all the branches had taken root.

Here, in this moist and favourable climate, I find that the Larch, Spruce, Beech, and some other trees, which are covered round the stems by a rank growth of herbage, has in a great many instances developed roots from latent buds, which have taken root in the ground at various distances of from 18 inches to 30 inches on the stem, especially in glens and such like places.

Robert Coupar Forester).

Ashford Castle, Co. Galway.

No. 767. SATURDAY, July 31, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE FRUIT CROP.

WE are enabled, thanks to our correspondents, to publish this week returns concerning the state of the fruit crop from nearly every county in England. From these it will be seen that on the whole Apples are not so plentiful as early in the season they were expected to be. The blossom, though abundant, did not set well, and now the fruit keeps dropping very much. Apples are, therefore, a thin crop. Pears, though not over plentiful, are better, and promise to be good in quality. Plums in most districts are a heavy crop; so heavy indeed in places, that the branches have to be propped up to keep them from breaking. Cherries, too, have been abundant, but small. Bush fruits, especially Gooseberries, have been good and plentiful. Concerning the Strawberry, to which special attention has been directed, much useful information, both as to varieties and culture, has been furnished. The best early kind, generally speaking, seems to be Vicomtesse Héricart de Thury, and the best late sorts, Oxonian, Elton, and Frogmore Late Pine. As to culture, most of our correspondents agree that no plantation ought to be allowed to stand more than three years. After that the fruit begins to deteriorate, both in size and quality. The ground for the new plantation should be well manured and trenched, and planted either with plants that have been forced, or with prepared runners obtained from fruitful parents. Few new kinds seem to be grown, with the exception of Pauline, which is said to be ten days earlier than any other sort. The wood Strawberry, red and white, from thin soils on limestone rock is reported to be finer this year than usual, and to be liked as a breakfast fruit, as are also the red and white alpines. The following, from Mr. Coleman on fruit prospects in Herefordshire, will, we are sure, be read with interest:—

In nine seasons out of ten fruit growers have occasion to lament the effect of a killing spring frost which decimates the crops, and not unfrequently overlook the fact that there are other conditions equally fatal. This year we have not had a sharp blossom-destroying frost since the earliest Apricots commenced unfolding their flowers, and yet we learn from all parts of the country some fruits, notably Apples, are extremely partial. In this there is nothing very remarkable, as the past, which may well be termed the great aphis year, was perhaps as unfavourable to the formation and perfect maturation of the flower buds as one can imagine. Apples in this part of a great Apple district were a heavy crop, and quite sufficient to prevent the trees from bearing two years in succession, but this was not the only drawback; a long drought set in, and insect pests literally destroyed the foliage. Rain at last came and many trees pushed a late growth which did not ripen. A long trying winter and a cold sunless spring followed; the foliage shot ahead of the flowers, a sure sign that the latter were imperfectly formed and badly ripened, and the last feather was laid on by torrents of rain which turned our valleys into seas when the bulk of the trees were in full blossom. All the trees, fortunately, have not suffered, as we find some that were heavily mulched in gardens and others in well-managed orchards carrying fair crops of fruit. These, it is true, are very backward, are thinning themselves severely; the hot dry month just terminated came upon them at a critical time, and it is now questionable if the finest autumn will carry choice sorts to maturity. The outcry that we shall not have many Apples comes round as regularly as St. Swithin's Day, but with one solitary exception during a period extending over more than a quarter of a century our Herefordshire orchards have turned out better than the prophets predicted. This year in some places will prove no exception to the rule, but the trees generally look starved, out of health, and the reverse of promising. Our best fruited trees include Keswick Codlin, Lord Suffield, Echlinville, Stirling Castle, Blenheim Orange, Golden Winter Pearmain, the old Herefordshire Pearmain (two constant bearers), Claygate Pearmain, Sturmer Pippin, the Quoinings, and an excellent culinary Apple raised at Eastnor called Moss's Seedling. Worcester Pearmain, Irish Peach, and Kerry Pippin also look fairly promising. Cox's and Ribston Pippins are a light crop.

PEARS, as a rule, look more healthy than Apples, and all the trees which produced flowers are carrying fair average crops. A few have required thinning; others which bore heavily last year are barren or, like the standards, too backward if they stand to be worth storing. Pitmaston Duchess, of which we have a number of trees on walls, Williams' Bon Chrétien, Beurré d'Amanlis, and Marie Louise are bearing good crops, and have made considerable progress since the hot days gave place to gentle showers. The following have required much thinning: Marie Louise d'Uccle, Beurré Clairgeau, Knight's Monarch, Josephine de Malines, Beurré Rance, the old Crassane, Belle de Noël, and Louise Bonne of Jersey.

OF PLUMS their name is legion, and, notwithstanding the fact that the trees last year were literally devoured by aphides, they are still perfectly clean, but decidedly late. Green Gages and the old Golden Drop seem to vie with each other in the crops they are carrying, and as nearly all the other varieties succeed where these do not fail, your readers may gather that Plums in the west midlands will be too plentiful for the grower if they ripen. In the Avon and Pershore districts the thousands of trees of Victoria and the commoner Egg Plum are already weighed down with fruit. The thinning of such vast quantities is, of course, out of the question; consequently the quality, which must be poor, will be compensated for by quantity.

CHERRIES in orchards and gardens set, or apparently set, an abundance of fruit, but, owing to the cold, wet state of the ground and the unfavourable weather which prevailed up to midsummer, they have thinned a great deal, and those which have stood are small, deficient in pulp and juice, and sour or flavourless. May Duke and Elton, two varieties which do so well here, are this year not more than half their usual size. Bigarreau Napoleon, one of our hardiest and best Cherries, although very late, is the only variety which promises to come up to the full standard; whilst Black Eagle and some other less luscious kinds are positively neglected by birds.

BUSH FRUITS of all kinds are clean, plentiful, and good; indeed, much finer than usual. We deferred thinning the wood during the continuance of the dry weather, and the warmth and shade favoured the swelling of the fruit. The wood of some of the trees will now be thinned to let in sun and air, but the bulk of our Currants being required late in the season, checks, followed by loss of suddenly-exposed foliage, are avoided.

RASPBERRIES at one time looked hard and unkind, and all the strength of the stools appeared to be running into young canes. The quarters in our own garden were well mulched and hosed quite up to the colouring, and fine fruit is now plentiful. Peaches and Nectarines on south and west walls set an enormous quantity of fruit, and, unlike other kinds, the latter, now thinned down to a Peach to every square yard of foliage, is swelling well. The trees have made excellent growth, are quite free from blister, and, with one solitary exception, fly has not been found upon them. In this cold valley, not considered favourable to the culture of Peaches, I check my trees at the root every year early in October, and give the shortened roots a small quantity of fresh loam corrected with lime rubble. Early in January they are loosened from the walls and nailed in, not tied, just before the blossoms open. I cannot very well enumerate any special varieties, all my trees having required thinning. I ought to say all my borders are heavily hosed as soon as the fruit is set; they are then dressed with old lime rubble and mulched with fresh stable litter.

FIGS in this part of the country may be pronounced a failure. Well protected trees still hold a few fruits, but they do not look promising.

NUTS were at one time considered a failure, but the rains of the past week have brought forward a fair half crop of Cobs and Filberts, and I believe the common wood Nuts are equally plentiful.

NOTES FROM FRANCE.

SORBUS DOMESTICA.—A writer in the journal of the French National Horticultural Society directs attention to the numerous large-fruited varieties of this tree, the generality of which seem scarcely known to planters. In some parts of France, notably in the neighbourhood of Bordeaux and Toulouse, the berries have a marketable value, and are sold from October till January, either half ripe or in that semi-decayed condition to which the Medlar comes before we consider it eatable. It is in the last-mentioned state that the berries are most often eaten. Two varieties, much superior to all others in cultivation, are strongly recommended, both on account of their ornamental appearance and the quality of their fruits, one of which is named after M. Dufresne, in whose estate at Bordeaux it has been discovered; the other was also found growing spontaneously in woods belonging to M. Lafitte at Agen. The first has large pyriform fruits of a carmine-yellow, produced in large bunches, and excellent as soon as they commence to mellow; the other has very large berries, the colour of which is at first pale yellow, changing to bright rose when fully ripe. Grafts of these two kinds can be obtained on remitting the amount of postage to M. Glady, Pont du Cosse, près Agen. The Service is so distinct in growth as to be worthy of more attention than it now gets, its only defect being its slow growth; but to those who can afford to wait the value of the wood makes up for the length of time necessary to bring it to maturity. It is much sought after, on account of its hardness, for the manufacture of cabinet-makers' tools and for other purposes. It commands even a higher price than Oak. The bark is in request for the transformation of wine into vinegar, and the berries have considerable medicinal qualities.

DOUBLE-FLOWERED CYCLAMENS.—It is not uncommon to see Cyclamens with supplementary petals, although I think that they are much more rarely to be found in the large-flowered strains than in the older ones, which were in general cultivation a few years ago. I have at various times raised plants bearing flowers of this description, but I do not remember to have seen one like those recently figured in the *Revue Horticole*. The illustration in question might easily be taken as representing some double form of Narcissus, the ordinary petals being increased in number and more or less twisted, whilst the stamens are converted into petaloid segments, these being also much contorted. The flowers have, therefore, a confused appearance, but the manner in which the petals twist imparts a quaint, informal, and altogether novel character to them. I am inclined to think that in time we shall obtain a race of double-flowered Cyclamens having considerable decorative value. In the case of the varieties raised by me the duplication consisted in the production of a double row of petals, one being rather smaller than the other. These double-flowered kinds were all whites. I never observed any tendency to doubling in the coloured varieties, but M. Bruant, of Poitiers, with whom the

double-flowered forms originated asserts that duplicature is not confined to the white kinds only. It is stated in reference to these double Cyclamens that they are most agreeably and strongly perfumed, the odour much resembling that of Orange flowers.

BEGONIA ARTHUR MALLET.—This new hybrid Begonia, as represented by a coloured plate in the *Revue Horticole*, is a most attractive variety, unique in colour, and will undoubtedly become very popular. It has something of the habit of B. metallica, the leaves being of the same shape and apparently about the same size, but the colour is violet-rose with a strongly defined, almost black, venation. The coloration is not, however, uniform over the whole surface of the foliage, but shades off imperceptibly here and there into much lighter tints, which produce a most pleasing effect. The flowers are disposed in umbels, the buds being of a deep vinous red, the exterior of the petals being carmine-rose, whilst interiorly they are of a pale flesh colour, thus affording a charming contrast of colour. This Begonia was obtained by M. Lionnet, gardener to M. Arthur Mallet, of Jouy-en-Josas, by crossing B. subpeltata with B. Eldorado. From the same sowing another fine kind has been obtained, which has been named Noémi Mallet.

EARLY YELLOW WALLFLOWERS. A variety of Wallflower having pure yellow flowers is much grown by market gardeners in the neighbourhood of Montreuil, Bagnolet, and Romainville. It comes into bloom by the beginning of November, and in mild seasons continues to bloom on through the winter. I am not aware whether this Wallflower is known in this country, but I should say not, as its culture appears in France to be confined to the districts mentioned. Its only defect would seem to be a tenderness of constitution, which places it at the mercy of hard winters, but it would probably answer the purpose of those who grow hardy flowers for market in this country, as when autumn frosts cut off tender flowers there is often a dearth of bloom from November onwards. A good breadth of Wallflowers well in bloom at that time would presumably find a ready sale in Covent Garden.

TRICOLOR BEECH.—Messrs. Transon, of Orleans, possess a Beech which came as a seedling in their nursery, and to which they have given the cumbrous name of Fagus sylvatica latifolia purpurea tricolor. It is a variety of the common purple Beech, but the leaves are bordered with bright rose striped with white. It is said to have a very ornamental appearance. J. C.

Byfleet.

NOTES OF THE WEEK.

Gunnera manicata.—A grand specimen of this noble plant is growing here, the largest leaves of which measure 7 feet 3 inches across, on stalks from 5 feet to 6 feet long. It is carrying immense spikes of fruit nearly 4 feet high. This is truly a noble plant for a sub-tropical garden; it is easily grown from seed or increased by division of the crowns, and it requires only a deep rich soil with plenty of moisture to grow in, and a little dried Bracken to protect the crowns in severe winters.—W. SANGUIN.

Nymphæa stellata variety.—Under this name there is now flowering among the tropical Water Lilies at Kew one of the most remarkable Nymphæas we have ever seen. The number of flowers one usually sees open at one time on a plant of Nymphæa is from two to six, the latter number being considered exceptional, though sometimes found on N. zanzibarensis when well managed. Curiously enough, this free-flowered plant was sent to Kew as N. zanzibarensis. It has foliage as in N. stellata, the common blue Water Lily, and the flowers rise in great numbers from the centre of the plant; they have stalks 18 inches long, and they stand up erect a foot or more above the water. The calyx lobes are 1½ inches wide by 3 inches long, green above, green and pale blue below, and they recurve back to the stalk; the petals are 3 inches long and three-fourths of an inch wide, the tips cucullate, and they number about twenty in each flower, their colour being a clear lavender-blue. Diameter of flower, 6 inches. The stamens form a corona 3 inches across, the filaments being bright yellow, as also are the stigma rays; the anthers are pale blue. On Friday last there were no fewer than twenty-three flowers open on one plant of this kind, and it is rarely that less than eighteen flowers are found open upon it. Whatever grounds there are for the opinion that this Nymphæa is botanically only a form of N. stellata, it must be evident from our description that it possesses characters which horticulturally place it far above any other blue Nymphæa, not even excepting N. zanzibarensis, of which grand Nymphæa several plants are now in flower at Kew. We should like to see this free-flowering Water Lily introduced into all gardens where an aquarium for indoor plants exists.

Amaryllis Akermanni.—Mr. Burbidge has sent us from the Trinity College Botanic Garden, Dublin, a fine four-flowered spike of this showy Amaryllis. It was cut from a plant in an open border, near a hot-house wall with a southern aspect. In this place Mr. Burbidge says it is perfectly hardy, and has been undisturbed for the past ten years or more. The flowers are large and funnel-shaped, and of an intensely deep scarlet-crimson colour. Such a brilliant flower must have a fine effect in the open border.

Carnations without sticks.—Stress is laid in last week's GARDEN on the importance of raising a race of border Carnations which shall support their flowers without the help of sticks. I send you two stems—cut to their extreme base to show their full length—of a Clove Carnation, of which I have now over 200 plants in full bloom, all the produce of two little bits sent me three years ago from a Worcestershire cottage garden. This Carnation is large-flowered, good in colour, most fragrant, and blooms abundantly until frost sets in. But its most delightful characteristic is that it carries its flowers on short stems as stiff as iron wire, which no combination of wind and rain ever bends or breaks. The Grass is almost as glaucous as a Sea Thistle, and altogether I consider this Carnation one of my most valuable possessions.—G. H. ENGLEHEART, *Appleshaw, Andover.*

*** With this, Mr. Engleheart sends flower-stems of a beautiful Carnation, which may be called an improved Clove. The above note describes it so well, that there is no need for further comment. The value of a Carnation with stems rigid enough to hold themselves erect without support cannot be overrated.—ED.

Trichinium Manglesi.—A more liberal treatment than was once considered essential to the welfare of this plant has resulted in the discovery that, under cultivation at all events, this native of the dry sandy deserts of Australia delights in what market growers call fat treatment. We have it stated that in its native haunts this plant is leafless when in flower, but with us it retains its leaves till the flowers have all faded. On asking what was the secret of the management of Trichinium as grown at Kew, we learned that it was simply cow manure!—the soil employed for it at Kew being loam two parts, cow manure one part, with a good sprinkling of sand. The plants are potted early in spring and placed in a sunny frame, where they get plenty of air on favourable days and are freely watered. After the flowers wither, which usually takes place in October, the plants are shaken out of the old soil and repotted in a fresh mixture, and at the same time numbers of the thick roots are cut into lengths of about an inch and pricked into pans of very sandy soil; from these a batch of young plants is obtained. That the treatment adopted for this plant at Kew is right is proved by results which may be seen in two large pans, each bearing about thirty fine flower-heads, and standing in the Cape house there.

The Swamp Magnolia (M. glauca).—Among the smaller growing Magnolias there are none to surpass this in beauty and fragrance of flower, and as it flowers at this season, it is the more valuable. The Swamp Magnolia, as this is called, frequently throws up several stems from the base, and forms a good-sized shrub, while at others it is of a low tree-like habit. The leaves generally have a silvery under-surface, but in this latter respect individuals vary to a certain extent, as they also do in the retention of the foliage, some being almost evergreen, while others are quite deciduous. This latter character will, of course, also be influenced by the situation in which they are grown. The flowering season is spread over a considerable period, while the ivory-white coloured blossoms are deliciously fragrant, especially during sunshine. Another point worthy of note is the fact that, owing to the comparatively low stature of this Magnolia (and even then it flowers freely in a, for it, small state), the blooms are brought more pointedly under notice than is the case with the large strong-growing kinds. The Laurel Magnolia, as it is called, is a native of a considerable tract of country in the United States, preferring damp swampy spots, which circumstance should be borne in mind when planting it in this country, though here it does well in a cool, fairly moist part of the lawn, where the soil is certainly by no means swampy.

Carnation shows.—We are reminded by the Rev. F. D. Horner that the annual show of the northern division of the National Carnation and Picotee Society will be held in the Royal Botanic Gardens, Manchester, on Saturday, Aug. 14. The schedule is much the same as that of the southern division, except that the competitors in the classes are defined. Thus the first two classes are open to all, the next two "to growers of 500 pairs or less," and the last two classes are for six Carnations and six Picotees for growers of 250 pairs or less. This, we think, a good arrangement, as it places large and small growers on an equal footing. We have also received from Mr. Dodwell a schedule of the exhibition of the Carnation and Picotee Union, which is to be held in Mr. Dodwell's garden at Stanley Road, Oxford, on Aug. 3. The competition will include all the sections of Carnations and Picotees, and good prizes are offered in the various classes.

The Zenobias.—These belong to what are collectively called American plants, among which there are few more beautiful or more elegant in growth. They are summer flowering deciduous shrubs, forming dense bushes with neat foliage, and bear a profusion of white Lily-of-the-Valley-like flowers. The blooms are larger than those of most of the Andromedas, and very agreeably scented. A considerable amount of variation exists among different individuals of the Zenobia or Andromeda, as it is often called; but by far the most distinct is the variety pulverulenta (the Andromeda dealbata of Liodley), in which the foliage is covered with a beautiful silvery glaucous bloom, while the flowers are rather larger than the form generally met with. These Zenobias, like most of their class, do best in leaf soil and in rather a moist situation, for if too dry the fine hair-like roots soon suffer. The dense mass of delicate fibres common to most of this Order allows the plants to be moved at almost any season without injury, if kept well watered after the operation, and consequently this Zenobia may be lifted in the spring, and when potted, it can be flowered under glass if needed. The variety pulverulenta is the best for this purpose, as the foliage is quite as distinct as in the open ground, and its peculiar hue renders it a very conspicuous feature.

Mixed climbers.—How strikingly effective are some combinations of climbing plants, the shoots of which have been allowed to intermix with those of other plants. Near here may be seen a magnificent mass of the golden-leaved Honeysuckle over which a plant of Clematis Jackmanni has spread in all directions. The masses of soft golden shoots set off the deep purple blossoms of the Clematis to excellent advantage. We have also a wall covered with Irish Ivy, amongst which a white clustered Rose has been trained and then allowed to grow as it likes. A third example is a fence covered with such a wealth of white Jessamine, that it loads the air with its fragrance. At its base are some self-sown Nasturtiums, which have spread out into a broad mass, and are now covered with gorgeous blossoms, while stray flowering shoots have run up the fence, and contrast strikingly with the white Jessamine. Endless other mixtures might be enumerated, all beautiful and well worth imitation. Who, for instance, with any appreciation of the beautiful could allow bare walls to

exist when, by planting a few well-selected climbers, they could be rendered so much more ornamental?—J. G. H.

ORCHIDS.

DECEPTIVE GROWTH IN ORCHIDS.

No class of plants that require to be grown under glass are so deservedly popular as Orchids, and it is more than likely that the ranks of their admirers will keep on increasing. For a long time after the introduction of many of the representative species there were several reasons which caused many who admired them to hesitate before undertaking their cultivation. The high price which nearly all the kinds that were worth growing commanded was in itself a serious matter; and to this might be added the uncertainty that existed as to their growing after large sums had been spent in procuring them. And though with many people there is a fascination attached to anything that is uncertain, still, when plants that had cost as many pounds as they now realise shillings, were found to die out in quantity, as they usually did where the disease known as spot set in, it was no wonder that many of those who had essayed the cultivation of Orchids were induced to give them up. The first cost of any article has naturally much to do with the price at which it can be sold, and in times past importing Orchids was an expensive and a risky proceeding. Little was known of the countries where most of the best species exist by those who went out to procure them, whilst there was a like absence of knowledge as to the right seasons for collecting them: the best modes of packing had to be learnt, carriage cost much more, and was often very much slower than it now is. All this tended to increase the value of the plants when they came through the ordinary channels, and if anyone depended upon friends who happened to reside in countries where the plants were indigenous to procure them, it was often found to be a very unsatisfactory way of getting them, as more frequently than not the kinds sent, if they came alive to hand, were worthless. Now all this is changed, and the greater number of the favourite kinds reach this country with so comparatively little injury that quantities are able to produce flowers from the first growths they make under the altered conditions of their existence, and in a few years acquire strength and vigour equal to that which they show in their native wilds, and, what is of still more importance, keep on in a condition little, if any, behind that in which they exist naturally. It is to this latter, as much as to the reduction in price, that the extension in the cultivation of Orchids is owing.

When the nature and general character of Orchids, especially the epiphytal species, are taken into account there is little to wonder at in its taking more time before the essentials to their successful cultivation were mastered than in the case of other plants; that is, before growers knew how to treat them, so as to not only have them in a condition that was satisfactory to the eye for the time being, but that would enable them to keep on in a healthy thriving state for an indefinite period, such as the character of their growth naturally permits of their doing. For it does not require more than an ordinary acquaintance with plant life to see that Nature has made especial provision in Orchids for their continued existence. In the bulbous species the old back bulbs die after a lapse of more or less time, but the growth in advance of them suffers in no way by their death, each year seeing young bulbs formed and matured, which keep on renewing the tenure of life in the plants differently to that of others. In the bulbless species the natural provision for their existence is equally apparent; the lower part of the stems, after the leaves and the roots they produced are decayed, die gradually upwards, but the stem in advance above is quite independent of the dead portion below, being able to keep on thriving and extending in a way that removes the limits of their existence beyond that of the generality of other plants. But though the character of growth natural to Orchids, coupled with their tenacity of life, is such as is calculated to give them a prolonged existence, still, in common with other plants, if the treatment they receive is such as to cause the formation of soft spongy growth, disease is certain to follow, although, from the comparatively slower rate of the growth natural to them, they are longer before they show any ill effects. Even after the cultivation of Orchids had extended considerably beyond that which existed, say, thirty years back, the treatment necessary to keep up a continued healthy condition was so far from being understood that their doing well might often be set down as much to accident as to any definite knowledge of what they required. This was seen by what was not an unusual occurrence, *i.e.*, in one set of houses a grower was able for a lengthened time to keep his plants in a faultless state, whilst with a change of houses he failed with plants similar in kind, though the difference in the construction or position of the two sets of houses was no greater than would admit of anyone with a knowledge of the treatment the plants required, such as is now possessed by any average cultivator, to so far adapt his practice as to enable him to succeed.

The mistake usually committed was to look upon the big leaves that were produced in the half-darkened, all but airless houses, with a steaming over heated atmosphere, as the sort of growth to be aimed at. Under such treatment strong, sturdy plants that had before been well managed would generally make immense leaves for a few years, beguiling the growers into the belief that it would be lasting. But the day of reckoning was seldom long in coming, as the condition described was all but invariably the precursor of disease, the effect of which was that the soft, coddled plants melted away, their backward movement usually taking less time than had been occupied in making the deceptive growth that had prepared them for disease. At one time or other a good many cases of this kind have come under my notice, one in particular, which I may mention: A good many years back, when the ordinary varieties of Phalænopsis were much scarcer and dearer than they now are, I saw a plant of P. amabilis sold at an auction sale in one of the large provincial towns. It was a strong plant, with unusually thick leaves, five in number; the price it fetched was eight guineas. It was bought to go to a leading collection in the south of England, which two years after was brought to the hammer in London. I saw the plant there, and it still consisted of five leaves, but of a different character from those it bore when I first made its acquaintance. The largest leaf was over 15 inches long, and the next 13 inches; in fact, it was the biggest single growth of P. amabilis I have seen. The price it was knocked down at was twenty-seven guineas—not a bad return for two years' attention and house room. The buyer, however, had some misgivings after making his purchase that the growth was not of a character such as to admit of the plant keeping on with, and he offered to exchange it with one of the nurserymen for a much smaller plant of the same species, but the offer was declined. Two years after I saw what remained of this grand looking, but deceitfully grown, plant; it consisted of one leaf about 7 inches long, badly spotted, and another forming that also showed disease, of which, in the course of another year, the plant died. Like untold numbers of Orchids that have been subjected to wrong treatment by growing them with not half enough light in an over-heated, stagnant atmosphere, it succumbed through over-excitement, the growth resulting from which often for a time leads to the impression that all was going well until the impression was dispelled by disease attacking the soft, spongy leaves. Such mistakes in the treatment of Orchids are much less frequent than they used to be, yet instances are still not wanting where the plants, either through unskilful treatment, like that already instanced, or by being grown in unsuitable houses, or both combined, go on for a time making growth that is so far deceptive, that their condition is deemed satisfactory, until all at once there is a break down, disease making its appearance. Only recently I saw a case of this kind. Some four years since several new houses were built with a view to being occupied by a collection of these plants. No expense was spared in the construction; in fact, if the outlay had been less the plants might have fared better. As it was, the houses were built 3 feet or 4 feet higher than they should have been, and a still greater mistake was made in placing them close to a number of big trees that interfered much with the light. In due course the plants—an extensive collection in good condition—were placed in their new quarters, where the bulbs made were longer, and the leaves much larger than the plants had produced before; this went on for two or three seasons, when spot in its worst form attacked the collection.

When I saw them, with the exception of the cool kinds and such of the warmer species as had been hung up near the roof, they were in a state that made it painful to look upon them. As will be easily understood, the kinds that require little heat had not suffered in the way that the different species that need a higher temperature had, on account of their growth being made under less exciting conditions, and through the greater amount of air given them. The cause of failure in this case was directly traceable to the unsuitable character of the houses and the dark position in which they were placed, either of which alone would have been much against the plants making the right kind of growth to render them able to keep in a healthy condition. But the two adverse influences combined were such as would have enabled anyone possessed of sufficient knowledge of the nature and requirements of Orchids to have told beforehand what would happen. It is not so pleasant to mention failures, like those named, as it is to speak of instances where successes have been attained. But the causes that bring about such failures are the rocks on which Orchid culture is often wrecked, and it may be well now and then to give a note of warning to those who, with little experience, undertake to grow them, of the causes through which failure is most likely to come. Orchids, with few exceptions, require abundance of light, and to attempt to grow them in house that are darkened by trees or buildings is the height of folly. In the case of houses that are too high, and where consequently the plants are too far away from the glass, there is no safe way of proceeding, except by being content with slower progress than is attainable in low, suitable houses. When Orchids are grown in houses that afford less light than the plants require, more air should be given than is necessary where there is plenty of light. This will to some extent make up for the deficiency. But, as a natural consequence, an extra amount of air means slower growth, yet under conditions of insufficient light any attempt at hurrying in a high temperature is tolerably sure to end in failure. T. B.

MARKET GARDEN NOTES.

Market gardeners are now busy gathering and marketing both fruits and vegetables, clearing off exhausted crops, and getting others planted or sown. We have lately had copious rains: therefore the soil is in first-rate condition for cropping. Potatoes have made grand progress since rain fell. Premature ripening need not now be apprehended, and at present the tubers are quite free from disease. Warm dry weather is, however, now needed for this crop. Digging and marketing early sorts go on briskly; the sooner they can be cleared now the better will the second crop be.

Peas and Broad Beans are clean and good, but not very heavy crops. Early and second early sorts are those most in favour, as they can be got off in time for Turnips or Broccoli. Late sorts seldom pay; they occupy the ground too late in the season to allow other crops to be sown with advantage after them. Runner and dwarf Beans are just coming into use. In open fields runners are nearly all grown without stakes, and very prolific they are treated in this way. The rains have come most opportunely, as, if dry at the root, the bloom falls off without setting. Dwarf or French Beans are already plentiful, and no sorts appear to be more popular for the main crop than Canadian Wonder, and Osborn's for the earliest. The last is a very dwarf, early, and prolific variety, and just as good in the open field as under pot culture.

Cabbages are now being cut in quantity, and still realise fairly good prices. Growers for market do not, as a rule, let the stumps stop in the soil to produce a crop of useful greens for winter, as is done in private gardens; on the contrary, they clear the crop right off, plough the land, and put in another crop

directly. Main crop Cabbages are now being sown. Early York, Early Rainham, Battersea, or Fulham and Enfield Market are the sorts most largely grown, and better crops of Cabbages than those grown under open field culture it would be impossible to find.

Turnips are plentiful and good; a moist season and rapid growth make them mild flavoured. Sowing for winter goes on briskly; white-fleshed sorts are those most in favour; they succeed well after Peas and Beans without disturbing the soil much.

Broccoli, Kale, and indeed all kinds of the Brassica tribe are being planted in quantity. The scarcity last winter, and the high prices obtained this spring, make growers anxious to get out a full supply. Autumn Giant Cauliflower is planted largely in this locality; the early crop of it is already growing freely, and by planting in succession this fine Cauliflower can be had for a long season. Brussels Sprouts are also put out early, for the longer and stouter the stalks the heavier is the crop. Scotch Kale and late and mid-season Broccoli are planted until quite late; for if a mild winter follows it is surprising how well late-planted crops succeed; the soil being light and well drained, they keep growing with scarcely a check from start to finish.

Onions, consisting of large kinds transplanted in spring from autumn-sown crops, are now first-rate in quality, and there is such a constant demand for good Onions, that the quantity grown in the aggregate is very large. Sowings are now being made of the White Spanish for drawing green during winter and spring, and large quantities of these mild-flavoured Onions are used in this way. The main sowing for transplanting will be made shortly. The Giant Rocca and Tripoli varieties are most in favour, as they make very large bulbs and do not run to seed prematurely so readily as some of the smaller kinds.

Radishes are largely sown about this date for winter use. The China Rose and Black Spanish are the kinds liked by market growers.

Vegetable Marrows and Ridge Cucumbers are now growing freely, although the early part of the season was unfavourable for them. The Bush Vegetable Marrow is by far the best this season, quantities of it being fit to cut before the fruits of any of the other kinds are even formed. The Long Ridge Cucumbers are now running freely over the beds; they meet with a ready sale towards the end of the season, when the supply of Telegraph and other frame sorts is exhausted.

Parsley is sown largely about this date for a winter supply, and sheltered spots are selected for it. The seed is sown in drills about 1 foot apart.

Lettuces and Endive for winter salading are now being sown. The old Brown Cos, Grand Admiral, Cabbage Lettuce, and green curled Endive are the sorts for market.

Bush fruits are plentiful and of good quality. Red, White, and Black Currants are very fine and clean. As regards Black Currants, it may safely be said that since Black Naples and Baldwin have become leading market sorts the berries are nearly double the size they used to be. The great drawback to Black Currants as a market crop is that they must be gathered as soon as ripe, or the finest berries drop off. The Red and White varieties hang well, and therefore realise higher prices, as they need not be forced on the market. Gooseberries are a medium crop; Golden Drop is a great favourite as an early dessert kind, Warrington and other rough reds being the best for a late supply. Raspberries are plentiful, the rain having come just in time to save the crop; that on the young growths will now swell up, and it is generally more valuable than the first few gatherings.

Apples are a thin crop and continue to drop very much; the best are on dwarf bush trees. Pears are a good crop, and more evenly distributed over the whole of the trees than last year; although late, they look like swelling off to a good size. Plums are by no means a regular crop; indeed, taken collectively, the crop of fruit this season does not promise to be up to the average. The Strawberry crop has been very disappointing in character—in fact, as regards season, one of the shortest we have had for years.

Gosport. J. Groom.

WARREN HOUSE, COOMBE WOOD.

Were we asked to name a few of the gardens within ten miles of Charing Cross which exemplify the best styles of pure English garden landscape, and also possess most interest in the way of trees and shrubs, we should have no hesitation in including in the list the garden at Warren House, Lord Wolverton's suburban residence. It stands conspicuous even among the crowd of beautiful gardens that are to be found around that delicious strip of woodland known as Coombe Wood. It contains more commendable features and fewer blemishes in design than other gardens we have seen in its neighbourhood; while as regard the trees and shrubs which it contains, it is perhaps unique. This arises from the fact that some years ago a portion of its grounds belonged to the late Mr. James Veitch, about the time when his son and other collectors were exploring Japan, California, and other countries in search of trees and shrubs sufficiently hardy to stand our English climate. This place, it appears, was made the trial ground for these new introductions, the consequence being that a host of the original trees then planted have remained undisturbed up to the present day. Need we say, therefore, that many of them are matchless specimens. There may be seen here towering trees of such Conifers as Cupressus Lawsoniana, two of which are over 50 feet high; a Thuja Lobbi higher still, and fully 23 yards round, looking more like a gigantic mass of Fern or Lycopod than a coniferous tree. Associated with these are lofty Wellingtonias, Silver Firs, Deodars, and Atlas Cedars, one of which is the glaucous variety, probably the finest specimen in the country. It is an extremely handsome tree, which in the sunlight looks not unlike a pyramid of frosted silver. It appears to have suffered at one time from overcrowding, but now it forms a conspicuous object on the lawn in view of the principal windows of the house. To a lover of Conifers this tree alone is worth going a long journey to see. Of smaller things in the way of trees and shrubs there are charming specimens of the Japanese Maple, so elegant in foliage and so rich in colour. They are losing their brilliancy at the present time, but the examples of sanguineum and others have been objects of great beauty—in fact, the most attractive feature of the lawn. Then there are great bushes 6 feet high or more of that beautiful Chilian shrub, Eucryphia pinnatifolia, which in the course of a week or so will be in bloom. It has large blossoms like those of the common St. John's-wort, but pure white. Near it is a standard Wistaria, not a common object, which when in bloom has a striking effect viewed from the house against a background of evergreen growth. Among other conspicuous shrubs one notices just now is Berberis Darwini, of which there are great spreading bushes loaded with bluish-purple Currant-like fruits. The otherwise flowerless shrubberies are lit up now with Spiræas and the bright yellow Bush Broom (Spartium junceum), which has branches like a Rush, wreathed with large Pea flowers of the brightest yellow. The Bamboos and Pampas Grasses also contribute not a little to the beauty of this garden. Of Bambusa Metake, now proved to be the hardiest of all and most suitable for our climate, there are huge clumps several feet high, and one might say yards through. The largest Bamboos are in proximity to the great Lawson Cypresses and Thuja Lobbi, and these, together with the Pampas Grasses and Ferns, make a garden picture which it would be difficult to surpass. Why Conifers, Bamboos, Grasses and Ferns succeed so well in this spot it is not difficult to understand. They are planted in or near a little rill of water which is constantly running, as an overflow from a pool in the higher ground, and this is sufficient to keep the ground always moist; in fact, the soil close to the Bamboos, Grasses, and Ferns is quite spongy. Although no attempt has been made to mention all the out-of-the-common trees and shrubs, enough has been said to show that the garden has been richly planted.

The mansion, like most others in the neighbourhood, stands in a very good position. It is built just on the outskirts of Coombe Wood, which is overlooked from the front of the house, while beyond the wood the view extends across Wimbledon Common right away to the Crystal Palace at Sydenham, whose towers are plainly seen. In the other direction lies a beautifully wooded country, while behind, but a few yards distant, is the great Richmond Park. The house, which is modern and built with red brick, associates well with the surroundings.

From the front of the house the lawn falls away in a gentle slope—here running into long vistas to the distant background, there receding into darkened nooks among the intricacies of the shrubberies and plantations—creating that play of light and shade which is the distinguishing characteristic of an artistically designed garden. Polished and unpolished portions of the grounds here meet in striking contrast. Groups of great trees, remnants of the old Coombe Wood, mix with Gold and Silver Hollies and trimly clipped Golden Yews, which at this season are about the only things that light up the garden with colour. Beyond the Japanese garden is another stretch of woodland, left to Nature, except that the paths are kept mown. Here one sees the beauty of the Silver Birch to perfection, also of the Holly and other native growth. The cunningly-designed path through this part leads to a point where one comes upon a full view of the polished garden, with the house in the distance; in fact, just the point from which the illustration on the opposite page was taken. Two plots close to the house are reserved for the only display of colour. These are not elaborate in design, but massive and simple. Gnarled Oaks, elegant seedling Birches, and a host of other native trees and shrubs are left to themselves, and rising, as they do, from a carpet of Bracken and Bramble, their wild aspect is the more noticeable. From this point, the walk that encircles the place leads to what is called the Japanese garden, but the term is inappropriate now, because, besides Japanese vegetation, there are ornamental trees and shrubs from other regions; in fact, more from California than elsewhere. The view from the high ground in the Japanese garden is very fine, as it extends right away to Wimbledon Common, with a richly planted garden as a foreground, and the beautiful valley in the mid-distance. A large pool in this part is densely crowded with shrubs and plants—in fact, left to Nature, and these contrast strongly with the pyramidal Hollies, the effect being in harmony with the house and the rest of the garden. The plant and fruit houses as well as the kitchen garden are on a scale proportionate to the importance of the place, and the whole is maintained in a high state of keeping by Mr. Woodgate, the gardener. W. G.

SHORT NOTES.—VARIOUS.

Pansies (*J. S.*).—Very pretty blooms, varied in colour and, as you remark, delightfully fragrant.

Gilbert's Champion Broccoli.—I can conscientiously say a good word for this Broccoli; it produces fine large white heads and its flavour is excellent, and this being planting time, it might be tried with advantage.—J. C. C.

Spiræa palmata.—This, growing in a very damp corner of the rock garden at Kew, is more intensely red than any I ever saw. When grown in borders like S. japonica it is often very pale in colour, and as I was assured that the Kew plant was only of the ordinary type, I can only attribute its extra bright colour to its semi-aquatic position.—J. Muir.

Fruit Garden.

GOOD STRAWBERRIES.

Your request that fruit growers generally in different parts of the country will forward notes on varieties and culture for publication in The Garden is a step in the right direction, taken not a whit too soon. Already many useful remarks have appeared in print, and more, no doubt, will follow, that is, if growers who make a specialty of the Strawberry will kindly give their experience of the new or little-known varieties which they have tested and approve of, or that have been found wanting. If we enter a score of private gardens, we do not find more than half that number of varieties grown, and yet more must have been tested and discarded by men capable of forming an opinion as to whether they were likely to displace old and well-tried favourites. The lists of Strawberries, like those of all other fruits, have become far too long and require reducing. One, by no means the largest I have seen, now before me contains over sixty varieties, but, judging from experience and the few names which have already appeared, a small percentage only of these are grown, and yet nurserymen are expected to pay high rents for their ground and keep all these varieties true to name. By all means let us have lists of the best kinds for flavour, for bearing, for coming in early, and for keeping up a supply until the season is over. Then, in order to benefit the trade and enable them to give us a better article for less money, a list of varieties which have been tried and found wanting should be published. This outcome no private individual or society can secure, as we find many kinds doing well in one part of the country and failures in others, but by getting up an election of sorts their general adaptability to certain districts could be settled by experience. Take, for instance, the British Queen variety, which perhaps ninety out of every hundred gardeners have grown or tried to grow, and if it is found that the majority of good cultivators in any particular district have left it out of their lists, we may conclude that experiments should precede extensive planting. Take yet another delicious old variety, Sir Charles Napier, at one time and possibly now a favourite with southern growers for the London market. But why is such a bright fresh kind so seldom met with throughout the kingdom? Simply because in cold heavy soils it is not only an unfruitful variety, it positively shrinks away and dies. Seasons, again, as well as soils have great influence over the Strawberry, and not unfrequently the effect of certain climatal conditions—say in two districts, the one good, the other inferior—is the reverse of what might be expected. A remarkable instance of this kind this season is now within my own knowledge. A late variety called Oxonian, sent out by the late Mr. Turner, has long been a great favourite in Worcestershire. At Madresfield Court, and along the warm red land east of the Malverns, the crop usually so good is a failure; on the Herefordshire side of the hills it is the best I have seen for a number of years. Promiscuous information from the few persons who rush into print will do some good, but to settle the matter thoroughly and reduce our bulky lists to decent proportions, I would suggest the distribution of simple forms to be filled up and returned by the leading growers in every county.

Strawberries degenerating.—A correspondent inquires if Strawberries degenerate, and goes on to say he has been obliged to give up the growth of several of the leading varieties after a short period of four or five years. If grown on the three years' system, it is hardly possible that they can have become tired of the soil; he must, therefore, set down his failure to some other cause—possibly the bad seasons which have prevailed for some years. Strawberry plants are so easily propagated, and many growers depend too much upon their own gardens for their annual supply of runners; whereas, were they to work upon the exchange principle, they would find that the same variety might be grown for any number of years. When Strawberry beds become infested with mildew they should be chopped up and burned. No one on any account should be allowed to have a runner from them, neither should the pickers be permitted to carry the fungus into clean beds in other parts of the garden. Dryness at the root is the main cause of mildew, and old beds are more subject to it than young ones; but by making new plantations on fresh ground every year and destroying an equal breadth of the old when the plants have borne three crops, this pest—one of the principal causes of degeneration—can be partially, if not entirely, stamped out. I have adopted the exchange principle and the three years' system for a great number of years, and so marked is the growth of introduced stock, that one can tell to a row where the plants terminate. Exchange alone, it is hardly necessary to say, is only one factor in the sum. I make a point of trenching my Strawberry ground when it is dry and warm early in the summer; grow summer Lettuces upon it in seed drills 2 feet 6 inches apart and plant in August, giving each Strawberry plant half a cubic foot of heavy calcareous loam, rammed as firm as rammers can make it. Mulching and watering play a very important part, and the Dutch hoe is the only implement used for destroying weeds.

Lawn view at Warren House, Coombe Wood, Surrey. Engraved for The Garden from a photograph by Miss Antrobus.

Varieties.—Our heaviest-bearing early Strawberry is Vicomtesse Héricart de Thury; the next La Grosse Sucrée, closely followed by Crimson Queen. These produce immense crops, and the plants are always free from mildew. Sir J. Paxton produces heavy crops of handsome fruit, slightly acid in cold seasons, but it has a good constitution, is well adapted for the main midseason crop, and the fruit travels well. President is a grand Strawberry for home use, and produces enormous crops of fine fruit when planted 3 feet apart every way.

For late use I find the old Elton a very profitable variety, and the best for preserving. Oxonian is a large, rather coarse Strawberry, but an immense cropper; it does well on north borders, and pays well. Moreover, it is a variety which will stand longer than any other before it shows signs of declining vigour. British Queen, Dr. Hogg, Loxford Hall Seedling, and Frogmore Late Pine stand first for flavour. La Constante, Lucas, Marguerite, Mr. Radclyffe, and Carolina superba are good Strawberries. Souvenir de Kieff and James Veitch I have given up; they are good for the punnet, but too coarse for our use.—W. Coleman, *Eastnor Castle, Ledbury.*

Strawberries in the North.

The north of England suffered as much from drought as the south and south-western counties, and Strawberries were much crippled in consequence. A friend has supplied me with a few facts concerning the different varieties cultivated there, and it appears that Vicomtesse Héricart de Thury is one of the best for all purposes; while on light soils Black Prince, if not allowed to remain after the second year, is still a profitable variety. In many gardens President is a total failure, going all to leaf, and in five places out of six Elton Pine behaves much in the same manner; but Frogmore Late Pine promises to be more profitable, though even this is not spoken very highly of. Among several new sorts tried at Aldin Grange, Durham, Loxford Hall Seedling promises to do well; and John

Powell, a sort in the way of Keen's Seedling, but more prolific, is also liked. Empress Eugénie, a rather coarse sort, and, as a rule, not highly flavoured, also finds favour with some of the Durham cultivators. Sir Joseph Paxton there, as elsewhere, is very popular. It was shown remarkably well at the late Newcastle show. Duke of Edinburgh is a great favourite with a market grower, who considers it the most profitable sort in cultivation. It is a vigorous grower, very prolific, and the fruit large, richly coloured, firm, and fairly good in quality. This sort ought to eventually become very popular among north country growers, and especially where Strawberries are cultivated principally for the markets. —W. I.

Strawberries in peat and sand.

WOULD you give me some advice as to making a new Strawberry bed? What sorts would you recommend for general planting—not late sorts. This house is about one mile from Ascot Heath, and the soil is very poor—a mixture of peat and sand, and, consequently, requiring much water, which is rather scarce in dry weather.—G. H. M.

*** If your ground lies high and dry, and the addition of correctives is likely to elevate the bed too much, wheel off a quantity of the worst, either from the surface or lower spit, and trench two good spades deep. Make the surface fairly level and apply a heavy dressing of rotten manure from the cowsheds or piggeries. Thoroughly incorporate this with the soil, working it well down to the bottom, and ram the lower spit as the second turning over is proceeded with. This will give a sound sustaining base for the lower roots, but something more is needed. You must have marl, or, lacking this, clay will be the next best substitute. Of one of these obtain a sufficient quantity to surface the bed to the depth of 4 inches or 6 inches: if dry and pulverised, so much the better; if otherwise, spread it roughly and loosely, and then leave it until the weather has gone through it. On a dry day, beat and pound the lumps until they are completely reduced, and fork it in without disturbing the lower stratum of peat and manure, already as solid as rammers can make it. When the finely-broken marl and surface spit, already containing a good quantity of manure, are thoroughly mixed, again ram until the whole mass is as solid as an old pasture; make the surface perfectly level, and the bed will be ready for planting. If the manures named cannot be obtained, rich manure from the farmyard will do; but that from pigs and cows being cool, solid, and rich will suit a peaty soil best. It is hardly necessary to say, the land should be clean and free from roots and weeds, and preparatory operations should be carried on in dry weather.

PLANTING.—August is the best time to plant, but rather than hurry the work, drying and breaking the marl into fine particles especially, planting may be delayed until September. Should this be the case, and the young plants are likely to become pot-bound in 3-inch pots, turn them out into a nursery bed and give them a good soaking of water. Here they will make fresh roots, and lift with good balls whenever they are wanted. When the plants and beds are ready set out the rows 2 feet 6 inches apart each way with small pegs, and draw shallow drills from peg to peg crosswise; then reverse the line and drill in the opposite direction. This will throw the whole of the ground into squares, the intersecting points being the stations. Having decided upon the number of rows of each variety, each row to run from north to south if practicable, lift the plants with good balls and let them in with a trowel, one at each angle, make the soil very firm about them and wash it home with a good supply of water. If, on the other hand, the bed can be got ready in reasonable time and the plants have been kept in pots, let them be thoroughly soaked before they are turned out, loosen the matted roots with the fingers and ram firmly with a potting stick, leaving half an inch of soil above the tops of the balls when all is finished. When planting is finished mulch well with short manure to draw out surface roots, as well as to prevent the soil from parting away from the balls, and keep the plants supplied with water until autumn rains render this attention no longer necessary. Peaty beds prepared in this way with marl and manure and made as firm as a board will grow good fruit of all the leading kinds, including British Queen, for three or four years, when they should be broken up, and the ground, for other crops, will never forget the preparation. A few rows of young plants should be put out every year when the labour will become light, and an equal number of the old can be destroyed without reducing the breadth under cultivation.

WINTER AND SPRING MANAGEMENT.—The beds from the time they are planted must be kept free from weeds, but no harm will be done by allowing the plants to throw out runners. This, during the remainder of the season, can be accomplished by hand-weeding or very shallow scuffling, but on no account from first to last must the roots be mutilated by digging or forking. When growth ceases, cut off all the runners, repeat the ramming, add more mulching, and the plants will be safe for the winter. Early in the spring, as soon as severe frosts are over, all deaths must be made good from the reserve, every plant must be again firmly rammed, as many of them will have been disturbed by frost lifting the soil, and a slight dressing of soot, avoiding the crowns, will do them no harm in March. When growth sets in, water being scarce, a heavy mulch of fresh, but well-worked, stable manure will keep the roots cool and moist, and the straw, washed clean and sweet, will form the best of all mediums for the ripe fruit to rest upon. Good plants put out in August give the finest fruit the first year, and the greatest quantity in the two years following.

VARIETIES.—These are now so numerous, and vary so much not only in quality and flavour in different parts of the country, but also in their positive refusal to produce fertile flowers under certain conditions and treatment, that one is inclined to say, Look round, make inquiry, and ascertain what kinds do best in the neighbourhood. But this matter of growing Strawberries in a manufactured compost in a peat district is slightly exceptional, and some kinds may prove a success where in cold heavy districts they are a comparative failure. The mode of preparation being expensive, I should say, do not try experiments with doubtful varieties, but plant Vicomtesse Héricart de Thury and La Grosse Sucrée for the earliest fruit; Comte de Paris, Sir Charles Napier, President, Sir J. Paxton, Crimson Queen, Carolina superba (a good, but neglected Strawberry), Mr. Radclyffe, and British Queen. The last may or may not succeed, but so decidedly is it the queen of Strawberries, that it is worthy of the most attentive cultivation. Heavy soil and plenty of mulching are the great factors in its culture, and if, in addition to the marl, a spadeful of good loam can be given to each plant at the time of planting, this variety in two senses will prove grateful.—W. COLEMAN, *Eastnor Castle, Ledbury.*

Little-known Strawberries.

I HAVE recently had an opportunity of forming an opinion concerning the merits of several sorts of Strawberries not in general cultivation, though not new. Of these, one of the largest is Kitley's Goliath, but in this case size is its principal recommendation. It is grown in the neighbourhood of Bath for market, and is found to be a very profitable late sort. Its fruits vary considerably in form, but, as a rule, they are thick and wedge-shaped; the seeds are deeply imbedded in the surface, the colour of which is bright red, and the flavour somewhat poor and flat. It is a strong grower, and on firm good ground crops heavily. The Countess, one of Dr. Roden's seedlings, is a very distinct variety. It is vigorous and prolific, and produces large, very flat fruits of a deep red colour. Its seeds are very thick and prominent; consequently it has the merit of being a good traveller. The fruits of it that I tasted were firm, but somewhat too acid to be pleasant; at any rate, I much prefer either Sir J. Paxton or President to it. Souvenir de Kieff is a fine handsome sort, good for either market or exhibition, and the flavour is brisk and pleasant. It is a vigorous grower, and on deeply trenched or rich loose ground it is apt to form too much foliage; on the whole, however, I am pleased with it. Loxford Hall is more generally cultivated than either of the foregoing, and may be termed a really good late Strawberry. This season, owing to the dryness of the ground, the flavour is naturally more acid than usual, but it is much superior to Oxonian, or Eleanor, as it is often called, especially as regards flavour, and it is quite as late as that variety.—W. I.

HEDGEROW FRUITS.

THERE will to all appearance be an abundance of hedge fruit this season. With regard to some kinds, the Blackberry, for instance, it is too early to speak, but in the case of others the fruit has been so far formed as to afford a pretty good indication of the crop. Of Hazel nuts there is a large quantity. There are a few hedge Sloes. For several years past this crop has almost entirely failed. This season there was reason to have expected more fruit than we really have, as it will be remembered that the extraordinarily sharp weather in the early part of March kept the Blackthorn from coming into blossom so early as usual. Of haws there is an abundance. The blossom of the Hawthorn was very abundant, and it now looks as if almost every blossom had set.

The Elder has not long passed flowering, but with trees which come into bloom so late in the season there is not much doubt of a crop, unless something very abnormal takes place. The Elder bushes have been a wonderful picture this season. There has been a great profusion of Dog Roses, so there seems every prospect of large numbers of hips. Out of all this immense bulk of fruit there seems to be very few sorts which may really be called edible. Practically, the Nuts and the Blackberries are about the only ones. It is true that hedge fruits have quite a legitimate use in providing winter supplies for the birds, yet it does appear strange with so many hundreds and probably thousands of miles of hedges that little or no attempt is made to turn them to account for fruit production. Farmers would not then require to devote all their farms to raising jam, as has been advocated by a high authority, but could obtain it from their hedgerows. Seriously, in many places there seems no reason why the Gooseberry bush, for instance, should not be employed instead of the Hawthorn. It is spiny enough in all conscience, and if kept cut in proper form would make quite as dense a hedge as the other. There is obviously no end of fruit trees which could be grown in hedges, but the number of dwarf trees or bushes which would be suitable to make up the fence itself does not seem to be so many. The Gooseberry is certainly one, and a valuable one, as it is just as easy to raise young Gooseberry bushes as young Hawthorns. I do not mean by this that we want hundreds of miles of Gooseberry hedges, but enough could be established to supply families with this useful fruit all the year round, as by means of preserving and bottling it can be made to last from one season until the next. Currant trees alone would be hardly suitable, but mixed with the Gooseberry there seems no reason why they should not be occasionally adopted in hedges. There are, no doubt, many drawbacks to such a plan of fruit raising, especially that of its liability to be stolen, but in many cases a little discretion in the choice of positions would materially lessen this danger.

D.

Pruning Gooseberry bushes.—I am pleased to find attention drawn to this subject, as I am convinced that Gooseberries get, as a rule, too much pruning. When severely thinned the loss of even a few buds by birds makes a serious gap in the crop; whereas, if left tolerably thick, loss in that way is scarcely felt. I recently visited a garden in which a grand crop of Gooseberries was

hanging, and the gardener assured me that he had never pruned the trees thus furnished with fruit for years, and they never failed to produce good crops. His plan was to plant young bushes, and let them grow without any pruning until they began to show symptoms of failing, when they were done away with and a fresh lot planted. Although it may not be desirable to dispense with pruning altogether in the case of Gooseberries, I feel sure that if only shoots that grow down on the ground or that cross each other are removed, much better results would be obtained than we now get. Ground on which Gooseberries grow should never be dug deep enough to interfere with the roots; it should simply be kept free from weeds in summer and lightly forked over in winter just enough to bury the old top-dressing of manure that is put on annually. The firm soil checks undue luxuriance and promotes fertility. —James Groom, *Gosport.*

NOTES.

White Poppies.—The big red Poppies of the Papaver orientale section are so well known and so highly appreciated by gardeners, that I am quite willing to leave them to their care, with this added caution, viz., keep only the very best forms and dig out all the bad ones, otherwise, supposing you wish to rear seedlings, all your seed is likely to be spoiled by pollen from the bad flowers. How comes it that the true great-flowered and great-fruited P. somniferum is so rarely seen in gardens? Even in botanical gardens a spurious smaller form of P. somniferum is often grown under the specific name. Quite recently Dr. Mahaffy, the Greek historian, made a little tour up the Nile to Thebes and Luxor, and he kindly brought me seeds of a white Poppy which has recently bloomed here six weeks after the seeds were sown. Mr. Baker tells me it is the P. setigerum of De Candolle, and in all probability the wild plant from which the Opium Poppy originated. A similar Poppy was grown by the people of the Swiss lake dwellings, and it is now grown for oil in the south of Europe. It has hairy flower-stems and a six-rayed deflexed stigma. The true Opium Poppy, with pure white flowers of satin-like texture nearly 6 inches across and almost as beautiful as those of Romneya Coulteri, has ten to thirteen rays to the stigma, and the common garden or spurious Opium Poppy has rays varying from eight to ten as a rule. The true Opium Poppy, again, is very distinct in its fruit, each being about the size and shape of a King of the Pippins Apple, and there are rarely more than from one to three flowers on each plant. It is, as I fancy, the most stately and effective of all the white Poppies.

Fruit from abroad.—The Australian fruits in the Colonial Exhibition will open our eyes a little as to the possibility of preserving and carrying fruit for long distances—in fact, from one side of the world to the other. In Singapore, for example, there are the finest of tropical fruits in abundance, such as Bananas, Mangoes, Durian, Langsat, Duku, Litchi, and Mangosteen, and yet when I was there a few years ago there was quite a furore because an Australian boat had arrived with a cargo of Apples on board. I had never eaten an Australian Apple before, and enjoyed their freshness and flavour alike as eaten beneath a tropical sun. There are a good many fortunes in the foreign fruit trade, and I often wonder why our preserved fruit manufacturers are so lethargic in the matter. You see Pine-apples by the bullock cart-load lying about in Singapore and other Eastern ports, but it is only quite recently that they have reached our markets in a canned state. Surely it is possible to preserve Mangoes and Mangosteen, even if it be not possible to carry them fresh to our shores. Fortunately, we can eat Oranges all the year round, and all who have eaten Mangoes in India will regret that they cannot be imported to our markets. The day is not far distant when the Chinese will send us all sorts of tropical fruits in syrup, just as they send Kumquats and Ginger now, and those who deal in the last named preserves might do a little by stirring up the Chinese traders in the matter.

Lotus and Papyrus.—The Lotus of the Nile seems to have been Nymphæa Lotus, a rosy Water Lily, the flowers of which were used in the funeral wreaths of the ancient Egyptians. It is a fragrant blossom, varying from white to deep rose, but the soft blue flowers of N. stellata and N. cærulea were also used in these appendages of burial. Nelumbium is the flower of Buddha, and is highly esteemed to this day as a sacred flower by both Indians and Chinese. If ever the Nelumbium existed in Egypt, it was most probably as a cultivated plant, and when introduced it was doubtless accompanied by traditions which soon led to its becoming popular, even if it did not, as some believe, supplant the native Lotus, or Nymphæa, as a sacred flower. The Egyptians had attained to such a state of culture, luxury, and wealth, however, that, no doubt, they were able to grow, appreciate, and utilise any introductions which came into their hands. All history, sacred as well as secular, points to Egypt as having been the garden of the world in its day. Plenty reigned there. Even the Israelites, who had been slaves in the land, regretted the flesh-pots of Egypt, the Leeks and the Cucumbers, when journeying through the desert. Another question is that of the Papyrus, which is rare as a native of Egypt now-a-days, and was, doubtless, cultivated in the delta when it was used for literary purposes. These two plants, the Lotus and the Papyrus, may stand as types of Egyptian civilisation, the one for the luxury, and the other for the culture of a wonderful people. Both are most beautiful, and worthy of our gardens of to-day.

Blue Shore Grass.—Wherever there is a demand for indoor arrangements of flowers and distinct foliage, this Shore Grass becomes very useful. It may either be used in its fresh state as newly cut from the plants, or dried for use during winter when elegant grassy foliage is scarce in the open-air garden. Arrangements of bronzy Spanish Irises and leaves of this Grass are very beautiful and distinct, giving harmony of form and contrast in colour; and no other leaves I know arrange so well with the bulbous Iris as do these and those of Typha angustifolia. Blue Shore Grass is the popular name of a wild Grass, known botanically as Elymus arenarius, a Grass as useful as it is beautiful, being scarcely surpassed by any other vegetation in the fixing and binding of shifting sands on the shore. The bluish grey hue of this Grass is so distinct, that a good clump of it on the lawn becomes a very attractive object. When planted, plenty of coarse sea sand should be mixed with the soil, in order to facilitate the production of luxuriant growth. A good deep pot or vase arranged with scarlet Gladioli and leaves of this Elymus is a beautiful combination.

Shade trees on the lawn.—Our climate is never quite so tempting as is that of Paris for open-air life; still there are many of our summer and autumn days when life out of doors is most enjoyable, and all that one desires is a leafy screen between our heads and the sun. Shade trees on the lawn just yield the protection needed, and their presence is worth ensuring wherever they do not already exist. Among other trees suitable for this purpose I have noted the Hawthorn, Weeping Ash, Horse Chestnut, Lime, which is, however, apt to be a little disagreeable when in flower. The Walnut is one of the best of all shade trees for a lawn, but slow in growth. One of the quickest of all in growth and most certain of growing in a shapely tent-like manner is the Weeping Elm, and the Weeping Beech is another excellent tree, and one well suited to limestone soils. Sometimes a little grove of five or six trees may be planted, and in this way a shady spot is quickly and certainly secured, or one may boldly form a pergola or shed of rough timber and cover it with Ivy, Clematis, Vines, Virginian or other creepers so as to ensure its becoming a thing of beauty as well as a useful adjunct to the house on fine days, especially during the time of Roses in the garden.

Violas.—The whole Viola family is a beautiful one, and that they may, every one of them, be grown well in a cottage garden is an additional advantage in every way. We have but few other flowers of summer that give us more pleasure than do these velvet-hued Violas of many kinds. From white through yellow and blue to a deep rich purple we have all shades. They show best as massed together, and during a hot and dry season like the present, we find the advantage of puddling, or lining, the beds in which they are planted with plenty of fresh cow manure. Apart from the extreme freshness and beauty of Violas, as seen growing—and a mass of V. cornuta alba now before me as I write is most lovely—their flowers are also valuable for cutting. Our plan is to cut all the sorts and colours separately. About three leafy shoots are first gathered, and to these we add about a dozen good, fresh, newly-opened flowers and buds, and the whole is loosely tied with a bit of bast, or with Crocus leaves. The same rule is observed with Roses, Carnations, Pinks, and other flowers, each being bunched separately and cut with long stalks, and, so far as possible, arranged with their own foliage.

English plant names.—The question is not of either alone, but of both Latin and English combined. Whilst convinced that Latin names have a cosmopolitan distribution and meaning to the educated people of the entire world, yet we must not forget the every-day wants of those who know no Latin and less of Greek. English names may be quite as scientific, that is to say as definitely descriptive as Latin ones, and this is what they should really be, and not merely popular or fancy names. A name that is popular to-day becomes unintelligible to-morrow, but this is not so if a name be framed from the backbone of our language. Latin names are and will be used by scientific men, and rightly so, but when a plant has a plain English name as well as a Latin one, every one of the millions who speak English has a double chance of knowing all that a Latin name can convey to the scholar. In a word, the only perfect system of plant-naming is, or will be, a dual system in which the so-called scientific and the so-called popular demands shall be fairly supplied. How very rarely is Latin used in speaking of forest trees, or of fruits or of vegetables, or of the Corn or the cattle on a thousand hills. In a word, nearly everything really useful to man has an English name already, be it bird, beast, stone, or plant, if we except the garden flowers, and no good reason has been yet shown why the principle of dual naming should not be systematically applied to them. A noted trade grower told me only yesterday that he should adopt good English names for all his plants, adding that they sold better when so named. Here is a philosophy which he who runs may read.

July or Gilly flowers.—In John Rea's "Flora," third impression, published in 1702,

there is a catalogue of three hundred and sixty varieties of Caryophyllus hortensis or July flowers, most of which he tells us were reared from seeds by the Dutch florists, and brought over from Holland, Flanders, and other parts of the Netherlands every year. Rea further says that "many varieties are yearly brought over to London and there sold at mean rates to gardeners, who sell them again to others who delight in flowers commonly at twelve pence a layer." Now-a-days all this is altered, the very finest of Pinks and Carnations being raised from seed in England, and in many cases from home-saved seeds. In Rea's time this was not possible if what he says be true. "Good July flowers are so aptly gained from seeds in the Netherlands," he says, but he adds, "yet they are not so with us, for if the seeds which some years we gain from good Dutch flowers be sown, transplanted, and handled with all possible care and diligence, yet most of the plants will bring but single flowers, and if any chance to prove double they are either much broken, small, or meanly coloured, and of little esteem." Rea places the July flower next to the Rose in his estimation, and I think he is right, for good Carnations and Cloves are nearly perfect as garden blossoms. The intricate instructions for pot culture and the preparation of soils read curiously to us to-day when our finest flowers are grown in the open air, and a packet of seed suffices to stock many a good garden with these fragrant flowers.

The watering-pot.—All the world over, where any attempt is made at gardening, there you find the watering-pot in some form or other. In Egypt a bag of skin does duty for it, the water being squirted through a narrow hose-like portion. The old earthenware water-pot is now rather rare in France, but is often shown in the Salon pictures of flowers and plants. In Borneo a hollow bamboo does duty as a water-pot, and there are different appliances elsewhere, but for persistent use of this appliance the Chinese are especially noted. A Chinaman seems to employ every spare moment in watering his garden. Early and late, rain or fine, it makes no matter—there he is at work with the water-pot; and it is rather amusing to see him stolidly pouring water about among his vegetables during a downpour of tropical rain. One fact is in his favour, for, wherever the Chinese take to growing vegetables, they beat all comers, and generally monopolise the trade. This season, in particular, we have been driven to the use of the water-pot more than usual. In watering permanent plants our plan is to scrape away the dry soil before watering and to replace it afterwards, so that it to a great extent prevents evaporation, and also caking on the surface. In transplanting during hot weather we also are very particular to water the plants well a day or so before they are moved as well as afterwards. When well watered before digging, we find it easy to transplant nearly anything without any injury whatever.

Canna Ehemanni.—This tall and stately crimson-blossomed species is generally considered to be a variety of C. iridiflora, and is so striking in habit and showy when in blossom, that it deserves a place wherever stove plants are grown. It is of vigorous habit, and attains a height of 6 feet or 8 feet in a hot temperature with plenty of moisture. By dividing a large plant and growing the pieces in various temperatures, it may be had in blossom nearly all the year round. It is most vigorous in a compost of fibrous loam broken into pieces as big as one's fist, and to this a little manure from an old hotbed may be added, or, as I think, a better plan is to pot the plant in pure loam, and then to give an occasional dose of liquid manure after the young roots have taken possession of the soil. Another free-blooming kind, C. floribunda, a smaller habited plant with erect spikes of crimson flowers, does well under the same treatment, and is one of the floriferous kinds. Even when not in bloom the above are so fresh and their leaves so shapely and ornamental that they are never unsightly, and therefore well worth a place wherever stove plants are grown.

Campanula lactiflora.—A tall-growing Bellflower introduced fifty years ago or more from Siberia, and even now not so well known in gardens as it deserves to be, seeing that it forms a spreading mass of stems 6 feet or 7 feet in height, each stem bearing a mass of flowers at its apex, and each flower being 1 inch in diameter and of a delicate tint between milk-white (hence its specific name) and pale sky-blue. It is quite readily propagated either from division of the roots in spring, or by seeds sown as soon as ripe in open-air beds. Its season of flowering makes it especially valuable, since its comes into bloom just after the Canterbury Bells are over, and before the Chimney Campanulas (C. pyramidalis), white and blue, begin to flower. Among other good Bellflowers now blooming, two of the best are varieties of C. Tymonsi, which somewhat resemble C. carpatica, but have darker coloured flowers. After all, is there anything in the whole group much more beautiful than the common "Blue Bells of Scotland" (C. rotundifolia) and its forms? Making a pilgrimage to Abbotsford last autumn, I saw hedge banks lined with this bonny flower of Burns.

Aciphylla squarrosa.—This is one of the Wild Spaniards of the settlers in New Zealand, a plant which at first sight reminds one of a slender-leaved Yucca, but which is really a divergent member of the Umbelliferæ. It has divided leaves, each division being linear, and tipped with a red-black pointed spine. As these spine-tipped leaves radiate in all directions from the ground level to the zenith, and are pretty thickly disposed, it follows that the plant itself is of the most exclusive or touch-me-not description. It is abundant on the declivities surrounding Mount Cook, growing in gullies and depressions among the stones. Seeds of it were sent to Edinburgh some few years ago, and from these plants were raised at Trinity Lodge, at the Botanic Gardens, and elsewhere. We have here a plant nearly a yard in diameter, which flowers freely every year, but produces no seeds, but seeds from the Edinburgh Botanic Gardens grow freely, and a nice little batch of seedlings are very welcome. If not actually dioecious, the plant shows an inclination in that direction, for while some individuals seed freely, others refuse to do so. Either as a distinct-habited plant for rockwork, or on the Grass, it well deserves a place in the garden.

Lavender.—Sweet Lavender is not quite so highly valued to-day as in times past, yet there are even yet many places where bunches of its flower-heads, neatly tied up in muslin bags, find their way into the wardrobes and linen chests of many old country houses. Even as an evergreen bush on the lawn, Lavender is well worth culture, and a bunch of Cabbage Roses or Carnations, with a few sprays of Lavender added, form a posy fit for a queen's boudoir. There is a little secret as to the cutting of Lavender flowers, and that is, never allow the flowers to open before they are cut, but reap them off as soon as ever the flower-buds show colour, since if left later much of the delicate essential oil will evaporate, or have become absorbed by the blossoming. The old herb gatherers of former times were most careful to gather their simples before flowering time, and the point is worth attention in the garden where everything, whether fruit, vegetables, or flowers, should be gathered a day too soon rather than a day too late. There are several varieties of Lavender, the best being that grown at Mitcham, in Surrey, for distillation, and where, at night more especially, the air is redolent with perfume from the fields or from the working still. Where is now the old white-flowered Lavender, figured by Besler in 1612, and which no doubt even yet exists here and there as a curiosity?

Gentiana gelida.—Formerly we used to call this pretty free-blooming plant G. septemfida, but the above now appears to be its generally accepted name in gardens. It is, as I believe, the best of all the summer-blooming kinds. Its deep sky-blue flowers are borne in dense trusses, or umbels, on leafy stems about 1 foot in height. They are very lovely, and have a dainty bit of finely-cut fringe in the sinus between the corolla lobes, which adds quite a unique finish to the flowers. It has grown here on a dry rockery having a southern exposure for at least seven or eight years with no protection other than a Wilsonian zinc collar as a safeguard from slugs and small snails, which esteem it a delicacy just as its succulent young shoots appear above ground in spring. After flowering it seeds freely, and if the sawdust-like seeds be sown at once after ripening in an open-air bed of peaty soil, they germinate freely the following March or April, and soon become strong, healthy little plants, fit for transplanting to the positions which they are destined to occupy.

Veronica.

Flower Garden.

NOTES ON HARDY PLANTS.

Campanula carpatica and its varieties.—What more beautiful or more effective dwarf plants could be named than these? Take merely the better defined forms of them, beginning with the type, then the purple turbinata, and after that the G. F. Wilson variety. If the bells or cups range for size in the order given, the fine purple colour is intensified in just the opposite order. Carpatica lasts for weeks in beauty, turbinata scarcely for a less period, and were the useless seed picked off, strong plants would do even better. As regards the Wilson variety, when I thought it had done flowering, the plants were severely divided and potted in grit and perfectly decomposed leaf-mould, and not only has vigorous growth begun, but flowers are coming afresh. These showy and enduring flowered plants are what may be safely recommended to be grown in not merely odd patches, but in quantity. Then there is the white strain, which runs out as far as turbinata, as well as some white, softly tinted with purple, varieties, but I have not yet seen this shade in other than the typical form, in which, however, it is common enough.

Carex riparia albo-marginata. — Notwithstanding the fact that variegated Grasses and other plants are often objected to for indoor use in a cut state, this Sedge, I think, should form an exception. Cut with a bit of root attached to it, so that the blades are kept in the position as grown, I know of nothing handsomer. When associated with the bright Iceland Poppies nothing more is required for a small vase. Many, I know, would shudder at the idea of having a Carex in the garden, but it is more easily kept within bounds than some things which most of us grow. It gives less trouble, for instance, than Forget-me-not, and when grown clear away from trees it may be found quite as useful as the little favourite just named.

Polemonium confertum is admitted to be one of the handsomest species of the genus to which it belongs; still, I fear there is not much interest taken in it, doubtless because it is not known. Every lover of alpines should, however, make its acquaintance, and for that there is no better time than now, for if

plants of it are not well established they are liable to be killed in winter, though perfectly hardy. If planted now it will make strong growth, and this is the only safe season (so far as I have proved from an experience of it for six or seven years) when it can be safely divided. In a very few days offsets become thriving plants.

Campanula Allioni with double flowers may not be uncommon, but I must say the double flowers do not equal the normal ones in beauty. On the same plant were one or two double bells last year, but this year these double bells are more perfect, that is, one bell within the other. I see no signs of more than one inner one.

Lathyrus rotundifolius.—How does it happen that this plant is so scarce? Surely a moderate sized climber cannot come amiss, especially when it produces flowers of good colour and substance for at least two months, as this so-called scarlet Pea does. If this Pea were tried fairly and given some twiggy sticks about 4 feet high to support it, I am sure no one could object to it—the colour is so clear and for picking, either as single flowers or as longish sprays, it is excellent. After several years' trial of L. polymorphus, I now give it up, for it is killed off every winter, even if mild. If anyone has succeeded with it in the open garden, it would be interesting to know under what conditions.

Sedum hirsutum is a gem. It much resembles a minute Sempervivum; its hairy, almost globular, rosettes are pleasingly placed around the parent on stolons of moderate length. Although the reddish flower-stems are not more than 3 inches or 4 inches high, they carry clusters of white starry flowers, which are large for the size of the plant. From the manner in which the black anthers rest on the petals for most of their time, they give effect to the flowers and attract notice. I have not tested this plant in a fully exposed situation—only where it has been safe from rain and snow; but it stood 16° of frost without injury when dry both top and bottom.

Dianthus cinnabarinus.—This is the most distinct alpine Pink with which I am acquainted, and, coming into flower as it does late, it is all the more desirable. If the flowers are small—three-quarters of an inch across—they are striking, being cinnamon-red in colour, and borne singly on stems from 6 inches to 9 inches long. A good sized piece of this Pink would, indeed, be a fine feature in a garden. I take it to be hardy, but I keep it in a cold frame during winter.

Milla longipes.—I have proved this to be a hardy bulb and a free bloomer. Its stiff scapes are from 9 inches to 12 inches long, and carry very handsome white star-shaped flowers, which underneath are of a rich ruddy-brown colour. They strike one at once as being of an unusual type. In my specimen, however, the leaves have quite disappeared, and, as in the case of other Millas, the flowers without foliage look a little forlorn; still, everyone must be pleased with them.

Polygonum capitatum.—This is a very small species—small in all its parts and prostrate in habit. Its little somewhat cordate leaves are grey with down, as are also the zig-zag and brittle-knotted stems. The flowers are not showy at all, and still they form the main feature of what must be termed a pretty little plant. They are of a delicate flesh colour, about the size of a marble, and quite as round; they are held above the flattened herbage on short, erect stems an inch or more in height. It grows freely, and every short lateral is terminated by a head of bloom. A good sized piece of it must have a unique effect. I have not yet fully tested its hardiness, but under dryish conditions it has withstood 16° of frost.

Achillea umbellata.—It is a pleasure to speak of the good properties of this well-known dwarf and silvery Yarrow. On a few stones in a corner fully exposed to the fiercest sunshine, and overhung with Clematis and Honeysuckle, a plant of this Yarrow has kept in capital form for not less than five years. Not only is the position dry and sunny in summer, but owing to the climbers overhead dew is prevented from falling. The fact is, this neat little plant enjoys dryness, and we should do well to take advantage of that circumstance more than we do, for we often find such positions as it could fill quite bare of vegetation.

Gentiana ornata.—This is again in profuse blossom; how it revels in moisture and warm sunny weather! Not only is this shown by the manner in which the buds quickly develop, but also by the way in which the stems root where they touch the soil. As soon as these roots get well hold, the shoots branch afresh, and every growth is terminated by a bud. During our short warm season this species should not be an hour without moisure, especially if flowers are desired. If rooted offshoots are wanted, less water may do, and shorter-jointed stems will be the result.

Erodium Reichardi.—What a pretty little alpine this is! and, as it thrives well under treatment of the most ordinary kind, it is surprising that it is so rarely seen. It is very dwarf, merely forming a mat of herbage on the surface, and its flesh-tinted white flowers scarcely rise above the ground. Though a stemless plant, there is no difficulty at all in dividing it. It is only needful to bare the crown and cut downwards half an inch, allowing each growth a portion of thick Liquorice-like root, which may be split, if need be, to its extremest point almost, and thus becoming more equally divided than could be done by any knife. The same process may be carried out with E. hymenodes and E. macradenum. In all cases, however, this should be done in the summer time, when these split tap roots may have plenty of time and a good chance to become furnished with new feeding fibres.

J. W.

Woodville, Kirkstall.

In the garden at Warren House. Wellingtonias, Lawson's Cypresses, Pampas Grasses and Bamboos. (See p. 92.)

White Lilies.—These have been common everywhere of late. Here in Wales they may be seen in all sized gardens, and about ten days ago they were the best flowers in the London markets. They are growing abundantly in all the parks, and the florists use them largely for indoor decoration. The variety is the old L. candidum, and I would like to ask those who find it so useful if it would not be a great advantage to grow some other good varieties of Lilies in large quantities for such purposes. In several notable decorations I saw blooms of L. Harrisi, and in each instance the effect was better than that produced by the white ones. In such a grand and extensive family as the Lilies it is to be regretted that public favour should run on one variety alone, and that the most common one.—J. M.

Statice Suwarowi.—This is perhaps the best annual introduced for many years. At the Bristol summer show held on July 14 many excellent collections of annuals and perennials were exhibited, and this Statice, although only shown in one instance, was conspicuous amongst them all. Two or three days later I saw a small group of it in pots in the Cape house at Kew and another batch in the rock garden, and in both cases the plants were remarkably healthy, finely grown, and wonderfully attractive. The graceful spikes of soft rose-coloured flowers are well adapted for all kinds of floral decoration. It merits universal culture.—J. Muir, *Margam.*

Stipa pennata.—The Feather Grass is one of the most elegant of the ornamental Grasses. Its light feathery plumes, as they wave to and fro in the summer breeze, have an extremely pleasing appearance. This is not exactly a plant for isolation; it looks best in association with other things, and wherever hardy flowers are grown in borders

this Grass should find a place, both on account of its graceful habit and the admirable contrast it affords to other things. The easiest way to get good clumps of it is to sow the seeds where they can grow on undisturbed. If the ground is well stirred and a little manure worked in, some good clumps will be formed the first year, which will bloom well the following season. The seeds of Stipa pennata are hard and slow in germinating. I have known them to lie three months in the ground and then come up. For this reason many do not succeed in raising this Grass, giving up the seeds as bad before they have time to come up.—J. C. B.

WORK DONE IN WEEK ENDING JULY 27.

July 21 and 22.

Fine; completed Pine potting, and the re-arrangement of the plants in pits; unrooted suckers will be kept rather close, the walls and beds syringed morning and evening, but no water will be applied directly to the plants till roots have begun to work in the soil. First successions are arranged in two separate pits, Smooth Cayennes by themselves; and all other varieties, mainly Queens, occupy another pit. Smooths require shade, and this is the reason we endeavour to keep them apart from others that are impatient of shade, and require more copious watering than do Smooths. The border heat ranges from 80° to 90°, and the top heat is regulated by the weather; 70° at night, even in the hottest weather, we consider ample; and air is given by night when the temperature is likely to be higher than this. A medium condition of moisture is assured by syringing beds, walls, and floors night and morning; and twice each week clear manure water is used for syringing. Much the same treatment is given to fruiters, the only difference being that a rather drier state of the atmosphere is preferred as the fruit approaches maturity, but dryness at the root we at no time allow. Other work in the houses has been potting Euphorbias and Poinsettias, planting out succession lots of Melons, and keeping the growth of Cucumbers and Melons pinched back. Planted out late Broccoli and Purple-sprouting Broccoli after Peas. Firm ground best suits all the Cabbage tribe; therefore, we never dig, but simply clean the ground, draw drills, and plant 2 feet apart for the largest Broccoli. Planted out Leeks and staked Tomatoes on south borders, the fruit of which is already ripening. Trimming up woodland walks by switching away the projecting growths of Rhododendrons, Laurels, Bracken, Nettles, &c. Specimen trees in the lines of these walks we take pains to protect from damage by cutting back the underwood and rubbish somewhat severely.

July 23 and 24.

Showers on both evenings, with wind on the first date, near akin to that we get in March, and which has added to our other labours that of fresh staking and tying Dahlias, Castor-oils, large Fuchsias, and sundry other flower garden plants, as well as the clearing up of sticks and leaves that have blown and drifted in every direction. Luckily, we have got our kitchen garden work well forward, and can, therefore, devote our whole time to the ornamental department; then there is a quantity of hedge and shrub cutting, walks weeding and rolling, besides the pegging down and pinching of plants in flower-beds that since the rain have grown away most vigorously. Pinched into form, to preserve the true outlines of flower-bed designs, Gold Feather Pyrethrum, variegated Mesembryanthemum, variegated Alyssum, Gnaphalium lanatum, Coleus, Iresine, &c. We still keep the flowers picked off all plants that are required to be at their best from the middle of August and onwards. Pinched Figs and picked off a quantity of fruit, the crop being far too heavy if the fruit is to be large, which we much prefer to numbers. The first crop of ripe fruit being now cleared, syringing twice a day is now resumed, and the house closed early with sun-heat, to run up the temperature to 90° or 95°; then but little fire-heat is required; the trees have had a good soaking of manure water and the border a fresh mulching of long stable litter. Stopping laterals on Vines. Madresfield Court has not this season cracked nearly so much as previously, as, besides keeping the border and atmosphere on the dry side, we have bored a hole with a small gimlet right through the wood, about 4 inches behind the bunch. This matter was discussed in some of the papers last year, and the hints then given on this matter may have been of service to others besides myself. We have a house containing this variety and Gros Maroc only, and from present appearance, which is all that can be desired, the two kinds are well adapted for growing together. Gave all houses a general clean up.

July 26 and 27.

More showers on both dates, but not so heavy or continuous as to hinder our work. Continued trimming up woodland walks and drives, and the clipping into form groundwork plants in flower beds, and cut the Grass verges and upright (Herniaria glabra) edgings to the same. Cut all bad blossoms off Roses, pulled up and rubbed off Brier suckers and shoots, and partially cut back the longest shoots of the Hybrid Perpetual class. The Tea and Noisette section has lots of buds still to open, and therefore the shoots of these have been left intact. All the Roses have suffered from the heat and drought, but the injury is only temporary, as by a continuation for but a very short time longer of these beautiful showers there will be a good autumnal display of flowers. Of work in the houses there is still an overplus, Strawberry potting for forcing and Chrysanthemum stopping and tying being now to the fore. Arranged flowering plants in orangery, and also refurnished vases and baskets in mansion with similar plants. Hants.

FRUITS UNDER GLASS.

Peaches.

By this time a great number of early Peach houses will have yielded their crop of fruit, and steps must at once be taken, not only for cleansing, but also for preserving the foliage until the wood is ripe. Although nearly all Peach forcers run in pretty much the same groove up to the ripening period, perhaps no tree is made subject to more diverse modes of treatment during the remainder of the season, and yet the one great aim is the ripening of a set of shoots which will produce fruit another year. Years ago when disbudding was not so freely indulged in as it is now, the great fault was the laying in of too much of the summer growth. This practice, it is needless to say, gives an infinite amount of labour, and the result is unsatisfactory, as it is simply impossible for several shoots to develop their foliage and ripen up properly where there is only room for one. This, then, the thinning out of old shoots from which the fruit has been gathered is the first operation; indeed, if anyone were to ask me to define the best time to commence successful Peach forcing, I should say the day after the last fruit of the current year is gathered. On that day I would cut out every shoot not wanted for another year, and tie in those retained at least 6 inches apart all over the trellis. The foliage should be well washed late in the evening in fine weather, and the roots as regularly watered as if the trees were carrying crops of fruit. If old trees showed signs of weakness, moderate mulching and copious watering with liquid would form an important part of their bill of fare, while young ones inclined to grossness would be deprived of their surface covering and kept, not dry, but slightly on the dry side upon temperance principles. Air in abundance must be given, and all the movable lights worked upwards and downwards to give the foliage the benefit of refreshing rain in showery weather; but I would not sanction the cut-and-dry system of stripping the trees, no matter what the weather, so long as a leaf remained upon them; neither would I switch with a birch broom to get rid of the bright golden leaves before their time. Every leaf should fall naturally. Then, if the lights required repairing and painting, I would strip for a month in October. By this time, if not a little before, all root-pruning, lifting, and top-dressing, the materials having been previously prepared, should be taken in hand. Good heavy calcareous loam, fit for Melons, Strawberries or Roses, five parts, old lime rubble one part, and a dash of soot to kill worms in a dry state, but innocent of animal manure, would form the compost, and of this each tree should have as much as it would be likely to fill with roots the following year. By using the compost dry it can be firmly rammed, as Peaches always make the best short-jointed growth, and do not so readily become dry in a solid resisting medium. A moderate watering to wash the fine particles of soil home to the young roots, and a thorough watering a fortnight later, would then keep them steadily progressing, and as steadily filling and feeding the buds up to the time of starting. Peaches on open walls rarely drop their flower-buds, no matter how wet the winter; if they do, it is a sure sign that the drainage is imperfect or the wood is only half ripened. Why, then, do we so constantly hear of forced trees casting them? Simply because they are allowed to carry too much wood, and the roots are kept too dry through the resting period.

Succession houses in which the fruit is now ripening require precisely the same treatment after it is gathered; but stripping is not necessary provided the foliage is kept clean and the internal roots are well supplied with water. Indeed, it frequently happens in cold wet autumns that early closing, with dry sun-heat, becomes absolutely necessary to the perfect ripening of the wood and flower-buds.

Late houses furnished with trees whose roots have the run of external borders speak as plainly as trees can speak by making fresh healthy rapid strides after heavy falls of rain, a fair proof that water, both to the foliage and roots when the latter are inside, is one of the most important elements. The artificial mode of training large trees on trellises with every leaf and shoot within a few inches of the glass, and fully exposed to the sun, is very trying in hot weather, and causes a constant and rapid drain upon the roots to which homœopathic supplies of water are useless; but when, in addition to the foliage, they are carrying full crops of fruit, water in great abundance and of a stimulating nature is the only element which can keep the trees in health and prevent the fruit from prematurely ripening. Let all borders, then, be they inside or out, receive heavy mulchings of manure, and flood at short intervals until the water filters freely through the drainage. Syringe backwards and forwards twice a day, using water free from lime, but tinged with soot from a bag resting at the bottom of the soft-water tank; provided the trees are not too heavily cropped, there will be no possibility of the existence of spider. If not already done, raise the best of the drooping or hanging fruit to the influence of the sun, support them with pieces of lath placed crosswise over the trellis, and pinch the points out of all young shoots, which will be cut out after the Peaches are gathered.

Gathering, packing, and keeping Peaches.—Early morning, when the fruit is cool and quite dry, is the best time to gather Peaches. If to travel, they should be under rather than quite ripe, and the greatest care should be observed in handling. When all the Peaches are required for home use the finest flavour is secured by allowing them to rest on the trees until they begin to soften, then, with a pad of wadding in the left hand and a pair of strong Grape scissors in the right, they can be detached without subjecting them to the slightest pressure. If each Peach is laid on a square of silver paper and placed in a well padded, flat-bottomed basket, the latter can be carried to a dry, airy fruit room to remain undisturbed until the fruit is perfectly ripe and fit for use. London fruiterers always prefer having the fruit sent in before it begins to soften; if well coloured and quite hard they do not object, as it then travels free from spot or blemish, and can be hastened or retarded to suit their demand throughout the season. When gathered for market the Peaches are folded in squares of silver paper and tightly packed in dry well-beaten Moss, soft paper shavings, or wadding.

The first, where it can be obtained, is the cheapest and best. The second, if soft, answers fairly well, but wadding, particularly that which is glazed, becomes moist, hard, and objectionable. Bran at one time was much used, but it has a tendency to sink in bulk on the journey, when the Peaches become loose and arrive in a bruised or worthless condition. Boxes made of half-inch deal, 4 inches to 4½ inches in depth and of uniform size, but not over large, answer best: 24 inches by 14 inches is a suitable size for twenty to twenty-four fine fruit; three of these, if necessary, can be well corded together. When all the Peaches are folded, prepare the boxes by lining the ends and sides with cap paper, allowing the half of each sheet to hang over the sides for turning over the top. When all is finished, place a good layer of Moss evenly over the bottom, till the right hand end, and commence packing at the left hand corner. Shake a little Moss across the lower end and place the first fruit; keep it in its place with the left hand and follow with more Moss and fruit, never withdrawing the hand until the first row of four is finished. Then form a division with more Moss, and proceed until the box is full. Each Peach will then be resting on a soft nest of Moss nearly an inch from the bottom, and the same distance apart, with room for a good layer of packing on the surface. The Moss being very light and elastic, some little judgment will be needed in placing the finishing layer, as safety in transit depends upon the degree of tightness secured by pressing down the lid. Having turned over the half-sheets of paper, press down the lid, nail lightly, cord tightly, and advise the salesman to meet consignments at the railway terminus.

Pot Vines.

Growers who still depend upon pot Vines for their earliest crop of Grapes will not need telling the canes should now be fit for free exposure to the elements by day if not forward enough for turning out of the house to finish off against a south wall. Nurserymen and many private growers pressed for house space, not unfrequently against their better judgment, turn their most forward canes out far too soon, when the roots receive a violent check and the foliage gets battered about by wind and rain long before one or the other has properly performed its office. When this penny-wise-and-pound-foolish system is attempted in cold wet seasons, disappointment or partial failure frequently follows. The loss of a few pot Vines and their crop from a commercial point of view is not much, but under other aspects the gardener's failure with Vines which he has not himself grown is often attended by most serious consequences. Let all those who would succeed with their pot Vines strain, not one, but many points to keep them under glass until the wood and roots are thoroughly ripe and the foliage begins to change colour. Then, the house being wanted for other purposes, they may be removed and made secure with shreds and nails against south or west walls. If he must buy his Vines, let him see them growing and choose early from a stock which has had the benefit of light and air as well as heat, as canes suddenly removed from bottom heat and ripened out of doors cannot be depended upon.

Younger canes as well as recently planted Vines now making growth must still be encouraged by means of good syringing, mulching, and watering, with plenty of heat and air to fill up and ripen the lower buds. The growing season will, of course, continue for some time yet, but when the canes begin to turn to a bright nut-brown, the lower laterals may be taken out where the main leaves remain fresh and capable of filling up and feeding the buds, while the laterals above the point at which the canes have been stopped will require more freedom of growth to keep the sap in motion and prevent the base buds from breaking. It is no unusual thing to see these laterals rambling all over the upper part of the trellis in the wildest confusion, often blocking the ventilators and forming fine breeding centres for red spider; but this leave-alone principle may be carried too far, as growths and foliage which cannot have full exposure to light are of little use. Moderate stopping and regular tying should therefore be practised, and when the upper wires are covered gradual reducing will cause the canes to thicken rapidly without endangering the base buds.

Planting canes.—If these are still in bottom-heat the pots should now be gradually raised until the bottoms rest upon the surface of the bed, where they will require more water for a time; but having the benefit of sun and air, the roots will be less active and the young rods will soon begin to ripen; 6 feet to 8 feet in length being quite sufficient for ordinary planting Vines, the most forward should be pinched at this point, and weaker canes intended for cutting back to one or two eyes during the winter may be stopped at 3 feet to 5 feet. If at all crowded, a portion of the most forward may be drawn out and placed on the borders in light airy houses where the foliage can be kept near the glass and fully exposed to the sun. In order to prevent a sudden check and keep the roots evenly moist, the pots being small, they may with advantage be covered up with old leaves or litter, and the foliage must be regularly syringed to keep it fresh and free from spider.

W. Coleman.

Indoor Garden.

Night-blooming Cacti.

(Echinocereus Eyresi.)

The attention of Cactus lovers should be called to this easily-grown and interesting species. An old plant here bloomed on the evening of the 8th, opening simultaneously a coronet of five trumpet-shaped blossoms of the purest white, each 8 inches in length. It is impossible to describe the extraordinary loveliness and purity of these blossoms, whose only demerit is their evanescence. The plant is one of the ribbed Melon-shaped species, and belongs to the night-flowering section. It takes up but little room in a greenhouse or ordinary window, and needs but little care, beyond that of being placed in a sunny position, and kept moderately well supplied with warm water during summer. In winter, any dry corner safe from frost will suit it, water being entirely withheld, or nearly so, from October to March. Small plants, which are apt to cluster about the base of the parent, should be removed, or flowering will be considerably retarded. These should be potted in single pots, and shifted into larger ones, as they require it. Ordinary potting soil with a liberal admixture of coarse sand answers well for all Cacti; if a proportion of broken charcoal can be added, so much the better; but efficient drainage is of almost more importance than soil. It takes some time for a young plant to reach the blooming size. When, however, it has attained that point, I have never, under the above treatment, known it fail to produce its blossoms annually—sometimes, indeed, several times during the year. The development of the flower-bud is curious. It appears first in the form of a small, shaggy, brown knob, which remains stationary apparently for many weeks. Suddenly in examining the plant one becomes conscious that increased activity is taking place in these small excrescences, and in a week or ten days, according to atmospheric conditions, they reach, as before stated, a length of fully 8 inches in a mature plant. The rapidity of the growth of the flower tube during the last two days before opening is very remarkable and interesting. The full perfection only lasts, at the longest, for less than twenty-four hours, but during that time the flowers are marvels of beauty, which must be seen to be realised. The plant here alluded to is at least ten years old; how much more I cannot undertake to say. It inhabits an 8-inch pot, is 17 inches in circumference, and will, in all probability, bloom once or twice during the season. A small plant sent to a friend in July, 1884, opened its first bloom during the present month (July, 1886). It will be seen that though E. Eyresi may not be showy enough to please the million, it is essentially an object of interest to true plant lovers.

Wernolau, S. Wales. K. L. Davidson.

Abutilon vitifolium album.—I shall be happy to send a few seeds of this shrub, so far as they will go, to anyone who would like to have them. My plant is about 11 feet high, and was covered with flowers throughout the month of June, and appears to be quite hardy against a wall. I take this opportunity to acknowledge the receipt of a plant of the lilac vitifolium sent to me by an unknown friend last year; if this should meet his eye, I beg to say that it will give me much pleasure to return the compliment by sending him a young plant of the white variety.—J. H. Archer-Hind, *Coombefishacre House, Newton Abbot.*

Tuberous Begonias from seed. — These popular flowers, both single and double, are readily raised from seed, and I may add that they are of nearly all shades of colour. We have now amongst them clear whites, yellows, pinks, and crimsons. Last season I procured a large packet of double Begonia seed about this date. I sowed it at once in light sandy soil, and as soon as the young plants were large enough I potted them off into very small pots; they were set on the top shelf of a warm house, and before winter set in they had made nice little bulbs. They were then dried off and packed in ashes in a large box, where they remained until they began to show signs of growing in spring. Then they were repotted into 4-inch pots, and they are now coming into bloom, quite half of them being doubles and the other half good singles of various colours, and the freedom with which they flower makes them most welcome. A rich light soil suits them perfectly, but they are not difficult to deal with in this respect; even if planted out in the flower garden in any fairly good flower-bed soil they grow with surprising vigour. But few flowers show more marked improvement in every way than these Begonias have done during these past few years. A good strain of seedlings even may be relied on to surpass what were considered to be at one time the very best named sorts. -J. G. H.

The Moon Creeper (Ipomæa Bona-nox).—This chaste and beautiful climber is occasionally met with, but its property of flowering at night no doubt interferes with its more extended cultivation. It is a tender annual, and does well in a low span-roofed stove-house, where it can run along the roof. The flowers open soon after dusk, and are in the fulness of their beauty in the dead of the night, and they continue expanded till nearly noon the next day. There is such an exquisite delicacy about the shining whiteness of the flowers, that it is a matter for wonder it is not more generally cultivated, its night-flowering property notwithstanding. There is no difficulty in obtaining seed, and they should be raised in a moist brisk heat in April, grown on quickly, and potted into a large pot to flower, or be planted out in a small pit or any convenient place, and trained along a wire or any such support under the ridge of a span-roofed house, or in any suitable place.—R. D.

Calla æthiopica planted out.—We always plant out our entire stock of this Calla after it has done flowering. The plan which we adopt is to shake out the plants, and separate them all into single crowns; even small suckers, if planted out in June in good soil will make fine flowering plants by October, and anyone having pots crowded with bulbs of various sizes will do well to divide them at once. They will make but little progress if left to compete with strong bulbs. Those planted out in June are now shedding their old leaves and pushing up sturdy spikes of fresh foliage from their crowns. Callas are plants of the easiest culture; all they need is good rich soil and plenty of water, and they will make fine plants for lifting in October. We put one crown in a 6-inch pot, and three in 7-inch and 8-inch ones, using plenty of manure in the soil, and they always produce very large as well as numerous spathes of the purest white. As decorative plants few are so generally useful. The foliage being so ornamental, they can be made serviceable even when

not in flower for conservatory decoration. There can be little doubt that by this way of treating Callas finer spathes are produced than by the old plan of leaving the plants in pots all the season. In lifting them we take steel forks and raise the soil carefully, so as to get all the roots we can. When potted they are set in a cool shaded position, and kept syringed overhead until the leaves will bear full exposure without flagging. They are kept in a cool house during winter, and introduced to gentle heat according to the time at which they are required to be in flower. Manure water is given freely when the flower spathes are being pushed up, as the size and substance of the flowers depend upon liberal feeding. —J. G., *Hants.*

TREES AND SHRUBS.

TOP-DRESSING RHODODENDRONS.

I HAVE been told of an instance where the annual mulching of Rhododendron beds with the short Grass from the lawn sufficed to change a flowerless into a floriferous condition. There is no doubt that the Rhododendron, like many other hardy shrubs and plants, suffers from the neatness which it is considered necessary to observe. The old foliage is cleared away as it falls, and Nature's way of keeping up the fertility of the soil is not compensated for by a top-dressing of any kind. When Rhododendrons are planted in a depth of good peat, or in suitable loam, they do not so much feel the need of nourishment in this way; but where, as is frequently the case, these advantages exist in a modified degree only, the growth in the course of several years after planting becomes too stunted to admit of the formation of good flower-buds. I lately saw some Rhododendron beds which had come into this condition; the plants were healthy, but wanting evidently in vigour, and consequently gave scarcely any bloom. They were growing in prepared soil, but it was easy to see that the roots had long since taken possession of the whole of the compost. Looking among the branches, which were rather bare at bottom, I could see a clean, even surface, from which the rain must run off away to the side when once it becomes dry. Had the leaves which dropped been allowed to remain they would have served to return to the soil what the plants took from it, and would, moreover, have preserved the surface in such a porous, open condition as to allow of the free entry of the rain. There are many soils, including those of a poor, sandy nature, where Rhododendrons will make plenty of roots, but which require the addition of some form of nourishment. Mulching with short Grass or leaves will in a great measure do this, as it is not nitrogenous food that these Evergreens require, but rather decayed vegetable matter. Mulching, too, will sustain and promote freedom of growth by helping to retain moisture, and it should be remembered that Rhododendrons are moisture-loving subjects; they really require a large amount of water when in full growth.

J. C. B.

Eucryphia pinnatifolia.—This beautiful Chilian shrub is at the present time in flower, and there being but few other trees or shrubs in bloom it is the more conspicuous. It is a rather slow-growing deciduous bush, with pinnate leaves and flowers that bear a good deal of resemblance to those of a Hypericum, except that they are pure white in colour. The blooms are from 2½ inches to 3 inches in diameter, composed of four large petals, and a dense cluster of stamens just as in the St. John's-wort. When the flowers first expand the reddish coloured anthers are very conspicuous, and scarcely less so after a day or two when they become bright yellow. It has proved perfectly hardy in Messrs. Veitch's Coombe Wood Nursery, near Kingston, in Surrey. I was much struck recently at seeing it successfully grown in a pot and employed for decorative purposes, the treatment accorded it being to plunge the pot in the open ground till the flowers were on the point of expanding, when the plant was removed under glass. It was potted in an ordinary mixture of loam, peat, and sand, while when grown out of doors it does not seem very fastidious as to soil, provided it does not get too hot and dry. This shrub was first distributed by Messrs. Veitch a few years ago, but it is still very rare, no doubt owing to the fact that it grows rather slowly, and also that it cannot be increased to any great extent. Propagation may be effected by means of cuttings, but those that strike are usually so few that such a mode of increase is not to be relied on. Layering is the method generally employed for the purpose, but this can scarcely be carried out in the case of small plants.—T.

Fine Poplars.—In order to form an adequate idea of the grandeur of the black Italian Poplar (Populus monilifera), which is so much planted at the present time, such fine specimens as those at Syon, near Brentford, need to be seen. They are considerably above 100 feet in height, and have a stem girth of about 15 feet. Their massive forked limbs tower above those of the surrounding trees very majestically, and the huge bole, with its rugged bark, riven and torn by age, has an extremely picturesque appearance. A Lombardy Poplar, upwards of 130 feet high, rears it head above its fellows, and breaks the sky-line of the round-headed trees with fine effect. The true black English Poplar (P. nigra), not often seen planted as an ornamental tree, is represented by some grand specimens. It is a tall, quick-growing tree, which readily assumes a somewhat pyramidal form, with triangular, tapering leaves, and is a capital tree for growing in wet places, such as in water-meadows, by the borders of streams, lakes, &c. Of P. heterophylla, P. alba, and other Poplars there are equally remarkable specimens.—W. G.

Englemann's Spruce (Abies Englemanni).—According to Professor Sargent, this tree forms a shapely, tapering spire, from 60 feet to 80 feet high, with a trunk slender for its height, and which is covered with a thin, scaly, reddish-grey bark. In general appearance A. Englemanni resembles the Black Spruce of Eastern America, for which it was mistaken by all botanical travellers in the Rocky Mountains until Dr. Parry detected its specific distinctions, and dedicated it to the distinguished botanist whose name it bears. Of its merits as an ornamental tree, its resemblance to one of the common trees of the East will probably work against its general popularity, while its alpine character, and consequent habit of starting to grow in very early spring, will render it unfit for cultivation save in the extreme Northern States. In St. Petersburg A. Englemanni succeeds perfectly, in spite of the extreme cold of the Russian winters, and as heretofore the only Conifers available for planting in Northern Russia have been the Scotch Pine and the Siberian Spruce, its general introduction there is considered of the greatest value and importance. By far the most valuable of the Colorado Spruces, as a timber tree, and the equal in this respect to the Black Spruce, it is not improbable that Englemann's Spruce will some day form an important element in the formation of artificial forests in Northern Europe. It is the most alpine in character of the Colorado Spruces, forming in the Southern Rocky Mountains vast forests above 8000 feet, and reaching even 11,500 feet above the sea-level.

SHORT NOTES.—TREES AND SHRUBS.

Pinus austriaca for seaside.—The Black Austrian Pine is an excellent sea-coast tree, and the rich massive foliage preserves its somewhat sombre, but healthy green in all situations. If should be planted in masses, as when isolated as a specimen, or standing singly among deciduous trees, it is rather apt to be overturned by storms, because the roots are rather spreading than descending, and the head of the tree becomes very heavy and branching.

Variations in Coniferæ.—It is only when Conifers of the same variety are grouped together that one is able to fully appreciate the variety of form and colour that exists amongst them. The different gradations between young and old foliage is remarkable, a fact fully exemplified in Cupressus Lawsoniana and its varieties.—J.

GARDEN FLORA.

PLATE 555.

THE HIMALAYAN ANDROSACES.

(WITH A COLOURED FIGURE OF A. LANUGINOSA.*)

NEXT to Primroses the Androsaces interest cultivators of hardy plants perhaps more than any other class of alpines. They are, especially the European kinds, found in alpine regions, close to the snow line; and although part of the year covered with snow, they are ever ready to shoot into flower directly it melts. Such species as A. glacialis, A. helvetica, and others somewhat puzzle the grower as to how to establish them satisfactorily; indeed, unless great care is exercised they can hardly be kept alive for any length of time. Fortunately, those from the Himalayas are all comparatively easy to grow, and they flower so abundantly and are so pretty, that plant lovers, even with limited accomodation, would do well to have at least a few of them in their gardens. The early period at which they flower is another inducement, succeeding as they do the Primroses, and continuing in bloom during a time when other kinds of flowers are not over-plentiful. To be successful with them, they must be kept dry in winter; the majority of them being more or less shaggy, they naturally hold moisture, and if the drainage be at all defective they will not succeed. They may be propagated either by means of runners, cuttings, or seeds, which in dry seasons they ripen freely. Seventeen distinct species and many varieties are enumerated as being natives of India, and three of them, viz., septentrionalis, villosa, and Chamæjasme, are also represented in Europe. The following are all that have been as yet introduced :—

A. CHAMÆJASME.—This well known garden plant has a very wide distribution. It is found plentifully in Western Tibet, Barjila, and Karakorum, at elevations of from 12,000 to 15,000 feet above sea level. It also extends to Arctic Russia, Central and North Asia, Arctic America, and is found plentifully, travellers tell us, in the European Alps; indeed, it is from the last named source that the plants now cultivated in gardens are derived. When well grown, as we have seen it on a shady rockery, it has a charming appearance when covered with its pretty pink and white flowers. It requires a good porous soil, well mixed with old lime rubbish, and during spring and summer it must be well attended to with water. It is easily propagated by division, but as this is always risky in the case of an established plant, seeds had better be resorted to. It forms nice light green tufted masses, the central rosettes in which are generally twice as large as the outside ones; the flower-stem seldom reaches more than a few inches in height, and the flowers are less than half an inch in diameter. They are at first white, but afterwards change to pink, or even rose, and generally have yellow, but often reddish, rings round the eye. The flowers appear in May and continue until July and even August. Two interesting varieties belonging to this species are found in the Himalayas; one called uniflora has one or two flowers on a stem, and densely tufted leaves, the other called coronata has shorter and narrower leaves, and a corolla with a prominent ring round the eye.

A. GERANIFOLIA.—This is a new species belonging to the stoloniferous section; the stolons, which are said to be a foot long, are very slender; the leaves are from 1 inch to 2 inches broad, and the flower-stem from 6 inches to nearly a foot in height. It is apparently a really good garden plant, and one which is likely to prove quite hardy, being found in damp woods at Lachen at 9000 feet and 10,000 feet elevation.

* Drawn in Messrs. Paul's nursery, Broxbourne, in September of last year.

ANDROSACE LANUGINOSA

A. Hookeriana.—This is also a comparatively new species, having been introduced to our gardens only a short time ago. As far as we can at present judge, it is likely to prove an acquisition, and seeing that it reaches an elevation of from 12,000 feet to 14,000 feet in Lachen, little doubt as to its hardiness need be entertained. It belongs to the stoloniferous set, and forms rigid rosettes of flat, blunt-tipped leaves, shiny above, and with few or no hairs on the margin. The flower-stem, which is about 3 inches high, supports a loose umbel of pretty pink flowers of considerable size.

A. lanuginosa.—A good idea of the general appearance of this plant may be gleaned from the accompanying plate. It is perhaps the oldest Himalayan Androsace in cultivation. Seeds of it were sent to the Trinity College Gardens, Dublin, by Dr. Royle about fifty years ago, and plants raised from them flowered in the open border in August, 1842. Since then it has been cultivated largely in our gardens, both from seeds ripened in this country and from fresh importations from India. It is perfectly hardy, but, like most Androsaces, very liable to damp off in the winter unless special attention is given to guard against this calamity. In some gardens, and especially in those of Sir W. Bowman at Joldwynds, it grows as freely as a weed, covering large areas on dry sunny banks, and making a magnificent show during the late summer and early autumn months. Where the soil is heavy we mix with it plenty of lime rubbish, raising small mounds and planting on the top of them. This species is readily distinguished from all others by its long leafy stolon-like branches and by having small scattered rosettes. Its leaves are lanceolate, and the whole plant is covered with long silky hairs. The branches, although stolon-like, never root, as in sarmentosa. A variety called oculata has a distinct purple ring round the eye, and when well grown is very effective. It ripens seeds freely, and may be propagated in that way, but it also strikes freely from cuttings, and we find this the quickest mode of raising a stock of it. It is found on the Western Himalayas, from Kumaon to Kashmir, at 10,000 feet elevation.

A. rotundifolia.—In our gardens may be found various forms of this plant, none of which are equal to a poor Herb Robert, *i.e.*, if we except their large and singular calices, which quite eclipse the flowers. We are told, however, that the corolla is usually much larger than the calyx in some of the forms—a treat in store for us when the best of them shall have been introduced.

A. sarmentosa.—This seems to be the most variable of all the Himalayan Androsaces, resembling, in the form most commonly cultivated in gardens, villosa on the one hand, and differing in the variety called foliosa on the other, from any other Androsace, although there seems to be a gradation from the variety Watkinsi, through grandifolia, and primuloides to foliosa. The line between sarmentosa, villosa, and some forms of Chamæjasme is, we believe, very difficult to define when in a dry state, and especially if we take the Himalayan forms of the two last-named species, but in the garden the difference is wide, and may be detected at a glance. The great difficulty with sarmentosa is to keep it through the winter, as even in situations where it has grown and flowered well through the summer months it will go off in winter, *i.e.*, if it should be at all damp. In naturally well-drained soils it may be planted on the flat ground; but if otherwise, the more perpendicular the position chosen for it the greater will be the success, and if under a projecting rock or ledge so much the better; the soil should be light and gritty and the position exposed and sunny. No difficulty will be experienced in propagating this plant; all the stolons form little rosettes at the nodes, and if these be simply pegged down, either on the ground or in small 2½-inch pots, they will emit roots and be ready to cut away from the parent plant in a few weeks. It forms tufts which, if left undisturbed, will cover a wide area; the rosettes are silky-haired, the stolons leafless, and unless pegged down near the parent plant become in time unsightly. It grows 6 inches or more in height, and carries a round head of handsome rosy purple flowers, with a distinct yellowish eye, raised a little above the corolla.

The following varieties have, we believe, no precise limits, viz.: A. Watkinsi, a form with no stolons. Its leaves are an inch long, lance-shaped, and almost sessile on the stems. Grandifolia also has no stolons. It is stout in habit, and the leaves are very large, often measuring an inch across, and narrowed into long or short stalks. It is found at Tungu, at 14,000 feet elevation. A. primuloides resembles the variety Watkinsi, but generally has stolons and more slender flower-stems. A. foliosa, introduced a few years ago by the late Mr. I. Anderson-Henry, has a fine sturdy habit and no stolons; its leaves are an inch in diameter, and the flower-heads, which rise well above the foliage, consist of pretty rosy-purple flowers, larger than in sarmentosa. It is perfectly hardy, and is readily propagated by means of cuttings.

A. sempervivoides.—This is a charming little species, which we have only once seen. Its leaves are densely packed in small rosettes, from which grow the stoloniferous branches, forming, as in sarmentosa, an easy means by which it may be increased. The flower-stem is solitary, and the flowers small and darker than in the above-named species. It is a native of Western Tibet, Scinde valley, and Kashmir. It is probably hardy, but requires a somewhat shady position.

A. villosa.—The form of this plant which inhabits the Himalayas is widely different from the one which we see in the Alps, and which is the form commonly cultivated in gardens. The Indian one is densely hairy or villose; the leaves are arranged in larger globose rosettes; the flowers, too, are larger and fewer in a head. They are purple, and have a pronounced conical swelling round the mouth. It has stolons, closely beset with small rosettes resembling sarmentosa on a small scale, and, as in that species, rooting when pegged down. This plant generally is more easily managed than most of the other Androsaces, a sunny position on a gentle slope suiting it admirably. It requires copious waterings during summer, but care at the same time should be taken to see that the drainage is perfect. It flowers in May, June, and often in July. It is found in the Western Himalayas, in the drier regions from Kumaon to Kashmir, W. Tibet, Affghanistan, Caucasian Alps, Asia Minor, and elsewhere.

D. K.

The divining rod.—I cannot tell "Veronica" wherein lies the power of either the stick or the man, nor does the man Mullens himself pretend to explain the mystery. He is a plain, unpretending, working-man, and has no theories on the subject, but uses the gift which he undoubtedly possesses for practical purposes, and in that sphere has confounded all the experts and others who have tried him. I do not doubt myself that he would even consent to "Veronica's" conditions that in the event of his failing to discover water "the stick might be made to react on him in some other way;" but being accustomed to such proposals, he generally attaches the reasonable proviso that the "stick" be applied to the other party should his operations with the twig be successful. If "Veronica's" irresponsible monitor agrees to this performance at a public seance, I should be pleased to assist in arranging the preliminaries. To "Veronica's" other question, "Is the power possessed by other people?" Mullens tells me it is possessed in some degree by many people, and there are several professionals in Somersetshire besides himself. He has a family, but he is the only member of it who can "work the twig," a circumstance which he much regrets. Those who wish for further information about the man should apply for his testimonials and vouchers, of which he has a volume from gentlemen of position and education in all parts of the country—some of whom acknowledge having saved thousands of pounds by employing him, and who are willing to back up their testimonials still further if needful. —S. W.

Fruit Crops.

SOUTHERN DIVISION.

Claremont, Esher.—Peaches and Nectarines are exceptionably heavy crops in the gardens here and the trees healthy and vigorous; they had the usual covering of fish-netting (triple thickness) whilst in bloom and the weather being at that time cold and stormy, the covering was not removed until the fruit had reached a considerable size. If sufficient of this netting had been on hand, I fancy Plums and Pears would have been equally good; as it is, they are very thin, and in the case of Pears partial. The advantage of different aspects for choice varieties is this year noticeable; the crop is best on a north-east wall, where the bloom was later. Apricots are a complete failure; my experience agrees with that of many others, *i.e.*, that the bloom buds rotted without expanding. Of Cherries, both dessert and Morello, we have very fair crops. Apples are thin, and the foliage in many cases almost destroyed by maggot. Wall trees have been very free this season from insect pests, especially the Cherry and Plum fly, of which we have seen but little. Small fruits of all kinds are plentiful, and extra quantities will doubtless be required for preserving, to compensate in a measure for the loss of the Apple crop. Gooseberries as dessert fruits increase in favour year by year, and wire-trained trees are in great request. I would particularly recommend this system to all who have not given it a trial for many reasons, viz, great variety can be grown in little space, and the season may be thereby prolonged: the fruit is kept clean, and can be easily netted: the picker is able to do his work quickly; and the yearly crop from this restrictive system is very heavy. We throw a net over some Warringtons, planted under a north wall, and by this means make our Gooseberry season last some two or three weeks after all other fruit is removed from the trellis. In order to secure a long season for Red and White Currants, they are planted on south-east and north-west walls, as well as in open quarters. As to Strawberries, fruits have been plentiful, but the season short.—E. Burrell.

Deepdene, Dorking.—The fruit crops in this neighbourhood are not quite satisfactory, though of some things, such as Currants and Gooseberries, we have abundance. The Apple crop is not what was expected; many trees have a sprinkling on them, but scarce any are bearing a full crop. Pears are thin, except Pitmaston Duchess and Marie Louise, which are laden both on walls and pyramids; Apricots are thin; Peaches and Nectarines a moderate crop; Plums of all kinds are a very heavy crop; Cherries are a fine crop and good in quality; Gooseberries and Currants are bearing very heavy crops, and the fruit is clean. The Strawberry crop is very much under average; our favourite kinds for flavour are British Queen and Vicomtesse Héricart de Thury; our best croppers are probably Sir Charles Napier and Sir Joseph Paxton, and our best early sorts Vicomtesse Héricart de Thury and Keen's Seedling. Black Prince we cannot grow on account of its liability to mildew. Sir C. Napier and Frogmore Late Pine are the best late sorts. The most certain plan by which to insure regular crops is to plant out the old forced plants, grow them for two seasons, and then destroy them. Our favourite Strawberries for forcing are Vicomtesse Héricart de Thury, Sir C. Napier, and a few British Queens.—J. Burnett.

Leonardslee, Horsham.—Apples in this district are under the average. On some few of our bush and pyramid trees, such as Warner's King, Cox's Orange Pippin, Keswick Codlin, Lady Henniker, Lord Suffield, we have average crops. Pears with me are an average crop, but in this district they are under the average. Plums are fair crops all round; Cherries a very large crop in this district;

Morellos also very good. All kinds of small fruits are large crops and good. Strawberries are abundant. Kentish Filberts are a large crop and very fine. Of Walnuts we have a few; they are under the average. Apple orchards on this estate I find will yield scarcely a third of a crop. As to Strawberries, the following is a list of the kinds which I grow, and all are good, viz.: Keen's Seedling, Alice Maud, Sir C. Napier; these I grow in pots for forcing in the order just named, and also largely out of doors. Vicomtesse Héricart de Thury is an excellent bearer and good all-round Strawberry. Alpha is delicious, and one of the best for forcing. British Queen, Empress Eugénie, James Veitch, President, Sir J. Paxton, and Kitley's Goliath ripen in the order in which their names stand. Eleanor is the latest of all; it has been in grand form during these last three days ending July 22—which is good for this southern part of the kingdom. The best plan by which to secure good and regular crops is not to let the beds stand over the third year. We plant 2 feet apart every way, and get plenty of fruit. By the end of the season I daresay I shall have taken 350 quarts; in some seasons I have taken 400 quarts.—Sidney Ford.

Longford Castle, Salisbury.—Apples and Pears are not so good as they promised to be. The frosts which we had early in May, followed by a low temperature and east winds for several weeks at a stretch reduced the number of blossoms and embryo fruit to a considerable extent. However, there will still be fairly good crops of both kinds in this district. Apricots, Peaches, and Nectarines are also fairly good, and Plums are more plentiful than I have known them to be for a great number of years. Bush fruit of all kinds are most abundant, and Strawberries, though not so heavy a crop as last year, have been pretty plentiful and good. The varieties grown here are Vicomtesse Héricart de Thury, Keen's Seedling, La Grosse Sucrée, Sir Charles Napier, Sir Joseph Paxton, President, James Veitch, and British Queen for early and general crops, and Elton Pine and Oxonian for late crops, on a north border. I should not like to say which of the above-named varieties is the best flavoured, but James Veitch—the largest—is the worst. We also grow a small breadth of Hautbois and alpines—the former more on account of its rarity and peculiar flavour than for its usefulness, and the latter by reason of its yielding a supply of pleasantly flavoured fruits for months after every other variety has ceased to bear. The best way in which to secure good and regular crops is to plant a given number of forced and properly hardened-off plants every year as early in the spring as possible, laying on a good mulching of short manure between the rows and the plants afterwards, and annually destroying a like number of the three-year-old plants after the fruit has been gathered. The Strawberry delights in a stiff loamy soil.—H. W. Ward.

Goodwood, Chichester.—Fruits in general in this locality are good average crops, with the exception of Apples and Strawberries, which are much under the average. We find the most useful Strawberries to be Pauline, a good early kind for general cropping; Vicomtesse Héricart de Thury, Sir Charles Napier, Keen's Seedling, Dr. Moore, James Veitch, and Elton Pine, the last a good late sort. Such kinds as Dr. Hogg and British Queen, although excellent, do not succeed well on our light soil. The main way by which good crops of Strawberries may be got is deep trenching, well manuring, and planting out plants which have been forced. These rarely fail to produce good crops.—F. Rutland.

Basing Park, Alton.—Apples here are a good crop and the trees are looking well. The kinds that bear best are Keswick Codlin, Irish Peach, Lord Suffield, King of the Pippins, Kerry Pippin, Striped Juneating, Boston Russet, Blenheim Orange, Cox's Orange Pippin, Margil, Worcester Pearmain, Northern Greening, and Dumelow's Seedling. Of Pears we have the heaviest crop that I remember for many years, and the trees are very healthy. The following kinds do well here, viz., Williams' Bon Chrétien, Citron des Carmes, Louise Bonne of Jersey, Glou Morceau, Marie Louise, Marie Louise d'Uccle, Winter Nelis, Passe Colmar, Seckel, Van Mons Leon Leclerc, Alexandre Lambre, Duchesse d'Angoulême, Beurré de Capiaumont, B. Bosc, B. Diel, B. Rance, Knight's Monarch, and Catillac. Plums are a good crop, and the trees are clean and healthy. The best kinds here are Orleans, Pond's Seedling, Diamond, Coe's Golden Drop, Jefferson, Magnum Bonum, Washington, and Green Gages, early and late. Damsons, too, are a first-rate crop, and the trees clean. Of Peaches and Nectarines we have good crops, and the trees look well. Apricots are quite a failure. Of Gooseberries we have a very heavy crop, and also of Currants of all kinds. Raspberries are good in every way; Nuts also good. Strawberries are all but a failure; the late winter injured them very much, and the hot, dry weather which we have had completely ruined them. The kinds which usually do well here are Black Prince, Vicomtesse Héricart de Thury, Keen's Seedling, President, and Sir Charles Napier. These all force well, and are good early kinds for the open ground. Later sorts are British Queen, Dr. Hogg, Eclipse, and James Veitch. The latest of all are Frogmore Late Pine and Elton Pine. Where good plants are ready or well rooted, runners can be had: the sooner they are planted now the better, but I prefer using plants that have been forced, which always yield good crops the first year after planting. Before planting I always have the ground well manured and trenched, and plant in rows 3 feet apart and 18 inches asunder in the rows. The soil round the plants is made quite firm and kept watered till the plants have got well established. If the weather happens to be dry when the Strawberries are in bloom I give them a good soaking with manure water: then I mulch with litter, which keeps the fruit clean. I find it best to make new plantations about every four or five years, as after that time the fruit gets small and the plants require a change of ground, more particularly the class to which the British Queen and Dr. Hogg belong; much, however, depends on the character of the soil. At Elmham Hall, Norfolk, a bed of Keen's Seedling Strawberries was, I remember, over twenty years old, and always bore good crops of fine fruit, but that was on a good rich stiff yellow clay, or rather loam.

Early Potatoes are excellent, both in quality and quantity, and as yet quite free from disease. They will soon be ready to take up; the late kinds, too, are looking well—never better.—Wm. Smythe.

Wycombe Abbey.—In this district crops of Apricots, Apples, and Strawberries are somewhat below the average, but all other fruits are good average crops. As to Strawberries, I consider Vicomtesse Héricart de Thury one of the most useful kinds in cultivation and the best of all for early forcing; under fair ordinary treatment it is a safe setter, and when ripe at an advanced season its quality, in my opinion, is superior to that of any other kind; if we except the old Grove End Scarlet, too, which may have a slight advantage over it in point of colour, it is unsurpassed for preserving, and, moreover, its earliness in a natural way and its hardy constitution make it a most desirable variety. As a successor Keen's Seedling is pre-eminently good in every respect, and this variety is succeeded by President, Sir Joseph Paxton, and Sir Charles Napier; James Veitch we grow on account of its large size; next in order comes Oxonian, and last of all the old, but still highly esteemed, Elton Pine. The foregoing sorts constitute the collection grown here as being best suited for our requirements. New varieties also find a place until such time as their merits are ascertained, after which they are either retained or discarded.

Potatoes look remarkably well, and as yet there is no appearance of disease either on the haulm or in the tubers. The early crop, though not over-abundant, is excellent as regards quality. As to late crops, the yield will doubtless in dry positions be under the average.—G. T. Miles.

Beechwood, New Forest.—Of Pears we have the heaviest crop in open borders on pyramids and dwarf bushes that we have had during these last twelve years; that on walls is not so heavy, last year's crop being above the average. Apples are the lightest crop we have had here for several years; in a few sheltered spots may be seen a fair sprinking. Plums are a good crop, except Damsons, which are a failure in this locality. Of Cherries we grow May Duke and the Morello; the former is above the average, the latter below it. Gooseberries are a very light crop—the lightest in my remembrance. Currants—Black, Red, and White—are heavy crops, and the fruit large and good. Raspberries good and up to the average. Mulberries and Nuts are good, and of Cranberries we have abundance. Strawberries have been good, but of short duration, owing to the drought. I have grown several varieties here, but have discarded them for President and Eclipse; the former does well in this soil and bears large, handsome, well-flavoured fruit. It is also a good forcer. Eclipse is a good bearer, but the fruit is not so large as that of President. It is, however, good in flavour. We manure heavily and remove the runners three times; then we slightly fork between the rows and put on the manure, which is washed down by the winter rains to the roots. If they show signs of failing we renew our plantations every five years.—T. Clarke.

Trelissick, Truro.—Apples in this neighbourhood are a complete failure; with the exception of Hawthornden, scarcely a fruit is to be seen in many of our best orchards. As to the variety just named, I have not found a tree on which there was not a moderate crop of fruit. The failure of the crop is generally attributed to a terrific hail storm which visited us on the last day of March. But that I suspect is not the true cause, for Pears do not appear to have suffered in the least, though their buds were in a much more forward state than those of Apples. In this locality Pears will be quite an average crop. Peaches and Nectarines where unprotected are splendid crops; as to Apricots, we never expect to get any, though we keep a tree or two for old acquaintance sake. Plums in a large orchard house near here will be scarce—not nearly half a crop. Plums and Cherries on sheltered walls are pretty good. An enormous Brown Turkey Fig tree here, probably one of the largest in England, is bearing a grand crop, and if the weather for ripening should be favourable, we will have several bushes of fine Figs. All bush fruits have been very good, with the exception of Gooseberries, the buds of which were ruined by bullfinches in winter. As to Strawberries, early in the season they promised to be an unusually heavy crop, but the scorching hot weather that set in in the middle of June withered up the plants as well as the fruit. In many plantations where there was no mulching numbers of plants were entirely killed. I always mulch heavily and early with long stable manure, which prevents evaporation and protects the plants from the scorching sun. The ammonia contained in the litter being washed down by the rains proves to be a useful stimulant, and when washed clean it protects the fruit when ripe from contact with the soil. Strawberry plantations thus treated yield more than double the produce they otherwise would do. I have tried numbers of varieties, but my greatest favourite for a main crop is Sir C. Napier. It is a grand fruit, a prodigious cropper, and travels well; for forcing, too, I find nothing to equal it. Some of your correspondents speak of it as being wanting in flavour, an opinion with which I cannot agree, *i.e.*, as grown and ripened here. In Derbyshire we used to grow magnificent crops of British Queen and Elton Pine, both of which I have tried, but had to discard them as failures. I now grow Black Prince, an indispensable sort for first early, and Sir C. Napier for our main crop. I also grow James Veitch, Keen's Seedling, Dr. Hogg, President, and Vicomtesse Héricart de Thury, but not one of them is nearly so satisfactory with me as Sir C. Napier. With regard to cultivation, I can

add nothing to the admirable instructions already given by Mr. Coleman, which, if carefully carried out, will produce grand Strawberries the first season after planting. I invariably destroy a small patch every year, and plant a fresh piece to replace it, the best results being generally obtained the second year after planting.—William Sangwin.

Wildernesse, near Sevenoaks. — Peaches and Nectarines here are fairly good crops, but Apricots are under the average; although covered with double netting, 10° of frost on the 1st of May did much injury. Cherries are a good average crop, especially Morellos. Those grown on standards in Cherry orchards have been most abundant. Plums are fairly good, especially the Victoria and Orleans. Pears are nearly a failure, with the exception of Napoleon, Passe Celmar, and Duchesse d'Angoulême, on which there is a little fruit. Of Apples the crop here is the smallest known for several years past. The only kinds bearing a moderate crop are Cox's Orange Pippin, Sturmer Pippin, and Duchesse d'Oldenburg on espaliers, and Dutch Mignonne, King Pippin, and Wellington in the form of standards. Black Currants are under the average, while White and Red sorts are good crops. Raspberries are plentiful, but small, owing to want of rain. Gooseberries are a heavy crop and very fine, notably Lancashire Lad, Warrington, Whitesmith, Crown Bob, Jolly Tar, Sportsman, Jolly Farmer, and Roaring Lion. Strawberries are a good crop, but not so fine as last year, in consequence of the excessive heat which prevailed during the swelling period. The sorts grown here are, for earliest on a south border, Vicomtesse Héricart de Thury and La Grosse Sucrée. Main crop kinds consist of President, Sir Joseph Paxton, and James Veitch. Loxford Hall Seedling is planted on a north border in order to prolong the Strawberry season. My plan for securing good and regular crops is to plant a new bed each year; the ground is deeply dug and well manured; we never allow a bed to be more than three or four years old. Strawberry growers for market in this neighbourhood have experienced heavy losses this year; although watering was resorted to during the hot weather which we have had, the yield is many tons below what it should have been. The sort grown is principally Sir Joseph Paxton. Walnuts and Cobnuts are much under the average.—Thomas Carlton.

Bayham Abbey, Lamberhurst.—We cannot say that this is a fruitful season. Although Apples flowered well, they are not bearing full crops. Pears, too, are not a general crop. Peaches are pretty good. Cherries are an average crop. Plums a very heavy crop. Bush fruit good. Gooseberries, Red Currants, and Raspberries are indeed heavy crops. Black Currants are very fine—never better; the rains which we had in spring just suited them. Strawberries with us have been very good—better than for these last three years, although generally about here they have been but half a crop. The varieties which we grow are Black Prince, Keen's Seedling, President, Sir Joseph Paxton, and Elton Pine; also a few of the Bicton Pine for variety. Our latest Strawberry is Helen Gloede. The largest varieties, such as James Veitch, Dr. Hogg, and British Queen, do not set well here; therefore I have discarded them. I consider three years to be as long as a Strawberry bed should stand. The best position I can find for Strawberries is on a border with a west aspect under an east wall. Our borders are 15 feet wide, and we plant six rows in that width. The wall protects the plants from the east wind, and prevents the sun from shining upon the young flowers early in the morning, and by the time it gets round to the bed any little frost there is is gone; this is, indeed, the best position for all early crops.—W. Johnstone.

Mereworth Castle, Maidstone. — In this neighbourhood generally Apples are very scarce, many of the trees having been crippled in the early part of the season. With us, however, Blenheim Orange, Ribston, King of the Pippins, Cox's Orange Pippin, Summer Golden Pippin, Lord Suffield, Lord Derby, Hawthornden, Manks Codlin, Beauty of Kent, and Winter Quoining are all carrying excellent crops. As to Pears on espaliers and pyramids, the following sorts are heavily cropped, viz., Gratioli of Jersey, Conseiller de la Cour, Beurré Diel, Autumn Nelis, Alexander Lambert, Doyenné d'Ete, Huyshe's Victoria, Madame Treyve, Emile d'Heyst, Beurré de l'Assomption, and Williams' Bon Chrétien. Apricots are thin, with the exception of Moorpark. Peaches are more plentiful than they were last year, and the trees are making much better growth. Our best are Hale's Early, Early York, Noblesse, Grosse Mignonne, Bellegarde, Nectarine Peach, and Barrington. Of Nectarines, Elruge, Downton, Pitmaston Orange, and Humboldt are doing best. Plums, including Damsons, are very plentiful, and Cherries are exceptionally good. The same may also be said of Raspberries, Red and Black Currants, and Gooseberries. Nuts are very scarce, and Strawberries much below an average crop. The varieties that succeed with us are Vicomtesse Héricart de Thury, Sir Joseph Paxton, President, and Sir C. Napier. The latter we grow extensively for forcing as well as for outdoor crops. The best plan, we find, is to layer in 3-inch pots and to plant in well-trenched ground, ramming the soil firmly round each plant, and mulching heavily with good rotten farmyard manure.—H. Markham.

Pierrepont, Farnham, Surrey.—Apples here are a heavy crop. Pears, Peaches, and Nectarines good crops. Plums, Cherries, Raspberries, and Currants very heavy crops. Gooseberries a failure here, the buds having been taken by birds in winter, but in several places where unmolested they are a very heavy crop. Apricots are a failure. Strawberries a very heavy crop. The varieties grown are: Vicomtesse Héricart de Thury is an early and heavy cropper, and with us it continues fruiting till the end of the season, but after a few pickings the fruit becomes small; being good in colour, it is, however, useful for preserving. President suits our soil well and continues in bearing a long time; its fruit also swells to a very large size. Sir Joseph Paxton attains a good size, but does not continue in bearing so long as President. Sir Charles Napier is a very heavy cropper, and in a moderately moist season swells its fruit to a good size; it is one of the finest-looking Strawberries we grow, and with us it is better flavoured than when grown on a heavy, cold soil, but in a dry season its fruits are small, hard, and seedy, and unless there is plenty of water at command, I would not recommend it to be grown extensively, as on light soil it suffers more from drought than any variety with which I am acquainted. Dr. Hogg is the best flavoured Strawberry we grow, but it is rather a shy bearer. This and Eleanor are late kinds. The latter is nearly equal to Dr. Hogg in flavour, and it is a much better cropper, but even when ripe the tips of fruit are a little green. The following I have planted for trial, viz., James Veitch, Marguerite, Loxford Hall Seedling, Duke of Edinburgh, and Frogmore Late Pine. Our soil is very light and sandy on a gravelly subsoil, and it would be almost impossible to grow Strawberries satisfactorily without heavy mulchings of manure and abundance of water when the fruit is swelling. I plant fresh beds every two years with plants that have been forced the spring previous, and by so doing and giving a good annual top-dressing of manure and plenty of water we invariably get excellent crops. The principal fruit trees here, I may add, are planted in prepared soil carted from a distance, the poor sandy staple being taken away. I attribute the exceptionally heavy crops of all kinds of fruit this season to the hot summer of 1885, which so thoroughly ripened the wood.—J. Turner.

Leigham Court, Streatham.—Apples in this district are a very poor crop; there was a fine show of blossom and a fairly good set of fruit, but a continuation of east winds after the setting period completely destroyed the crop on many trees. Sorts which are bearing a partial crop are Blenheim Pippin, Lemon Pippin, Echlinville, Alfriston, New Hawthornden, and Ribston Pippin. Pears have fared better, having made a move before the cold winds which affected the Apples so seriously had set in. Some sorts are thin, but the following are carrying good crops, viz., Easter Beurré, Marie Louise, Seckel, Forelle, Fondante d'Automne, Louise Bonne, Beurré d'Amanlis, and Knight's Monarch. Plums on walls are scarce, but on standards there is a fair crop. Damsons are a good crop and promise to be good in quality. Cherries, with the exception of Morellos, which are a full crop, are never good here. Apricots are a failure. Peaches and Nectarines are nearly a full crop; there was an unusually good set of fruit, but it was much thinned by the cold east winds. The trees have, however, made good growth and are free from insects. All bush fruits are bearing very heavy crops, which are clean and good in quality; Currants are extra good. As a rule, Strawberries are an uncertain crop with us, and this year they have been unusually poor. Most varieties I have tried fail to fruit after two years. Vicomtesse Héricart de Thury is the best I have tried on our cold clay subsoil, and for the future will be depended on for the first crop, and also for preserving. Keen's Seedling is fine in flavour, but it is a poor cropper, and soon grows blind; therefore, it will be discarded. Sir Joseph Paxton is a poor cropper, and has little to recommend it in the way of flavour; so this too will be discarded. Eleanor produces large, well-flavoured fruit, and will be grown to succeed Vicomtesse Héricart de Thury. Sir C. Napier does fairly well for a later crop. In order to secure good and regular crops of Strawberries on this soil, I prefer layering good strong runners in pots and planting them out in well prepared ground as early as possible, fruiting them for two years only. For forcing, we prefer Vicomtesse Héricart de Thury.—E. Butts.

Pendell Court, Bletchingley.—Fruit crops here are in most cases deficient. Apples, Pears, and Apricots are poor crops, but Cherries and Plums, especially the latter, are better than usual; as are also the various small fruits, including Strawberries, which have been very much benefited by the recent rains, before which some sorts, such as Sir Charles Napier, were showing signs of succumbing to the drought with us. This variety is one of the best as regards flavour, and it is a first-rate cropper. As our soil is rather light, we obtain the best results by planting annually. Indeed, with very few exceptions (Vicomtesse Héricart de Thury and alpines), this mode of culture is the most satisfactory with us. In order, however, to succeed with annual plantations it is necessary to have strong, well-rooted plants, and to plant them early, say towards the end of August or beginning of September. This gives time for the plants to make good crowns and to become thoroughly established before winter. As soon as the crop is gathered we layer the runners in small pots, well plunging the latter so as to prevent them from becoming too dry or being upset, giving, at the same time, a good soaking of water, and keeping them watered until they are planted in their fruiting quarters, which is usually about the time just mentioned. We do not find it profitable to grow too many varieties; we therefore confine ourselves chiefly to Vicomtesse Héricart de Thury, Sir Charles Napier, Sir Joseph Paxton, President, Elton, and Frogmore Late Pine.—Frank Ross.

Hackwood Park, Basingstoke. — Apples hereabouts are much under the average—not more than half a crop. The sorts carrying the best crops are Lord Suffield, Warner's King, Keswick Codlin, Deux Ans, Irish Peach, Cockle, and Sturmer and Ribston Pippins. Pears are very thin; the best are Marie Louise, Josephine de Malines, Chaumontel, Pitmaston Duchess, Huyshe's Victoria, and Catillac. Apricots are quite a failure, and Cherries are much under the average. Peaches and Nectarines are average crops. Plums are good, the best being Victoria, Early Orleans, Belgian Purple, Jefferson, Magnum Bonum, and

Brahy's Green Gage. Raspberries, Gooseberries, and Red, White, and Black Currants are much above the average. Strawberries here have been an exceptionally good crop, but in many places in the neighbourhood they have been a complete failure. The sorts that do best with us are Vicomtesse Héricart de Thury, La Grosse Sucrée, President, Sir J. Paxton, and Sir C. Napier. I have tried Dr. Hogg and James Veitch, but they do not succeed, although they do well in places near here. Of Filberts we have very few.—W. Bowerman.

Eaglehurst, Fawley.—Both Apple and Pear crops in this neighbourhood are very thin, and the trees are again much affected with blight and have a mysterious burned appearance, for which I cannot account in any way. Of Apricots we have half a crop; Alsace, Kaisha, and the Royal Apricot are doing best. A few branches have died off, but this evil is not so prevalent this year as last. As to Cherries, our trees are mostly all young ones; the varieties bearing best are old Bigarreau, Black Tartarian, White Heart, Governor Wood, and Morello. The trees are clean and healthy. Gooseberries and Red and Black Currants are heavy crops and good in quality; Raspberries are the same. Peaches and Nectarines on walls are good crops; they were protected while in bloom with double netting. Plums are a very partial crop; some trees are loaded, while others have none on them. The varieties bearing best are Victoria (a kind which seldom if ever fails), Early Prolific, Kirke's, Pond's Seedling, and Jefferson. Strawberries bloomed well, but just as the fruit was setting the plants were suddenly attacked with "spot," and owing to dry weather setting in early in June, very few fruits came to maturity—not a quarter of a crop. I have tried most of the leading varieties, but find the sorts that do best on our dry light soil to be Sir J. Paxton, Sir C. Napier, Bicton Pine, and Eleanor. I make a fresh plantation on well trenched ground every year, using either forced plants or runners specially layered for the purpose; an equal amount of plants is destroyed every year, the plants left having an average duration of three years. They are heavily mulched early in the winter, and this mulching is lightly forked in about the roots in spring. By this system we rarely fail to get fine crops; this season's crop is the worst which we have had for these last eight years.—W. Watson.

Arundel Castle.—Apples here are very thin. Pears, on the contrary, are heavy crops both on walls and on standards, especially on such sorts as Jargonelle, Williams' Bon Chrétien, Eyewood, Marie Louise, Conseiller de la Cour, Glou Morceau, and Winter Nelis. Plums are abundant, especially Victoria, Green Gage, Coe's Golden Drop, Kirke's, and Jefferson. Cherries, except Morellos, which are good, are light crops. Peaches are under the average. Apricots so abundant, that we had to thin severely. Figs are under the average. Raspberries abundant, and the fruit is very fine. Bush fruits plentiful. Filberts and Walnuts under the average. Strawberries, too, are under the average—in some cases in this district a total failure. The following varieties do well here, viz., Vicomtesse Héricart de Thury, La Grosse Sucrée, Sir Joseph Paxton, Sir Charles Napier, Empress Eugénie, and Dr. Moreau; the latter we prize highly for mid-season forcing, being an excellent cropper; its greatest disadvantage is its colour, which is not at all good.—E. Burberry.

Coolhurst, Horsham.—Apples and Pears are generally light crops this year. Plums are under the average. Cherries are a fair crop. Raspberries, Currants, Gooseberries, and Strawberries heavy crops, and all good in quality. The Strawberries grown here are Garibaldi, which is a heavy cropper and good in flavour; Sir Joseph Paxton, a very good cropper, and the fruit is large and good in flavour; Empress Eugénie, fruit very large and of the best quality; President, a good cropper and very good in flavour (these two last we find to do exceedingly well under glass). Myatt's Eleanor is the latest we have; its fruit is very large, but its flavour is only second-rate. We think it of great importance to have all Strawberries properly cleared of runners and weeds; the soil between the rows are hoed and raked immediately the crops have been gathered—treatment under which the crowns get well ripened in autumn, and are in the best possible condition for producing good crops the following season. Young plantations we mulch with some light material, such as old hotbed manure; in September we keep all flowers picked off them the first season after planting, and thus we are able to secure heavy crops and fruit of the best quality. After having tried almost everything we have seen recommended for keeping the fruit clean, we find nothing to equal clean Wheat straw; a very light sprinkling serves the purpose, and it is easily put on, and slugs do not seem to harbour amongst it.—David Kemp.

Cothelstone, Taunton.—Apples in orchards are a variable crop hereabouts. In some cases the fruit is very thin, in others a fair crop; garden crops are more regular. With us the following are bearing well: viz., Ribston Pippin, Cox's Orange Pippin, Cox's Pomona, Braddick's Nonpareil, Northern Greening, Lord Suffield, New Hawthornden, Emperor Alexander, and Winter Peach. Pears are a very regular crop; ours are chiefly on walls; out of more than thirty varieties none are quite barren. The most fruitful are Josephine de Malines, Brockworth Park, Marie Louise, Winter Nelis, Huyshe's Victoria, General Todleben, Beurré Diel, Althorp Crassane, Comte de Paris, and Williams' Bon Chrétien. Plums are a fair crop; Green Gage, Golden Gage, Gauthier's Green Gage, Victoria, Coe's Golden Drop, and Magnum Bonum are our best bearers this year. Moorpark Apricots are a fair crop, and the Musch-Musch is heavily laden with fruit. Of Peaches not many are grown on open walls here, but the few trees we have are bearing well and are quite healthy. The sorts are Noblesse, Barrington, and Bellegarde. Morello Cherries are plentiful. Strawberries have been a fair average crop, and the fruit has been very fine, but quickly over from want of rain. Bush fruits of all kinds are plentiful. Damsons are a full crop in many places. Walnuts a partial crop.—J. C. Clarke.

Mount Edgecumbe, Plymouth.—Apples here are a failure; Pears are an average crop, and of Cherries we have abundance. Plums, Raspberries, Gooseberries, and Currants are also plentiful; Strawberries are more than an average crop. The sorts grown here generally are: Alice Maude, for an early crop; President, Sir Joseph Paxton, Sir Charles Napier, and Nimrod, the last for a late crop, and very prolific it is.—G. Brighton.

WESTERN DIVISION.

Holme Lacy, Hereford.—Fruit crops this year are very irregular; Apples, which at one time looked like being a failure, have turned out to be a good average crop. Pears are rather under the average, but the fruit promises to be good. Apricots and Peaches are under the average. Bush fruits are over the average. The Strawberry crop in this neighbourhood has been late and below the average in quantity. There was a profuse bloom in spring and promise of an abundant yield, but for some reason the flowers went blind. The best Strawberry here for flavour and productiveness is President; Sir J. Paxton, Keen's Seedling, and British Queen also do well. For an early crop Black Prince is very useful. For a late Strawberry Elton Pine is a good one, and this year Eleanor is on trial here and promises well. In order to secure good and regular crops, Strawberry plants ought not to be left on the ground after the third season, as after that time the fruit gets small. If runners are taken early and planted in good time in well-manured soil (which, if light, will be all the better for a quantity of strong loam being worked into it), they will bear good dessert fruit the following season, and for two seasons afterwards they will produce good fruit, both in quality and quantity, both for dessert and preserving.—Chas. Denning.

Garnstone, Weobly.—In this quarter Apples are a very poor crop; the most productive are Lord Suffield and Stirling Castle. Cider fruit in this part will be very scarce. Pears are under the average. Of Plums we have a very good crop. Apricots are under the average. Cherries are a good crop, and the same may be said of Gooseberries, Currants, and Raspberries. Strawberries are also a good crop. The following succeed well here, viz., President and Sir Joseph Paxton; Oxonian is a first-rate Strawberry for a late crop.—M. Biggs.

Wythenshawe, Cheshire.—Apple and Pear crops in the gardens here and throughout the neighbourhood are much below the average. There was a scarcity of bloom; many trees failed to produce a single flower; others blossomed and set their fruit abundantly, but it afterwards dropped off prematurely. Many trees, too, which were quite covered with flowers have scarcely a fruit left on them. The following varieties of Apples are bearing fairly good crops, viz., Lord Suffield, Stirling Castle, Old and New Hawthornden, Lewis's Incomparable, Keswick Codlin, Tower of Glamis, Northern Greening, Cellini, Yorkshire Greening, Kerry Pippin, Ribston Pippin, King of the Pippins, Adams' Pearmain, Golden Reinette, and Sturmer Pippin. The following pyramid and standard Pear trees are carrying moderate crops, viz., Beurré d'Amanlis, Autumn Crassane, Louise Bonne of Jersey, Comte de Lamy, Catillac, Bellissime d'Hiver, Délices d'Hardenpont, and Green Chisel. Of wall Pear trees, both cordon and horizontal trained, the following are bearing the best crops, viz., Williams' Bon Chrétien, Marie Louise, Autumn and Winter Nelis, Louis Bonne of Jersey, Van Mons Léon Leclerc, Marie Louise d'Uccle, Fondante d'Automne, Beurré Diel, Triomphe de Jodoigne, Autumn Bergamot, and Glou Morceau. Cherries on walls are bearing excellent crops. Gooseberries I have never known to be so plentiful; market growers say that large quantities of them are not worth the labour of gathering, as they cannot be sold. Black and Red Currants are also bearing very heavy crops. Plums on walls and bush trees are a light crop. Damsons are also a light crop, as they generally are in this garden, but on the higher and more exposed parts of the district there are very heavy crops of them. Strawberries are good with the exception of those grown on Moss land. The fruit is, however, smaller than usual, a circumstance which may be attributed to want of rain, the total amount of rainfall for the month of June being only 1·57 in., while the average for the same month in the last five years is 3·24 in.—W. Neild.

Crewe Hall, Cheshire.—Fruit crops are of rather a mixed character in this district. In some places, Apples and Pears are an average, and even an abundant crop; in others, the trees are bearing scarcely any fruit, and, on the whole, both Apples and Pears are below the average. Plums and Cherries are plentiful, and Damsons, which are largely grown in this county, are bearing heavier crops than they have done for many years. Apricots are under the average, but Peaches, Nectarines, and Nuts are rather above it. Small fruits are very plentiful, but Strawberries in some places are scarcely up to the average. The principal kinds grown here are Keen's Seedling and Sir Harry, for early forcing and for outdoors; President, Sir Joseph Paxton, and a local kind called Barnes's Seedling, and Helena Gloede for a late crop. These ripen in the order in which I have named them. British Queen does not succeed well here, and although Dr. Hogg grows and bears better and has a fine flavour, it does not bear so abundantly or force as well as President or Sir Joseph Paxton. In order to secure good crops, we find it best to plant afresh every third or fourth year on good, strong land, if possible, manured and made firm; afterwards we keep the plants clear of runners and weeds, mulch them

well with manure in the autumn, and when the fruit is set give the plants one or two good soakings of water; the latter materially assists the swelling of the fruit and keeps the plants in a healthy state of growth.—W. Whitaker.

Tatton Park, Knutsford.—Gooseberries and Red Currants are heavy crops; Black Currants light. Morello Cherries are a good crop. Apples, consisting of Keswick Codlin, Cellini, and Lord Suffield, are bearing very heavy crops on pyramids and bushes, and these kinds are sure bearers here. On Ribston Pippin and Irish Peach there are fair crops. Late Apples are thin. Pears are a fair average crop. Of Plums very few are grown here. Damsons, which are grown extensively in the neighbourhood, are good crops. Peaches and Nectarines on outside walls are thin. Strawberries are a very heavy crop, and the fruit good. For forcing we use Keen's Seedling, Sir Harry, and President; Sir Harry especially carries great crops of finely-flavoured fruit. We also grow a few of Sir Charles Napier, but this year they did not do so well as Sir Harry and President. Outside we grow a few Keen's Seedling, which are very fine in flavour, but do not carry a heavy crop. Sir Harry and President are our main-crop sorts, and Sir Charles Napier we use for coming in a little later. These are all very fine this year, and are three kinds that can be depended upon for outside culture. Helena Gloede does well on a late border, and gives us a good supply of fine fruit when the above kinds are over. I find the best plan to be to plant out the old plants after they have been forced; we then get a very heavy crop the following year. We plant a quarter and destroy an old one every year, letting them bear three heavy crops before destroying them. I have seen Sir Joseph Paxton very fine outside this year in Cheshire.—Joshua Atkins.

Alderley Park, Chelford, Cheshire.—Apples here are very scarce; Pears are a moderate crop; Cherries plentiful. Of Plums, including Damsons, there are enormous crops. Currants and Gooseberries, too, are very good crops. Peaches and Nectarines out of doors are a failure, but inside very good. We cannot get the wood properly ripened out of doors in the autumn to ensure anything like a crop. The Strawberry crop in this district has been in all ways very satisfactory. The sorts on which I chiefly depend are Black Prince, British Queen, President, and Vicomtesse Héricart de Thury. Black Prince has produced an enormous crop of very fine fruit this season. British Queen and President suit this district well, though President has suffered during the late winter more than any other variety. Late sorts, such as Sir C. Napier and Elton Pine, do not do very well, though of the former we have some fine fruit. James Veitch seems also to suit this part well. In order to secure a good crop every year where there is plenty of room to work Strawberry beds, I find there is no plan that suits this district better than the following: About the end of June or the first week in July, or as soon as ever the first runners can be secured, I have a bed of rotten manure, an old Mushroom bed, spread out about 3 inches thick on a good solid bottom either of gravel or ashes trodden firmly. On the top we spread from 2 inches to 3 inches of good loam, then, with runners just commencing to root, we plant on the surface 4 inches apart each way. If the weather be hot, shading will be necessary for a few days, after which they can be exposed to the sun. Always keep the small runners cut off, and by the end of August the ground to be planted should have a moderate coat of manure (and dug so as to bury it well), and firmed by walking over it as one would walk over an Onion bed. With a trowel cut out the plants from the bed, and they will take all the soil and manure clean away with them; plant them in rows 2 feet apart, and 18 inches asunder in the row. I find a heavier crop can be ensured in this way than by keeping old beds, thereby dispensing with the labour of digging and mulching, as all they require is clean straw spread under them as soon as they begin to bloom.—A. J. Oxford.

EASTERN DIVISION.

Great Gearies, Ilford.—Apples here are considerably under the average as regards quantity, but in quality the fruit will be good, as the trees are in excellent health. Some varieties are loaded with fruits, notably Hawthornden and Cellini; Golden Noble also is bearing a fair crop. A considerable quantity of fruit dropped off during the dry, hot weather. Of Apricots, we have but a poor crop, and the trees have suffered much from branch-dying. Cherries are a good crop and excellent in quality; usually the trees have suffered much by this time from aphides, but this year are clear. Peaches and Nectarines are also quite up to the average, but where the trees are in dry places the growth is poor, and aphides have attacked them. Pears are a good crop, and the quality in some cases promises to be good; in others the fruit seems to have been injured by frosts in the early stages of its growth. Plums are a most abundant crop, and we never had the trees so free from blight as they are this year. Strawberries are the worst crop we have ever had, but the quality is fairly good. The best kinds for flavour, bearing, and distinctness are Keen's Seedling, President, Sir J. Paxton, British Queen, Frogmore Late Pine, and Loxford Hall Seedling; no Strawberries beat these either for exhibition or other purposes. As a culinary Strawberry, Sir Charles Napier may be preferred; of early kinds the best are Pauline, planted on an early border, and Black Prince; and of late kinds, we prefer Frogmore Late Pine and Loxford Hall Seedling to all other sorts. James Veitch and Unser Fritz I consider the best foreign Strawberries. The best plan by which good and regular crops may be secured is to prepare a piece of ground in July by trenching and manuring it well, to layer the runners as soon as possible in pots, and to plant them out the first week in August, taking care that they do not suffer from want of water. Do this every year, and good crops of the best quality will be the result. Small fruits of all kinds are up to the average and the quality good, Gooseberries especially so.—J. Douglas.

Kimberley Park, Wymondham.—Peaches and Nectarines here are abundant. Of Apricots we have about half a crop. Apples and Pears are, generally speaking, poor crops. Plums are abundant. Cherries a good crop. Nuts a poor crop. Walnuts a good crop. Gooseberries, Raspberries, and Red, White, and Black Currants abundant. Figs, too, are a good crop. Strawberries are plentiful. For general work, bearing, and flavour we like the following: President is excellent; Garibaldi is a heavy cropper and comes in earlier than President; Loxford Hall Seedling does well with me and comes in nicely when President is getting over. Auguste Nicaise also produces capital fruit; I have had them 2¼ ounces in weight. I also grow Duc de Malakoff, a very large kind, but subject to mildew. Sir C. Napier is a good cropper, and Keen's Seedling is good in flavour, but a bad traveller when packed. James Veitch and Sir Joseph Paxton are shy bearers, and British Queen refuses to grow with us. The first three varieties are to be relied upon in every way, and never fail to yield good fruit.—Wm. Wainwright.

Bloxholm Hall, Lincoln.—Fruit crops in this neighbourhood are far from being promising. Apples and Pears, although blossom was plentiful, are very poor crops, and the same remark applies to Cherries. Plums are a good crop, as are also Gooseberries and Currants of all kinds. Raspberries are a fair crop, but the dry weather has burned them up very much. Nuts are very poor. Strawberries are a fair crop, but very much burned up, owing to the dry hot weather which we had in June and in the beginning of July; only where they have been well watered and mulched can a good crop be found. Our main-crop early Strawberry is Vicomtesse Héricart de Thury; taking it all-in-all, it is the most useful and profitable Strawberry grown either for forcing or for open ground culture; it is certainly not the best flavoured, but on all other points it is excellent. President is another all-round Strawberry either for forcing or for open ground culture. It has a hardy and strong constitution, and the same may be said of Sir Joseph Paxton, a mid-season variety. Our best late kind is Loxford Hall Seedling, a most useful Strawberry, and one which thrives best on good deep soil. British Queen and Dr. Hogg are excellent, but although they do well with us in pots, they do not get on very well in the open ground. We have tried several of the new varieties, but the above, as far as we know, are the most useful and profitable for our soil.—David Lumsden.

Sandringham.—Of Apples we have very few indeed, and the leaves are very much curled. Pears are half a crop, and that on some sorts only, such as Beurré Diel, Easter Beurré, Duchesse d'Angoulême, Beurré Rance, Knight's Monarch, and Louise Bonne of Jersey. Plums are an average crop on walls; standards poor. Peaches and Nectarines good. Apricots poor. Bush fruits good, especially Currants and Raspberries. Gooseberries not so good. Strawberries good; the sorts which I find to do best here are Sir J. Paxton, President, Vicomtesse Héricart de Thury, and Premier. Morello Cherries were almost killed in May by cold winds, which lasted from the 23rd of May to the middle of June. We are very much exposed to the north-east. All vegetable crops are now looking well.—Charles Penny.

Gunton Park, Norwich.—Apricots are thin here, and the trees have suffered much from loss of branches. Plums of all well-known kinds are bearing heavy crops—even sorts known to be shy bearers. Of Cherries, consisting of Bigarreau, Elton, Black Eagle, Black Tartarian, and Bigarreau Napoleon, there are fine crops on walls, but they had to be well watered during the drought to prevent them from falling. Peaches and Nectarines on walls have not set by any means heavy crops. The flowers were poor and thin, the wet autumn not having ripened the wood perfectly. Apples are very thin in orchards; the trees looked very bad during the drought, and the leaves were much eaten by insects. Apples on bush trees in the kitchen garden here are looking well, and are bearing good crops. Pears are an average crop—nowhere very heavy; a few kinds required a little thinning, viz., Doyenné du Comice, Winter Nelis, Fondante d'Automne, Glou Morceau, and Marie Louise d'Uccle. Other well-known kinds are carrying just sufficient to be good. Gooseberries and Currants are plentiful, and the bushes very free from canker, for which the best preventive is gas-lime sprinkled under the bushes in spring. If the ground is stirred first it kills the grub. Strawberries are one of the finest crops on record, the bloom having escaped the spring frosts, and the weather being fine and dry the plants set a prodigious crop of well-shaped fruit. The best flavoured kinds at the present late period are Unser Fritz and British Queen. Amateur, John Powell, Sir C. Napier, and Dr. Hogg are still bearing, but they are not so good in flavour as the first two mentioned. Nuts are a thin crop.—Wm. Allan.

MIDLAND DIVISION.

Trent Park, Barnet.—The fruit crop in this district is fairly good. Pears are, I think, quite up to the average. Apples, although they set very well, have dropped off since, owing, no doubt, to the excessively hot weather which we have lately experienced. Cherries are plentiful both on walls and standards. Raspberries are abundant, but I believe in some places they are not quite up to the average. Strawberries seem to have surpassed all previous crops of that fruit. I have been picking from British Queen (a sort which seems to do better here than any other) the largest fruit I ever saw, and no doubt after the rains which we have had, should warm weather again set in, late fruits will be equally large. President has done fairly well, and has ripened some good fruit. Currants and Gooseberries are very plentiful everywhere, and I think wall fruit may be said to be an average crop.—Edward Baxter.

Bayfordbury, Hertford.—Our fruit crop here this season is not so good as last year. Apples and Pears are a very uneven crop; where the trees are most sheltered from north and east winds there is quite half a crop, but where exposed the fruit is very thin indeed. Gooseberries and Currants are excellent. Raspberries have much improved since rain came. Plums, generally speaking, are a good crop. With regard to Strawberries, we have not any of the new kinds here. We grow mostly Vicomtesse Héricart de Thury for forcing, and also as a main crop. President succeeds it, and these do well with us. I generally select a piece of good open ground for Strawberries. I have it well prepared by trenching if necessary, and well manured ready to receive the forced plants as they are taken from the houses, and these I find often give us some good fruit late in the same season. We generally mulch our Strawberries in winter with manure, and we invariably have excellent crops. We also grow British Queen on a late border, and it does well, but this season it has been much too hot and dry for it, even though watered occasionally. I seldom let one crop of Strawberries remain on the same ground more than two or three years; I find that they do best on fresh well-prepared ground. The finest crop of Strawberries I ever grew, both as to quantity and quality, was grown on a piece of old pasture taken in to enlarge the garden.—John Gibbs.

Moor Park, Rickmansworth.—Apples here are very scarce, and the trees much injured by caterpillar; where protected by trees or walls from cold winds the crops are better. Lord Suffield, Wellington, Cox's Orange Pippin and Prince Albert are amongst the most certain cropping sorts grown here. Of Apricots we have a very fair crop, especially under Rendle's protectors. Our Pears are light, but the fruit is clean and the trees very healthy. Cherries are a good crop. Bush fruits are very abundant, but Gooseberry caterpillar is quite a plague; some trees laden with fruit are entirely defoliated. Raspberries are unusually plentiful and very fine. Plums in all situations are good crops. Strawberries are a less crop than I have known them to be for these past eight or nine years. James Veitch, President, and Sir J. Paxton withstood the drought better than most others I grow, but all kinds have improved since the rain which fell on the 11th inst. I am now gathering very fine fruit of Oxonian, a very good late sort, and one which deserves more extended culture than has hitherto been given it. The varieties that do well here are Vicomtesse Héricart de Thury, Keen's Seedling, James Veitch, President, Dr. Hogg, Elton Pine and Oxonian. Pioneer and La Grosse Sucrée are early, but not quite good enough in flavour. I plant a batch of runners and forced plants every year, and never let a bed remain after the third year. The alpine, Royal Hautbois and Quatre Saisons I grow; the latter is very fruitful.—J. C. Mundell.

Hatfield House, Herts.—The fruit crop here this year is only a medium one. Small fruits, with the exception of Strawberries, are particularly good. Plums, Cherries, Peaches, Nectarines and Pears are average crops; Apricots and Apples are under the average. Many Apples are falling off. When cut open they appear as though the bloom had not been properly formed; the trees, too, look weakly, and the foliage was much damaged by caterpillars in May; caterpillars were also at that time very numerous on Pear trees, the fruit of which they very much damaged. Our crop of Strawberries has been much under the average this year, both in quantity and quality; the hot, dry weather of last summer, I think, weakened the plants, and the frost on the 30th of April and 1st of May this year killed the fruit and best blooms, and, moreover, the weather was too dry and hot while the fruit was swelling. My principal varieties out of doors are Vicomtesse Héricart de Thury, President, and Sir Charles Napier; the first two are good in every way. Sir Charles has not such a good constitution as the others, but the fruit is large and firm and travels well. For the earliest crops I grow Black Prince, and for the latest Elton Pine. Last year I planted for trial a row of the new Strawberry, King of the Earlies, by the side of Black Prince. The plants were similar, and they were all planted at the same time. The King was ripe fully a week before Black Prince. I, therefore, intend to plant a large bed of the King this year. I plant on deeply trenched and heavily-manured ground 2 feet plant from plant in the rows, which are 3 feet asunder. I plant both old forced plants and young ones, and both do equally well. I do not take any fruit from the young plants the first year, all their strength being required to produce runners for pots. As a rule, they do well the following two years. I plant about a third of my stock every year, and destroy a similar quantity, a system which answers well. Vicomtesse Héricart de Thury bears a greater number of seasons than any other variety with which I am acquainted.—G. Norman.

Panshanger, Herts.—Most of the fruit crops in this district are below the average, though from the magnificent bloom which we had in the spring and the lateness of the season, we anticipated much better results. Owing to the prevalence of north-east winds and low temperature much of the Apple blossom never set, and the late excessive heat and drought have much deteriorated some otherwise promising crops. Apples are therefore much below the average; some trees may be seen bearing a fair crop, but they are few and far between. Pears are also under the average. Cherries are an average crop, but small, with the exception of Morellos, which are good. Plums are over the average, but owing to the late drought much of the fruit is now falling. Apricots are much under the average; Peaches and Nectarines are bearing good crops, and the trees are making excellent growth. Gooseberries, Currants, and Raspberries are abundant; Raspberries small, but good. Strawberries much below the average and small; much of the fruit, owing to the heat, dried up on the plants. The varieties which I find to be most useful and productive on our light gravelly soil are Pauline for first early, Keen's Seedling, Premier, Vicomtesse Héricart de Thury, President, British Queen, Dr. Hogg, and Frogmore Late Pine. Pauline was ten days earlier than any of the kinds just named, but that is its only recommendation.—R. Ruffett.

Clumber, Worksop.—Hardy fruits here and in this neighbourhood, with the exception of Apples, Pears, and Apricots, are fair average crops. Apples bloomed profusely, but the prospect of a good crop was destroyed by continuous cold wet weather, that prevented fertilisation. The kinds having most fruit are Radford Beauty, King of the Pippins, Red Astrachan, Fearn's Pippin, Manks Codlin, Syke House Pippin, Sleeping Beauty, Dutch Mignonne, Lord Suffield, Maltster, Kirke's Fame, and Tower of Glamis. Pears suffered from the same cause as Apples, and are consequently thin. Jargonelle, Williams' Bon Chrétien, Zéphirin Grégoire, Grosse Calebasse, Easter Beurré, Huyshe's Prince of Wales, Winter Nelis, Louise Bonne of Jersey, General Tedleben, and Beurré Giffard are bearing most fruits. Peaches on walls set well, but the foliage suffered severely from blister, and the fruit generally is small. Apricots are almost a failure. Plums are a very heavy crop. Cherries, both Morello and sweet, are good crops; so, too, are Currants, Gooseberries, Raspberries, and Nuts. Of Strawberries, such kinds as do well on our light sandy soil are abundant. Vicomtesse Héricart de Thury we mainly depend upon. It is one of the best-flavoured and heaviest croppers amongst Strawberries, and a most excellent variety for light sandy soils. Our course of treatment is as follows: a plantation is made every year in September, consisting of runners layered in pots for the purpose. The plants are planted in rows, 2½ feet apart and 18 inches asunder in the rows. From this plantation, which is not allowed to fruit the following season, we take runners for forcing, and after that every alternate plant in the rows is removed, leaving a distance of about 3 feet from plant to plant. By this plan we get strong early runners for forcing, and a heavy crop of fruit the second year after planting. The plants are not allowed to remain a third year, but are cleared off and the ground get ready for winter Spinach. Early-forced plants of Vicomtesse planted early in June in a warm south border give us a plentiful supply of fruit after the general crop is gathered, and continues bearing until cut off by frost.—M. Gleeson.

Osberton Hall, Notts.—The Apple crop in this district is nearly a failure. Pears, too, are a poor crop. Plums are a fairly good crop, and the trees have been very free from green fly. Peaches and Nectarines on open walls are good crops—the best, indeed, we have had for some years; the trees also are clean and healthy. Apricots are about half a crop; the bloom buds were greatly injured by the severe frost which we had in March. Gooseberries and Currants are heavy crops, and the fruits are very fine—the best which we have had for some years. Strawberries are a very good crop, and the fruit is large and fine in flavour; the sorts grown here are Keen's Seedling, La Grosse Sucrée, James Veitch and British Queen; the last is exceptionally fine, our light soil seeming to suit that variety well. For late use we depend upon Elton Pine and Frogmore Late Pine. Cherries are a good crop, with the exception of Morellos, which are not quite so heavy as usual.—S. A. Woods.

Thoresby Park, Ollerton.—Fruit crops here are not so promising now as when the trees were in bloom. Owing to the long, cold, dry, sunless weather and piercing winds the bloom did not set well, and quantities that did set have dropped off. Apples, Apricots, and Pears will be light crops here, at least in the case of some sorts. Plums are a fair crop, and Cherries are a good average crop. Small fruits are very fine, Currants, both Red and Black, being plentiful, and also Raspberries. Strawberries, too, are a heavy crop, and the fruit large and fine. We still keep to Keen's Seedling as our best both for forcing and outdoor. In flavour it comes next to British Queen; then comes President, which is always good. Under the following treatment we have always good crops: As soon as all the fruit is gathered we clear off all runners, hoe and rake the ground clean, and keep it clean until, say, end of October; then we give a good dressing of rotten manure, spread all around the plants and between the lines; in spring, just as the plants begin to grow, we give a good dressing of long litter from the stables. If the weather should be dry when they begin to throw up their flower spikes we give a good watering, and sometimes a dusting of any sort of manure we may have at hand before water is given, of which they get plenty. I find Oxonian to be our best late Strawberry.—A. Henderson.

Welbeck.—Apricots here are an average crop; Apples a very poor crop. The trees flowered profusely, but set very little fruit, and the foliage all through June had an unhealthy appearance. Pears generally are not a good crop. Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Bezi Mai, and a few others planted on the south side of an arcade running east and west, are bearing good crops. Peaches and Nectarines are good average crops. Of Cherries, Morellos are good; others poor. Plums are a heavy crop, so much so as to oblige us to thin severely. Bush fruits are plentiful. Nuts very thin. Strawberries are neither plentiful nor fine. The weather during the time when they were in flower was harsh and cold. Vicomtesse Héricart de Thury, Keen's Seedling, Sir Joseph Paxton, and Dr. Hogg are most to be depended on, and the first-named most of all. We grow more than an acre of Strawberries, and plant a considerable space every season, chiefly with plants which have been forced. Before planting we manure heavily, and trench two spits deep. Such plantations usually stand about four years, and, as a rule, do well. As soon as the fruit is set we mulch with rough litter or Grass.—Richard Carr.

Kingston Hall, South Notts.—The rainfall in May was exceptionally heavy. June was very cold, and a cold June is certain failure in the case of Strawberries—at least on heavy soils. So far as I have been able to ascertain, this failure has been general in this neighbourhood, our own crop being very light compared with that of former years. We renew our plantations every three years, or nearly so. We have tried three modes of procedure, viz., 1st, plants after being forced; 2nd, plants layered in small pots, and planted out as soon as ready; and, 3rd, putting runners in nursery beds all winter and planting them out in spring, and this is, I think, the best plan. We always make it a point to keep our fruiting plants as clear of runners as time and labour will permit. In autumn the plants have a good cutting in and clearing: then they get a good mulching with stable litter, which also serves as a dressing to keep the fruit clean. We never fork amongst the plants (this, however, we should do in the case of all kinds of fruits, provided we had an unlimited supply of half-rotted manure at our disposal). Our varieties are Vicomtesse Héricart de Thury, Sir Charles Napier, Lucas, James Veitch, and Elton Pine. Of these we prefer the two first for ordinary seasons; but this year I must admit that James Veitch stands first as the best cropper. Lucas is a fine Strawberry, being with us good in flavour and a fine cropper, but a bad traveller. Raspberries are a very heavy crop, as are also Black Currants. Red Currants are a medium crop. Gooseberries are a fair crop. Morello Cherries also a fair crop. Pears on trees not heavily laden last year are good. Apples are thin on most trees. Damsons here are also rather a thin crop. Other Plums plentiful in the district. Altogether, if the autumn proves fine we have what may be termed a medium fruit crop.—J. W. Bayne.

Belvoir Castle, Grantham.—The complete failure of the Apple crop in this district was not the result of any single frost, but of a long period of chilling winds and cold, dull weather after the first flush of sap. The check sustained by the trees caused the bloom to fall, produced mildew on the foliage, and assisted the ravages of insects. Some few very vigorous young trees bore up against the trials of the early ungenial season. Stirling Castle and Lord Suffield amongst the number, and these are bearing fair crops. Pears suffered in the same way, the trees that failed to bear last year producing more fruit than those heavily cropped last year. The Plum crop is too abundant, necessitating thinning. There is but a moderate crop of Apricots. Peaches are bearing well and are healthy. Cherries moderately good. The crop of Gooseberries is exceedingly large; Currants, both Red and Black, are equally abundant. Raspberries are small and the canes affected by drought. The Strawberry crop is by no means large, and the fruit has been injured by dry weather. French Strawberries seem better able to resist heat and drought than English raised sorts; thus Grosse Sucrée proved the best early sort we grow; Keen's Seedling followed very closely, and maintains its position as an excellent fruit both for forcing and general cultivation. Alice Maud is growing into favour, both on account of quality and its packing properties; Sir J. Paxton and President follow and afford a main crop, succeeded by Vicomtesse Héricart de Thury, a heavy bearer, but a little acid. British Queen still maintains its pre-eminence in size, quality, and its habit of producing even and regular crops; Frogmore Late Pine is our latest sort, and well grown is invaluable, being a heavy cropper and of a deep rich colour. Pauline is on our trial ground as an early sort; James Veitch does not succeed with us; Auguste Nicaise is a large fruit, but not of high quality; it forces well. We employ forced plants generally to make fresh borders, and find it best to use manure liberally.—W. Ingram.

Waresley Park, St. Neots.—Fruit crops in this district, with the exception of bush fruits, are below the average. Apples and Pears are very scarce indeed. Plums are a fair crop Apricots rather thin, but large. Cherries abundant. Peaches and Nectarines good and trees healthy. Red, White, and Black Currants and Gooseberries abundant, and of first-rate quality. Raspberries and Strawberries promise to be good crops, but owing to the dry weather which we have had they are small, but of good quality. Vicomtesse Héricart de Thury, President, and British Queen I find to be sufficient both for inside and open-air culture. Filberts are scarce, but Walnuts are plentiful.—Robert Carter.

Kimbolton Castle, Hunts.—Strawberries in this district are almost a failure, though with us they are excellent, owing solely to our having given them fresh mulchings and copious waterings when the dry hot weather set in immediately after the 21st of June. The kinds which I find best suited to this cold clayey subsoil are British Queen, Dr. Hogg, Sir Charles Napier, and President, and yet they are the four best varieties grown. Keen's Seedling was almost a failure, the blooms seeming to perish beneath the continuous cold rains which occurred in the early part of June. Apples also suffered from the same cause, and the leaves are now falling off as if scalded. Of Apricots, Pears, Plums, Cherries, Gooseberries, Currants, Filberts (scarlet and white) we have great abundance. As to the latter, I never before saw such a profusion. In order to secure good and heavy crops of Strawberries, I always open a trench the same as for Celery and manure well, then fill in and plant with plants that have been forced. By these means I get a far heavier crop the following season than I could possibly obtain from plants prepared outdoors.—Thos. Cowburn.

Ramsey Abbey, Hunts.—Apricots here are thin, but the trees are healthy. The paucity of fruit I attribute to drought and scarcity of water last summer. Peaches and Nectarines are good; Plums and Cherries abundant; Apples about half a crop; Pears fairly good; Grapes on walls plentiful, but late—will require a fine autumn to enable them to ripen; Figs are a good crop; bush fruits and Raspberries very abundant; Nuts thin. As regards Strawberries, young beds have done well. One old bed that was condemned last year, but afterwards reprieved, has not been so good. On our soil the second year is usually the best, and on no consideration should beds of Strawberries be allowed to stand more than three years. The best kinds as regards flavour are British Queen and President, and they also bear well. Vicomtesse Héricart de Thury does well here as a second early. Black Prince and the Captain succeed well also. The best late kinds with us are Sir C. Napier and Elton Pine. The White Pine is liked here, and it bears well; it also forces well. The best way to insure good crops is to plant either a half or a third of the space occupied annually, according as we adopt the two or three years' system, to plant on good land firmly, to give plenty of room in proportion to the development of the particular variety growing, to mulch heavily, and to water freely up till the time when the fruit begins to ripen. The alpine with us is much thought of. It is sent in for breakfast every morning, and when the plants are well fed the fruit attains a good size.—E. Hobday.

Glossop Hall, High Peak of Derbyshire.—This is perhaps one of the worst fruit districts in England. There is an old saying here that we get nine months of winter and three months of bad weather, which is, so far as my experience goes, not far from correct. Apples and Pears, when their blossoms escape destruction by late spring frosts, rarely attain size enough to be of any use, with the exception of Lord Suffield, Keswick, and Manks Codlins, and these are only a very poor crop this season. Of dessert Pears we have none, all the bloom being destroyed by heavy rains and frost. Plums and Cherries also suffered from the same cause. Currants and Gooseberries are much under the average. Raspberries and Strawberries are about an average crop, but very late up to this date (July 23). We have not gathered a single Strawberry outside. President, Vicomtesse Héricart de Thury, Sir Joseph Paxton, and the old Hautbois were the only varieties in cultivation when I took charge here in the spring of 1885; to these I have added James Veitch, Keen's Seedling, Eleanor, and British Queen. In addition to a cold, wet climate, we have a wretchedly poor gravelly soil, and, worst of all, smoke from the cotton factories' and other chimneys. On soil of the nature of our own it is not wise to allow Strawberry beds to stand more than three years, as by that time the plants get quite exhausted. In the new beds we have made we have—by way of an attempt to improve both crop and quality—put about 4 inches of good stiff clay in the bottom of the trenches, and we have great hopes of this method being successful, assisted by liberal top-dressings of manure in autumn.—B. Ashton.

Westonbirt, Tetbury.—Apples here are an average crop; Pears good, especially early varieties. Winter Nelis on a west wall, has not failed during these last six years. Of Plums we have an excellent crop. Cherries are an average crop, but small. Peaches and Nectarines average crops; trees very much blistered, but making strong lateral growth. Apricots are under the average, but fine in quality. Of Figs we have an average crop. Small fruits are excellent, especially Gooseberries, many of the trees breaking down under their load. Nuts are plentiful, but late. Strawberries are good: the first fruits were very large, and rain came just in time to swell for the second crop, which was plentiful, but the fruit small in size. I find only three varieties to do well with me, viz., Keen's Seedling, Sir Joseph Paxton, and President. I have tried Dr. Hogg and British Queen; the former does not ripen well, and the latter does not make strong crowns. I force Keen's Seedling as my earliest, and it produces moderate-sized fruit. It is also the earliest out-of-doors and best for preserving. Sir Joseph Paxton I find to be early and goodfor forcing; it has a good constitution, and is not particular as to soil. It also packs and travels well. President I find to possess the same good qualities, but it is quite a fortnight later. Our soil is not good for Strawberries, but the varieties just named do well with us. I plant out my latest forced plants in well manured soil, and these bear and last well for three years.—A. Chapman.

Hopton Hall, Wirksworth.—Apples in this district had a good show of blossom, but scarcely any fruit has set. I have one remarkable pyramid tree, viz., the Irish Peach Apple, that I left unpruned in 1884, and last year I was rewarded by clusters of threes at end of every branch, and very fine fruit; it was a pretty sight to see the fruit hanging on the long slender branches. This year I am again rewarded with pairs, instead of triples, and a good crop. It appears likely to be the only tree that will ripen any fruit. Pears never come to anything here except in very fine seasons, but old Brown Beurré is carrying a good crop. Plums, such as Coe's Golden Drop, Early Prolific, Dove Bank, Victoria, Goliath, and Purple Gage on walls, are bearing full crops, but the last named never comes to perfection. On pyramids, Victoria, Oulin's Golden, and Guthrie's Late Green are good crops, but the two latter never ripen properly; Victoria and Orleans do best, but the Orleans has failed this year. Damsons opened their blossoms late, and were looked upon as a safe crop, but, alas! they have failed. Cherries on walls are good; our varieties are Early Duke, Early Guigne, Elton, Downton (this here succeds Elton), Black Eagle, Morello, and Late Duke. Cherries and Plums do well on the limestone here, but they require a wall to ripen them. Raspberries are good, but rather small. Black Currants are a good crop, and very fine and clean. Red Currants are also very fine; a row of old standards, with large heads, are heavily laden and clean. White Currants are likewise good and clean. Gooseberries are a heavy crop, especially on young standards which had very little pruning. Strawberries are heavy crops: most varieties that have been tried do well here, though on a shallow soil. I could dig on to the limestone at less than a foot from the surface, on which there is a bed of

President showing a fine crop, and we have no means of watering such crops. I keep the ground well covered with foliage by thicker planting than what some would recommend, and I mulch well in autumn with rather littery manure; this washes clean and preserves the fruit from grit. I gathered my first dish of Vicomtesse Héricart de Thury on 12th of July, and I have been gathering the Wood Strawberry from the 28th of June; of this we supply a quart daily for breakfast. This wild Strawberry is finer this year than I have ever before known it to be. It grows by the acre on the limestone rocks here. Vicomtesse Héricart de Thury stands first on our list for a general crop, and forcing and preserving; President is our main crop kind, and for forcing I select the forced plants every year that produce the finest fruit, and plant them out; Oscar does well, and produces fine high coloured showy fruit; it also forces well, but this season 53 per cent. went blind; Black Prince is allowed to ramble about at will; this never fails us; Auguste Nicaise bears freely and is distinct in colour; Marguerite is large and a good cropper; Comte de Zans throws up its fruit well above the foliage, but does not stand wet well; of Eleanor we have a fine crop; it makes a showy late dish, though very acid. With British Queen we get on very badly; it never produces a crop here; it used to do well in Shropshire and Staffordshire on the red sandstone formation.

Potatoes look remarkably well in this district. —George Bolas.

Waddesdon, Aylesbury.—Apricots here are a failure. Plums very good. Cherries an average crop; Peaches and Nectarines the same. Apples are under the average. Pears an average crop and good. Bush fruits are very good. Strawberries under the average. Raspberries very good; of Nuts we have none. Generally speaking, our soil does not suit Strawberries well; it is a very heavy black clay with a great quantity of iron in it. Dr. Hogg does as well as any with us; Vicomtesse Héricart de Thury crops well, and is good in constitution. Lucas is a favourite with us, so is Helena Gloede and Sir Joseph Paxton, but President is the Strawberry upon which we rely for a general crop. Sir Charles Napier does fairly well with us; and James Veitch, Loxford Hall Seedling, Oxonian, and the Red Alpine do well late.—Absalom Bradshaw.

Chatsworth, Chesterfield.—The Apple crop here is a capricious one. Early varieties are a good crop, including Codlins, but later varieties are scarce, and the trees which bore heavily last year have scarcely any on them this season. The reason for this must be, I think, the unripe condition in which the wood was left last winter after the almost unprecedentedly dull and cold autumn which we had. Pears are a fair crop. Plums an average one, and Cherries the same. So, too, are also Gooseberries, Raspberries, and Currants, excepting Black ones, which are light. Strawberries are under the average, and I find a greater percentage of blind plants than I ever remember before, especially in our plantations, and also in those formed with young runner plants. On the other hand, in quarters plentiful last year with plants which had been forced we have no blind ones, and these, in my opinion, always give the best return.—O. Thomas.

Shipley Hall, Derby.—There was an abundance of blossom on all kinds of fruit trees here and in this neighbourhood last spring, but the unfavourable weather in March and April, and a very wet, cold May, have in general had an unfavourable effect on our fruit crops. Apples, Pears, and Plums are a spare crop; even that free-bearing Plum the Victoria is very thin. Of Damsons we have half a crop. Morello Cherries are also almost a failure. Of the choicer kinds of hardy fruits, viz., Peaches, Nectarines, Apricots, and Figs, none are grown here except under glass. Raspberries are excellent in every way. Gooseberries are also laden with well-swelled berries. Currants, Red, White, and Black, are fair crops. Of Strawberries our earliest and best cropper is Vicomtesse Héricart de Thury, but this season they are unusually small, owing to the protracted drought which occurred during June. President and British Queen suffered most through the winter and from late spring frosts, many plants being quite stripped of their foliage; consequently, the crop is very poor indeed. James Veitch is our heaviest and best cropper this season, and is a variety that always does well on our heavy soil, but its value is much discounted by the fact that its fruits are the first to decay in damp weather, especially the largest ones, even before they begin to colour. For late picking on a north border, I grow Helena Gloede and Loxford Hall Seedling; both varieties are swelling heavy crops, and will give us a good supply during August. My practice is to plant runners in August every year to take runners from the succeeding year for forcing. These I plant in rows 2 feet apart and 1 foot asunder in the rows. After the runners are taken, the following year I root out every other plant, leaving each plant 2 feet in which to grow and fruit for two years afterwards. By this method I add to and take from my plantations equally each year.—W. Elphinstone.

The Globe flower (Trollius europæus).

Stoneleigh Abbey, Kenilworth.—Apples on bush trees here are very good. Pears under the average, but good. Plums on walls an average crop. Apricots under the average. Cherries on walls average good. Peaches an average crop. Currants of all sorts good. Gooseberries and Raspberries the same. Sir Joseph Paxton is the favourite Strawberry here, and in this neighbourhood Keen's Seedling is a good one and much used for forcing, but it has not fruited outside well with me this season. Vicomtesse Héricart de Thury dies off very much, though a favourite sort with me. I have a few plants of King of the Earlies planted out, and I like it much; it is very early. Of Macmahon I have also a few planted out. It is excellent in flavour, but, I am afraid, not a good sort for packing, being rather soft. Eleanor suits our garden, and is much later than those just named. Plums and Damsons are very good in neighbouring parishes. Small fruits are good. Apples and Pears moderate.—T. Beddard.

Hewell Grange, Bromsgrove.—Owing to the lateness of the season, all fruit crops here are abundant, with the exception of standard Apples in the orchard, which are a complete failure, with the exception of Blenheim Orange and King of the Pippins. Those on the Paradise stock planted round the borders of the kitchen garden are carrying heavy crops. The varieties to which I refer are, dessert Apples: Irish Peach, Red Astrachan, Golden Pippin, Kerry Pippin, Red Quarrenden, Oslin, Duchess of Oldenburg, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Syke House Russet, Pitmaston, Nonpareil, Margil, Braddick's Nonpareil, Herefordshire Pearmain, Cockle Pippin, Ashmead's Kernel, Calville Blanche, Duke of Devonshire, Claygate Pearmain, and Sturmer Pippin. Kitchen Apples: Nonsuch, Lord Suffield, Pott's Seedling, Echlinville, Stirling Castle, Beauty of Kent, Cellini, Cox's Pomona, Blenheim Orange, Gloria Mundi, Small's Admirable, Mère de Ménage, Waltham Abbey Seedling, Winter Hawthornden, Yorkshire Greening, Alfriston, Nelson's Glory, Tower of Glamis, Ware-

ham Russet, Warner's King, Golden Noble, Dumelow's Seedling, Bedfordshire Foundling, New Northern Greening, and Winter Peach. Of Pears we have heavy crops of Marie Louise, Jargonelle, Beurré d'Amanlis, Durondeau, Marie Louise d'Uccle, Napoleon, Glou Morceau, Winter Nelis, and Knight's Monarch. Those carrying moderate crops are Doyenné d'Eté, Doyenné du Comice, Pitmaston Duchess, Duchesse d'Angoulême, Brockworth Park, Dana's Hovey, Marie Benoist, Emile d'Heyst, Beurré Bosc, Beurré de l'Assomption, Chaumontel, Bergamotte d'Esperen, and Josephine de Malines. Pyramids are again carrying heavy crops. Currants, Raspberries, and Gooseberries are excellent, and entirely free from blight. Figs are also a grand crop. Cherries, too, are very abundant, both dessert sorts and Morellos, and they are free from black fly, although the weather has been dry. Plums on walls are heavily cropped; also standards, which will require to be supported, their branches being completely borne down with the weight of fruit. Damsons are likewise an excellent crop. Nuts also promise to yield well. Peaches, Nectarines, and Apricots are always a failure here, owing to the exposed position of this garden; therefore, few trees of these are grown outdoors. Strawberries are a very good crop; the sorts upon which I depend for a continuous supply are Vicomtesse Héricart de Thury and Sir J. Paxton, planted on south and west borders and in open quarters. Oxonian, Elton Pine, and Frogmore Late Pine are planted on east borders. I find Sir J. Paxton to be the best of all for packing for travelling. Its fruit is of fine appearance and excellent in flavour. The sorts just named carry me over a long period. In the case of those on borders, I am unable to change the ground on which they grow, but I renew a portion of them annually. The third year as soon as the fruit is gathered, I mow down the tops of those to be destroyed with a scythe; give a heavy dressing of manure and bastard-trench the ground; then I make it firm, and plant with rooted runners from pots. Of course those on open quarters can be changed about more than those in borders. By this mode of cultivation I always obtain excellent crops, and they can withstand a long period of dry weather without sustaining any serious effects. —Edward Ward.

NATURALISING GLOBE FLOWERS.

Naturalising garden flowers is a phase of culture happily becoming popular, and among the host of vigorous, yet showy, flowers fitted for the purpose, none are better than the Globe flowers. These have long been cultivated in gardens, and the variety amongst them now to be had, both in size of flower and shade of colour, will satisfy the tastes of all. The flowers of the European species herewith illustrated are clear yellow, while there is every shade between this and the deep orange of T. japonicus. All are strong growers able to hold their own with rampant growing perennials. The ground for Globe flowers simply requires to be broken up, and a little manure added if necessary to give them a start. At a friend's place the other day I was much struck with the quantities of Marsh Marigold which I saw growing by the side of a small lake, the effect of which was charming; it does not necessarily require water to grow in, although it will thrive all the better if the ground in which it is placed is a little damp. Epilobium angustifolium and the variety album, stately growing plants, have also a grand appearance growing in a semi-wild state, and if left for a few years undisturbed, they gain in strength in a wonderful way. K.

QUESTION.

5512.—**Anemone culture**—I am at fault as to the management of Anemones. Some of my friends say, leave them undisturbed in the ground, simply giving them a coating of manure. Others say, take them up in the autumn and keep them in a dry cool place until the spring. Both parties say that if the treatment contrary to their special views is carried out they, will be a failure, and between the two I am in a fog. I may say that I planted some in April last, and have had a grand lot of blooms of both single and double. I presume the treatment given for Anemones is applicable to Ranunculuses. If any successful grower will kindly give me any information on the subject, should be obliged.—W. Snowell.

SOCIETIES.

ROYAL HORTICULTURAL.

July 27.

The annual show of the Carnation Society was on this occasion associated with the usual fortnightly meeting, so that there was a large and varied exhibition, which also included a competitive show of vegetables for special prizes, and a capital display of orchard-house fruit trees from Sawbridgeworth. The plants and flowers submitted to the committee were fewer than usual, though some possessed exceptional interest. First-class certificates were awarded to the following:—

Cattleya gigas, Hill's variety.—A truly magnificent variety, and only comparable in the size of the flower and beauty of colouring to the C. gigas Hardyana, shown here some time since. Mr. Hill's plant is supposed to be a natural cross between C. Dowiana aurea and C. gigas, and as these two Cattleyas grow wild in the same district, and in fact together, the supposition is probably correct. To describe it one must imagine a very large flower of C. gigas, with broader sepals and petals than ordinary, the latter firm enough to hold themselves rigid. Their colour is a deep purple-rose, tessellated or chequered like the sepals of Vanda cærulea. The lip, the most gorgeous part, is quite 3 inches across, of an intensely deep magenta in the lower part, and adorned in the upper part with pale yellow, fading off to straw colour in the throat. The exquisitely frilled margin of the lip also adds much to its beauty. It would not be too much to pronounce it the noblest and most splendid Cattleya ever seen in this country. The fortunate possessor of it is Mr. Hill, of Arnott Hill, Nottingham, by whose gardener, Mr. Davenport, it was shown in fine condition.

Odontoglossum stellioerum Ernesti.—A variety of what has hitherto been looked upon as only a third-rate Orchid, and the present plant, shown by Mr. R. J. Measures, of Cambridge Lodge, Camberwell, is by far the finest form yet seen. The flowers are much larger than those of the type; the sepals are pale green, heavily spotted with dark brown. The labellum is three-fourths of an inch broad, and has a terminal lobe of pale claret colour, the upper half being pure white. The flowers are borne in the usual racemose way.

Rhododendron Rajah.—Another addition to the new race of greenhouse or Javanese Rhododendrons, characterised by having double flowers. This new variety is one of a batch of seedlings, produced from the same seed vessel, and which include a double white, a double yellow, and a double pink variety. The flowers of the Rajah are very double, and produced in massive trusses accompanied by luxuriant foliage. The colour of the flowers is a warm apricot yellow, flushed with red. It is a very beautiful plant, and one that will be sure to become popular. Shown by the raisers, Messrs. Veitch, Royal Exotic Nursery, Chelsea.

Matricaria inodora fl.-pl. grandiflora.—An improved variety of a well-known and popular hardy flower. The blossoms of the new variety are not only much larger than those of the ordinary form, but when fully developed are pure white, whereas in the original they are always greenish in the centre. The plant is dwarf, not more than a foot high, compact, and extremely floriferous. It will prove a useful border flower for cutting. Shown by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

Todea grandipinnula.—A supposed hybrid between T. Fraseri and T. hymenophylloides. It partakes of the characters of both of these lovely filmy Ferns, the fronds being broad, finely cut, and very pellucid. Shown by Messrs. Veitch.

Carnation Terra Cotta.—A new sort of a peculiar colour, a kind of buff-yellow, mottled with purplish hues of various shades. The flower as regards size, shape, and substance is the perfection of a first-rate Carnation. Exhibited by Mr. J. Douglas, Great Gearies, Ilford.

Among other exhibits worthy of note were two spikes of that superb Orchid, Lælia elegans Turneri, from Mr. Lee's garden, Downside, Leatherhead. One of these bore eleven flowers; the other nine; and these were cut from one plant, which bore other spikes also. It is seldom one sees such extraordinary examples as these, and Mr. Woodford, Mr. Lee's gardener, was deservedly awarded a cultural commendation. The colour of the flowers of this variety is claret-purple on the sepals and petals, the lips being a brilliant magenta. Messrs. Veitch showed a plant of Anthurium Bakeri, whose chief beauty lies in the bright red berries with which the long slender spadix is beset. It is interesting, but few would consider it very beautiful. The same firm also showed a new Caladium named Charlemagne. It has large transparent red leaves, having prominent veins of bright crimson. Mr. Jannech, of Dersingham, showed a new variety of the native Maiden-hair Fern under the name of Adiantum Capillus-veneris grande (Moore). It seems to have much more robust fronds than the type, and it is altogether of larger growth. It is, we consider, a very beautiful Fern, and being hardy, will be invaluable for growing in cool houses. Mr. Bealby, Roehampton, received a cultural commendation for a fine specimen of a double yellow tuberous Begonia named Louis d'Or, one of the best of the colour we have seen. The flowers are large, very double, and of a clear sulphur yellow. Mr. Owen, Maidenhead, also made a showy display with Begonias, which included some good sorts, and three struck us as being particularly good. These were named Queen of England, a large double salmon-coloured flower; Colindia, scarlet; and Marchioness of Lorne, a large single sort of a bright cherry-rose colour, and extremely floriferous. Mr. May, Dyson's Lane Nursery, Edmonton, showed a group of plants of his new Fern, Pteris cretica H. B. May, which has variegated fronds like the albo-lineata variety, but elegantly tasselled. Mr. Noble, of Sunningdale Nursery, showed some new unnamed sorts of Clematis Jackmanni, and also a wreath of the white Jackmanni, a very lovely variety. Mr. R. Dean again showed plants of his double Stocks, one named Mauve Beauty being extremely pretty.

Cut Roses from Messrs. Paul, of Waltham Cross and Messrs. Paul, of Cheshunt, made quite an exhibition in themselves, and were much appreciated; and scarcely less so the large gatherings of hardy flowers from Mr. Ware, of Tottenham, Messrs. Barr, of Covent Garden, and Messrs. Paul from their Brexbourne Nursery. All three collections were good, but they did not differ much as regards the material of which they were composed. Lilies were prominent in all, and Mr. Ware's group was especially noteworthy for the stately spikes of such noble Lilies as L. longiflorum, pardalinum, Humboldti, testaceum and candidum; while Messrs. Paul had some fine specimens of that darkest of all Lilies, the Dalmatian form of L. Martagon, known as L. dalmaticum. The Eryngiums, or Sea Hollies, in the Tottenham collection were also a noteworthy feature, there being large masses, two or three yards square in fact of E. giganteum, whose spring flower-heads looked more like electrotyped silver than real flowers, and also of E. amethystinum, which is, perhaps, the best of all, because it is brightest; the flower-heads and also the stems shine like burnished steel. The Iceland Poppies both in Mr. Ware's group and also in that from Messrs. Barr were charming, for nothing could well surpass in beauty the glowing hues of these cup like flowers, bright orange scarlet and lemon-yellow, and also snow-white. There were a host of interesting and beautiful bulbous plants to be seen in Messrs. Barr's group, while the numbers of first-rate hardy flowers were as numerous and well-grown as they have been on previous occasions, although there are still not a few weeds among the so-called border flowers which should not be exhibited.

The Carnation Show.

Without doubt flaked and bizarre Carnations and the edged Picotees are very beautiful, but it is an unfortunate fact that all the most noticeable blooms shown were grown under glass; thus these are seen under auspices very diverse from those grown as ordinary border plants. That the greater size and exceeding refinement found in these exhibition flowers repay for the additional trouble taken in their cultivation there can be little doubt. Still, it is well all who have admired these in their stands and paper-

collars, after they have passed through the hands of the dresser, should understand that blooms as presented in the interesting collections shown by Messrs. Veitch, Mr. T. S. Ware, and Messrs. Hooper are just what open-air culture produces, and not those delicately-refined blooms. Shown in the competitive classes, one thing was exceedingly noticeable in the competitions, and it was one to be regretted. It was that only two exhibitors, Messrs. C. Turner, of Slough, and Douglas, of Ilford, succeed in producing first-class flowers, all the rest being but very third-rate. As a result, when the blooms of these growers are seen, all further interest in the competitions pass away. Were these removed the show would be inferior indeed, but being present they did but emphasise the wide difference there is between high-class and mediocre culture.

Show Carnations.—The class for twenty-four blooms brought five collections, in which Messrs. Turner and Douglas were, of course, invincible. Amongst the best blooms staged were Rob Roy, James Douglas, Miss E. Wemyss, Mr. H. Cannell, A. K. Mayor, Matador, Corisande, Tim Rittorn, Diana, and Felicity. Mr. Turner's blooms were exceptionally fine, and those of Mr. Douglas hardly less so. In the class for twelve blooms, open only to amateurs, Mr. Douglas was first with superb flowers, whilst the Ipswich grower who followed was in fairly good form. Amongst the good blooms shown were Sarah Payne, John Hunt, Arthur Medhurst, Thalia, and Squire Walker. That there were no less than a dozen lots of six blooms staged shows that many small fanciers have entered the lists, the best of these being Mr. Phillips, of Earley. Exceedingly fine was the competition in the single bloom classes, some twenty blooms probably being shown in each. As these give the various flowers in their sections, they present, perhaps, most interest. *Scarlet bizarres* came first, Robert Lord being placed first and second; Arthur Medhurst, third; Master Stanley, fourth; and George, fifth. In *crimson bizarres*, Duc d'Aumale was first; Rifleman, second; Merryweather and Master Bob, third and fourth. In *pink bizarres*, Sarah Payne came first and second; Unexpected (Douglas), third; Squire Llewellyn, fourth. *Purple flakes* produced, first, Mayor of Nottingham, then Squire Meynell; Sarah Payne here sported to a flake; Sporting Lad and Major Gane in this order. *Scarlet flakes* were represented by Matador, Hy. Cannell, Sportsman, Figaro, and a seedling. In *rose flakes*, Rob Roy, almost scarlet, was first and second; Tim Robbin, third: Diana, fourth; and Thalia, fifth.

Picotees.—So good were the two collections of two dozen blooms staged that the judges placed them equal first, although to the ordinary observer the blooms shown by Mr. Turner seemed the best, and certainly the finest. Amongst those specially good were J. B. Royal, Her Majesty, Princess of Wales, Brunette, Miss A. Chancellor, and Constance, heavy edges; and Liddingston's Favourite, Mrs. Payne, Orlando, Clara Penson, Juliette, and Mrs. Gorton, light edges. There were nine boxes of twelve blooms; Mr. Douglas being here to the fore with some lovely flowers. Specially good were Alice, light purple edge; Mrs. Payne, light rose; Her Majesty, light purple; Favourite, light rose; John Smith, heavy crimson; Muriel, heavy purple; and Constance, heavy rose. There were thirteen lots of six blooms staged, fairly clean, pleasing flowers from amateurs. Singles were in great quantity, and came as follows: Of *heavy edged reds* were Henry, first and second; Prince of Wales, third and fifth; and Mrs. Dodwell, fourth. *Purples* were represented by Muriel, first and second; Miss A. Chancellor, third; Zerlina, fourth and fifth. *Roses* found the best in Mrs. Payne, first, second, third, and fifth; and Edith Dombrain, fourth. Of *light edges* the best reds were Mrs. Gorton, first and second; and Mrs. Williamson, third and fourth. Of *purples*, Juliette came first and second; Her Majesty, third; Nymph, fourth; and Pride of Leyton, fifth. Finally, of *roses*, Liddingston's Favourite took all the prizes. A class for *yellow grounds* gave Agnes Chandler and Prince of Orange as best blooms. *Self and fancy Carnations*, seemed to attract attention because of their greater variations of colour and markings, and even here the two premier exhibitors took the chief prizes. Very beautiful were Rob Roy, Sybil, Dan Godfrey, and Mary Morris, rose selfs; Magog, purple self; W. P. Milner, and the Governor, white; Edith, yellow; and of edged flaked flowers, Prince of Orange and Guardsman were excellent. There were five lots of these and eleven of six blooms, a very good class. *Yellow ground Picotees* had a special class for twelve blooms, Mr. Douglas having, in Annie Douglas and other renowned seedlings, some singularly beautiful flowers, and Mr. Turner in Prince of Orange, Princess Beatrice, Janira, Thomas Pye and others was hardly less meritorious. The prizes for nine pot plants, eight Carnations and Picotees, fell to Messrs. Douglas and Turner, the flowers being shown in deference to public opinion, without the absurd paper collars, once so favoured. Mr. Turner also staged a collection of plants, amongst which that fine Clove Souvenir de la Malmaison was finely flowered. First-class certificates were awarded by the judges to Picotee Pollie Brazil, shown by Mr. Anstiss, having a heavy purple edge. Also to Annie Douglas, yellow ground, heavily varied with rose; shown by Mr. Douglas, and to Messrs. Veitch and Sons, for dark crimson self Carnation, General Stewart, very fine and free. The *premier Carnation* in the show was Rob Roy, scarlet flake, from Mr. Turner's twenty-four stand, and the same exhibitor had the *premier Picotee* in Mrs. Payne, in his stand of twenty-four blooms.

Other displays of Carnations were made by Mr. T. S. Ware, who showed in boxes about 100 bunches, each of from seven to nine blooms in sorts, set up with foliage or grass. The effect was admirable, and excited great attention. The sorts comprised of whites W. P. Milner, Mrs. Fawcett, Ghost, and Comte de Chambord, whites; Mrs. Donaldson, Rose Perfection, and Mary Morris, roses; Pride of Penshurst, Florence, and Mrs. Davey, yellows; Holman Hunt, Guiding Star, Victorine, and Coroner, scarlets; Old Clove and General Stewart, crimsons; Cara Roma and Beauty of Foxhall, purples; and of Picotees and fancies, Triumphans, Meyerbeer, Sailor Gordon, Lady Armstrong, Endymion, and Sir B. Seymour were all good. Messrs. Veitch & Sons showed about 300 flowers in the usual way in boxes, and in wondrous variety. A lovely kind was Countess of Ellesmere, white ground, heavily speckled with reddish-purple. Also fine were General Stewart, Royal Purple, Pride of Penshurst, Field Marshal, Magnum Bonum, Constance, Brilliant, Miss Marianne North, &c. Messrs. Hooper, of Covent Garden, had a good collection of self and fancy flowers. Mr. H. G. Smyth, Drury Lane, showed H. G. Smyth, a crimson Clove, rather rough in petal, and Mr. H. Cannell, Swanley, had Pride of Penshurst, the best of the yellow selfs.

Certificated varieties.—The following three new sorts were awarded first-class certificates: Carnation General Stewart, a Clove variety with large deep crimson flowers, from Messrs. Veitch; Picotee Annie Douglas, a yellow ground flower with rose-pink edged petals, from Mr. Douglas; and Picotee Pollie Brazil, a heavy purple edged flower, perfect in size and form, shown by Mr. Anstiss, who was also awarded a first prize as a seedling.

Fruit committee.—There were a few seedling Melons and other exhibits placed before the committee, but they were passed over. Undoubtedly the most interesting exhibit in the fruit way was a collection of fruit trees in pots and gathered fruits sent by Mr. T. Rivers, of Sawbridgeworth. Specially must the Cherries, which were so superbly finished and coloured, have tempted sorely the thousands of persons who gazed upon them during the day. Of trees in pots, specially attractive was an 8-feet high Black Hawk Cherry laden with intensely black fruit. Bigarreau Gros Cœuret made a fine standard heavily fruited, and other kinds in smaller trees were full of fruit. Gordoni and Nectarine Peaches were finely fruited, and Grand Duke and Monarch Plums, each carrying about twenty-five fruits just colouring, were fine samples. Some Pears were fruiting admirably also. Of dishes of fruits very fine samples of Sea Eagle and Nectarine Peaches were presented; also some Early Louise, a smaller-fruited sort. Cherries were grandly represented by such black kinds as Early Rivers, which had been ripe a month; Geante de Hedelfingen, which would hang for a month longer if needed; Turkey Black Heart, Late Black, and Bedford Prolific, &c.; and of lighter hued kinds Emperor Francois, Bigarreau Monstreuse de Mezel, Bigarreau Napoleon, and Ludwig's Bigarreau. A silver medal was deservedly awarded to this fine exhibit.

Special Prizes for Vegetables.

Messrs. Carter, of High Holborn, offered prizes for twelve pods of their Leviathan Bean, eight dishes being entered. Generally, the samples were rather browned and hardly up to the usual standard, the best coming from Amersham and Penn, both in Bucks; they were about 10 inches in length, and each contained seven beans—rather few for such pods. Five collections of Lettuces were placed in competition, the sorts required being Giant White Cos, Longstander, one of the erect French curled sorts; and All the Year Round, white Cabbage kind. The first and last generally were good, but the curled kind was poor, lacking heart. For the best three specimens of Carter's Heartwell Cabbage shown it would seem as if the class permitted a wide latitude, as the fine samples which Mr. Osman took first place with might have passed for Imperial or any other good old kind. Unless vegetables claimed to be seedsmen's specialities have some very distinguishing characteristics, it is evident that offering prizes for them may lead to curious results.

Messrs. Sutton, of Reading, offered prizes for their First Crop Cauliflower, but for a kind bearing such a designation the end of July is very late, as first-crop kinds should be in a month earlier. Five lots were shown, every one of which, for all one could tell, might have been Early London, the best, very neat sample, 7 inches over, coming from Mr. Beckett, of Penn, and the next best came from Esher. Prizes for six dishes of Peas were to include Duke of Albany, a long green pointed pod, much like Telegraph, but rather darker, and Sutton's Satisfaction, a pale green blunt-shaped pod, something after the British Queen form; seven collections were staged, nearly all very fine indeed, the best coming from Boston, the Messrs. Marriott, father and son, taking first and second prizes, with fine samples. It was noticeable that on both these collections the labels were in the same handwriting. Naturally, such a fact calls for explanation. Of other kinds shown were Triumph, Progress, Telegraph, Telephone, Stratagem, Reading Giant, Pride of the Market, and Progress. There were nine lots of Cabbages staged in the class for Lettuces All Heart and Little Gem, the kinds varying in character decidedly in some of the collections. Oddly enough, the best came from a place long associated in name with the Cabbage, Enfield, the samples being fresh and solid. Only two lots of Messrs. Webb's Chancellor Pea were staged for prizes offered by that firm.

A list of awards is given in our advertising columns.

New Peas certificated.—At a meeting of the fruit and vegetable committee held at Chiswick recently, the collection of Peas growing in the garden was examined, and first-class certificates awarded to the following: *Fame* (Eckford).—A green wrinkled Marrow, with large deep green well-filled pods; height 5 feet. *Empress* (Eckford).—White wrinkled Marrow, well filled large broad pods, vigorous grower; height 5 feet. *Seedling No.* 16 (Wildsmith).—White wrinkled Marrow, very long pods, strong grower, good cropper; height 4 feet. *President Garfield* (Veitch).—White wrinkled, large well-filled pods, heavy cropper; height 3½ feet. *Seedling unnamed* (Sharpe).—A dwarf wrinkled blue Marrow.

Names of plants.—*W. R.*—1, Heuchera Richardsoni 2, out of flower, but apparently a Hydrophyllum; 3, Ligularia macrophylla; 4, Geranium pratense; 5, Psoralea orbicularis.—*J. Poyntz.*—Apparently Cymbidium ensifolium, but we cannot be certain without seeing the leaves, which, in this species, are distinct. The Gongora seems to be G. portentosa, and the bulbous plant is Crinum ornatum.—*E. C.*—Bougainvillea glabra.—*E. F. C.*—1, Senecio Jacobæa; 2, Scabiosa arvensis; 3, Hypericum hirsutum; 4, Gymnadenia conopsea.—*Fasque.*—1, Syringa persica; 2, S. Emodi; 3, Deutzia scabra. Please send others again; larger specimens.—*A. K.*—Balsamita grandiflora.—*T. M. B. O.*—We do not know the Pea, but it was much withered.

WOODS & FORESTS.

THINNING PLANTATIONS.

I have just been looking over some notes, taken at different times on this subject, and relating to forest trees of all kinds, and the following facts appear to be constant: 1st, that unthinned plantations—no matter how thickly planted at the outset—do produce a crop of good trees, although many of the weaklings are crushed out in the struggle; 2nd, that a greater number of trees are produced to the acre than are produced in plantations thinned artificially; 3rd, that the trees are invariably straighter and cleaner than pruned trees are; and 4th, that the cost of culture is almost nil, comparatively. One need not object to thinning, but it should only be resorted to to clear out such trees as have become smothered by the others and about to succumb before they become useless. It is a great mistake to suppose that timber trees should be left so thin in the young stage that the extremities of their bottom branches should only meet and no more; if only the top is left free it is sufficient. Treated thus, the lower branches decay at an early age, leaving no trace or wounds behind them such as are left from pruned snags or branches broken off after they have attained a large size. We could show fine Larches, perhaps eighty years of age, with probably about as many feet in them that have never been permitted more development than a small top, and which have no trace of branches on their trunks, which are clean and straight. Other trees behave in exactly the same way under similar circumstances. Another matter bearing on this subject is the fact that all trees grow fastest and straightest in ravines from the same causes, and the more we see the more we are convinced that it is in every case better to plant precipitous ravines and sides of valleys than bleak hillsides and tops, which, except under the most favourable conditions of climate, produce stunted trees.

This question of planting, thinning, and culture lies at the foundation of arboriculture in this country, for, unless we can compete with foreign importation, we shall have to give up the contest. The *Standard*, writing a few days ago on the report of the Parliamentary Committee on Forestry, takes a practical view of the subject, and the view which those who will have to spend the money will probably take also. The writer of the article in question says—

Trees, all must agree, exercise a beneficial influence on the climate. That they impart a peculiar beauty to the landscape is equally undeniable. But most of the witnesses admit that it requires the long-enduring faith of Mr. Mackenzie to plant a woodland which cannot be cut under forty or fifty years, and which even then may have to compete at losing rates with the cheaper produce of the primæval woods of America, Russia, Scandinavia, or the colonies. It has been estimated that there are some 2,000,000 of acres in Ireland capable of being advantageously planted, and that of the 41,000 square miles of waste land in Great Britain, about one-half is available for forests. This, however, means that the present generation must plant without the hope of reaping; and in any case the dearness of the soil and the higher cost of labour in these islands compared with most other countries would render the profits to be earned from this investment extremely problematical. In the first place, making no allowance for the value of the ground, on the plea that the young growth might be used for game coverts or other purposes, the lost interest of the money expended in planting 20,000 square miles, accumulating for forty or fifty years, must be added to the principal, and distributed over every acre of timber ready for the market at the end of the period. This will, of course, add very appreciably to the cost of the trees. Then the care with which such an area of tender timber must be looked after during a lifetime necessitates the payment of foresters and other guardians; so that, even allowing that the price of deals will be higher in 1926 than they are in 1886, it is open to doubt how far it will be possible for the English artificially-grown timber crop to compete on equal terms with that either cultivated in the wild lands of the New World, or hewn from the still untouched forests which cost man nothing to plant or to maintain.

Forest experts from India, writers of theoretical works on forestry, and teachers who regard the subject purely from the academic point of view are, no doubt, shocked at the apathy displayed as to arboriculture. But the landowner, who has to make his books balance, is apt to prove a very Gallio when trees are advocated as the salvation of the British farmer.

The *Standard*, in an editorial apparently written by one conversant with the matter, does not think a special school of forestry in England likely or necessary, and that it could only be established at a cost out of proportion to its value. The main thing to bear in mind, however, is the fact that landowners are averse to laying out money on woods without some prospect of return, and it is therefore desirable to show how the cost of culture can be lessened, and one way of doing this is, in my opinion, to plant more extensively suitable trees in suitable places, and spend less on culture in the period between planting and felling. It does not cost very much to plant ground thickly with young trees, and vast tracts are now planted by contract at a small sum per acre. Those who have timber of mature age should send all to the market that can be spared without denuding their estates and should plant in proportion, and in this way they can have an interest in planting for their heirs, whoever they may be.

Yorkshireman.

THE STAG'S-HORN SUMACH.

(RHUS TYPHINA.)

This distinct and highly ornamental shrub is of tree-like growth, and is especially suitable for planting as a single specimen or among lower growing shrubs. Besides being ornamental, it is a useful one, according to a pamphlet by H. B. Small on the forest products of Canada. It appears that the Sumach is of considerable economic value. In Mr. Small's pamphlet he states that "the Sumach (Rhus typhina) is not a tree, but only a shrub with wood orange-coloured, aromatic, and brittle. It grows on dry, rocky, gravelly knolls and in barren spots where nothing else flourishes."

The principal uses of Sumach are for colouring and tanning, the latter more especially for light-coloured leather. It is also used in dyeing and calico printing, as it yields with different mordants a great variety of tints. The collection and preparation of the leaves have assumed large proportions in Virginia and the middle States, especially since the close of the civil war. So abundant is the Sumach, that there is no need of its cultivation. It is largely imported from Sicily, but there is no reason why our own growth should not be used with the same results, the more so as the American Sumach contains 15 to 20 per cent. more tannin than Sicilian.

The necessary buildings, machinery, and appurtenances for preparing annually 400 tons would cost, perhaps, £2000. The following directions for gathering will be found to embrace all the essentials necessary. Sumach should not be gathered before the leaf is properly matured, which is generally about the middle of July, from which time it may be gathered till the first frost. It may be wilted in the sun, but must be cured under cover, and not allowed to be burnt by the sun or to get wet, or to be placed in such large quantities as to heat in curing, either of which destroys its strength and colour, and renders it worthless. It is better to cure it upon an open floor in order to let the air pass underneath. It should be gathered four weeks before it is ready for market, as not only the leaf must be perfectly dry, but the stem also. All the sap must be dried out, and it should never be delivered in damp weather, as it naturally draws the dampness of the atmosphere, and cannot be repacked till thoroughly dried out. The leaves must be of the same bright green colour when cured as when taken from the bush and must not be dark or smell musty. If any other kind of leaves or sand or dirt are found among it, it will be injured as a commercial commodity. No portion of the stalk or any berries should be left in it. The leaf is what is wanted, but to facilitate the gathering, the little twigs upon which the leaves grow should be cut off, all of which will be marketable when cured according to the above directions. Stripping off the leaves is apt to kill the stalk; therefore, in order to ensure a better crop the next season, it is best to cut down the old stalk, and the roots will spring up better than ever.

A.

CULTURE OF OSIERS FOR PROFIT.

With a steady demand at fair prices Osiers for basket-making forms a very good speculation, and so long as baskets are made, there will ever be a demand. Good sorts, such as the Golden, Brown Spaniard, Sussex New Kind, and other favourite kinds of English growth will always realise a good price, and after paying rent, labour, and a share of the cost of laying down, there remains a very fair profit on all suitable land. Say the first cost of laying down is £30, and the beds only to last ten years—as a matter of fact they last from fifteen to thirty years—and the cost of rent and labour is another £6 per year, or say a total of £10 per year for ten years, it must be a very poor crop, indeed, that will not give a net profit of £10 per year. Even if only eighty bolts per acre are produced, these at 5s. per bolt would produce £20, and I have known this quantity obtained off half an acre. At the same time it must be borne in mind that only good kinds must be grown, and these must be kinds that are well known in the basket-making trade, and the rods should be sorted into at least three sizes, small, middle, and great. Rods that are crooked in growth, or brittle, or what are termed "buz" topped, *i.e.*, bushy, are not those which produce good prices, and therefore the aim should be to have the very best that can be produced. It is useless to grow a quality of rod that is so brittle that it snaps off every time the basket maker bends it, as such stuff will not pay because the market is flooded with it, and it can be had at almost any price; neither do unsorted rods pay, because plenty of that class of produce can be had from abroad, where both land and labour is much cheaper than in England. To get the best return, the best materials only should be produced, and these, of course, require some care in both cultivation and selection. To grow brittle stuff for the charcoal-makers—Willow charcoal is used in the manufacture of gunpowder—is also a poor speculation, as the price to be obtained for rods of five or six years' growth is very small, and more particularly so if it has to be carted for any great distance, as this has to be taken into consideration by the purchaser, who naturally gives less for material which carries a deal of subsidiary expenses than for that which is free from them.

Preparation of the Soil.

This is of great importance in this work, and unless it is done well profit will be out of the question. The first thing necessary is to trench the soil to a depth of about 18 inches, removing all Couch Grass, Docks, Dandelions, and similar destructive weeds. Care should also be taken to remove every piece of wild Convolvulus, commonly called Bindweed, as this

causes a great deal of trouble where present. After the whole of the ground is trenched, it should be well harrowed over, and a crop of Potatoes, Cabbage, or other summer plant should be taken where possible. I prefer Potatoes, as the ground can be cleaned of Couch Grass, Bindweed, &c., during the time the Potatoes are growing, and if the whole of the ground is forked over when digging the Potatoes it will be ready for the sets. To have a good start the soil should be in a sweet and sound condition, and as a rule this is best done by taking off a crop before planting with Osiers. On land where this cannot be done, it should be broken to the full depth, and if possible be kept clean for a year, or it may be planted at once, but for a really good start nothing beats getting the ground into good tilth. In many places it is the custom to trench and plant as the work proceeds, and in most cases this is a matter of good policy owing to the state of the soil, as where it is very wet it would get very much consolidated if it was much trampled on, and as planting should be done between the end of October and the end of March, unless the season is very backward, the state of the soil is a matter of serious moment. The wetter the soil, the later should the planting be done, and on eyots on rivers subject to floods the trenching should be put off till rather late, so that the washing away of the earth may be prevented.

Sets or cuttings should be from 15 inches to 18 inches long, and should be made from well ripened rods of one year's growth, the straightest and best being selected for the purpose. The 18 inches or so at the top of the rod is rarely of use for planting and should be cast aside, and in making the rest into cuttings care should be taken that there are three or four prominent buds on the top end if possible, as such cuttings make the best growth. The sets should always be made from from what are technically termed "great," or "small great," rods, and should be straight if such can possibly be managed.

Planting.

The sets should be planted at the depth of a foot or more, according to their length, leaving about 3 inches or 4 inches above the surface of the soil, which will form the stools from which the rods grow in future years. For the greatest convenience in the after cultivation of the ground, the cuttings should be planted in straight rows, and if these can be arranged to run from north to south so much the better, as then each side of the stool will produce rods of equal quality. The rows should be from 2 feet to 3 feet asunder according to the soil, as on very rich loams less distance is needed than on poor sandy soils of a hungry nature, but as a general rule 30 inches is a good distance generally. The sets should be from 15 inches to 18 inches apart in the rows, for the same reason, as on rich soils, if too wide apart, the rods will be too large and bushy, while if too close together on poor soils, they will be too small to be of much market value. The number of sets required to plant an acre of ground varies from 20,000 to 24,000, and the price varies from 10s. to 12s. per thousand. The sorts which the basket-maker technically terms "trustworthy" are those to be chosen for profitable cultivation, and where good tough sorts are locally grown, the sets can be had from the local growers. A good basket-rod is one that will work without breaking, and which will, when green, twist from end to end without snapping off. Good kinds are the Golden, Brown Spaniard, White Osier, Plum, Long-skinned, and Sussex New Kind, as they are called by basket-makers, and for these when sorted there is always a ready sale. Where the Golden grows well it is very profitable, as the small rods, which are of but little value in other kinds, are largely used by market gardeners for bunching purposes. By using the sets from the best sorts, the most profitable results are to be obtained; indeed, a judicious selection of novelties is one of the first considerations in Osier growing.

After Cultivation.

This consists chiefly in keeping the rods and ground clean, and to do this both hoeing and hand weeding will have to be done, and particularly where Bindweed is in the soil. For the first year, when but little growth is made by the sets, keeping the surface well hoed to destroy annual weeds is of great importance, as there is then great facility for the work, and if hoed over with ordinary turnip hoes half a dozen times, the expense will not be lost, for the simple reason that by preventing the weeds from seeding, future crops will be greatly diminished, if not quite prevented. Hand weeding around the sets must be persisted in where Bindweed or other climbing weeds exist, as these spoil the rods when allowed to run up them, besides causing a deal of extra trouble and expense in cleaning the rods for sale. After the first year, the Osier grounds should be hoed over twice or thrice with proper eyot or bean hoes, before the young growth gets so forward as to render the use of the hoe injurious, and all climbing weeds should be broken off each time of hoeing. During June and July they should be broken off several times by hand, but it is not often safe to get about amongst the young growth after July, as the tops of the shoots would be broken about greatly by doing so, and the crop much lessened in value thereby. Where profit is the end in view, the slovenly and unwise practice of planting on Grass land without cleaning and trenching should never on any account be adopted, for Osier grounds should always be kept clean, otherwise the result will be disastrous in a very short time, and instead of the plantation lasting for a period of from fifteen to thirty years, it will not survive in profitable condition above five or six years, and even then the produce will not be of first-class quality. Like all other crops, Osiers require care and attention, and although periodical digging is not necessary, yet hoeing and weeding is, and should never be neglected.

Cutting the Rods.

This is an operation which must be carried out while the plants are thoroughly dormant, but not during frost, or the cut parts will die back. This work is best done with a proper rod hook —a kind of miniature sickle—and it must be kept sharp. The first cutting after the sets are put in needs to be done in an intelligent manner, and while cutting closely, just enough buds should be left to form a good stool, say a couple on the base of each rod, or what, perhaps, is better, the rods should be cut to within three-quarters of an inch of the old wood. This leaves a good growth the next year, when the rods should be cut in close, because stout long rods pay best, and these cannot be got if too many shoots are started from a stool; and while at all times a number of small rods must be expected, it is desirable that a good percentage of large rods be produced. Cutting is done by piecework at so much per score bolts, and some supervision is generally needed to ensure that proper work is done. Rods which are to be whitened should be left until as late as possible, and although such a practice rather injures the next year's crop, they may be left until the buds begin to swell. After cutting the rods which are to remain in their original state, they should be placed on faggots, leaning against rails, the bands having previously been loosened, and here they should remain until thoroughly dry. When dry they should be sorted into either three or four sizes, and either stacked or sold, as is most convenient. If stacked while green or wet the rods will get "mow burnt," or heated, which renders them brittle, a state which makes them useless for any purpose, and causes a dead loss. White rods are not cut until late, and are then loosely tied together and placed in pits containing about 6 inches in depth of water until the bark will slip off well, when they are drawn through a brake and hand-cleaned, washing in running water to clean off any stain. They are then laid on hurdles or rough frames to dry, and sorted and tied in bolts. White rods fetch about double the price of brown ones, but they do not yield a greater profit to the acre when a series of years are taken into consideration.

Bolting.

This operation is done by taking a number of rods and laying them on twisted Osiers, keeping the butts all one way and level, then drawing them tightly together with a rope and two levers, fastening off the withes while the rods are held by the rope, only wresting the butts. Great care, however, must be taken not to pull the rope tight enough to break or cripple the rods, and the rope should pass round just under the bottom band, which should be 14 inches from the end of the butts. A bolt of rods English measure, if unsorted, should be 42 inches, and if sorted, 40 inches round the bottom band, both brown and white being the same measure. For sorting and bolting it is desirable to have someone for a day or two to instruct the men employed, as "an ounce of practice is worth a pound of theory" in this part of the business, and although simple enough to those who know how, both sorting and bolting is difficult at first to those who do not understand the matter. W. J. M.

NATIONAL FOREST SCHOOL IN IRELAND.

In an able article in the *Irish Farm*, Mr. Dick, of Phœnix Park, strongly advocates the establishment of a school of forestry in Ireland. In the course of his article, he says :—

Ireland can clearly furnish the most eligible site for a national forest school. There is not a site in England or Scotland to compare with that we have already indicated, and if a section of upland country is desirable it will be found adjoining in Westmeath. It is already acknowledged to be a national want. We are behind France, Germany, and even Russia in this respect. Such a national undertaking would be remunerative in the best sense. It would pioneer the permanent reafforestation of the country, thereby ultimately introducing industries dependent on a supply of timber; the reclamation of bog lands would progress piecemeal on which there is an inexhaustable accumulation of nourishment for the growth of timber, a forest school would be the exponent of this capability. It is marvellous that no government ever bethought itself to undertake the reclamation of the bogs of Ireland as a national scheme of improvement, or as an investment of capital, or as a matter of expediency for the utilisation of the vast army of the unemployed in the country. Russia is at this moment reclaiming a bog much larger than all Ireland at an enormous cost in money and engineering skill under circumstances infinitely more formidable than would be the case in the instance of any single acre in Ireland. There is vastly more hope of a satisfactory return for the outlay in the temperate climate of Ireland than in the alternate torrid and frigid climate of Pinsk.

Gates in plantations.—Probably through some fault in my writing on the subject, I am made to say (p. 86) that where there is a public footway through a wood or plantation, gates should always be used. It is obvious, from what is stated further on, that this is just the reverse of what I intended, as in such places when possible they should be avoided. For private entrances or private paths I should certainly recommend gates, which may be unlocked when the necessity arises.—D. J. Y.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FERNS.

TASSELLED AND CRESTED FERNS.

NOTWITHSTANDING the statement made by "G." in THE GARDEN (p. 85), we have no good reason to think that British Ferns are more prone to become tasselled and crested than exotic species. I was years ago familiar with the Fern flora of extensive tracts in North Britain, and since then I have collected in the United States and extensively in Jamaica, and I am enabled to state that I found abnormal forms more common in the Tropics than elsewhere. Both at home and abroad I found "forked fronds, tasselled fronds, depauperated fronds, miniature fronds, and gigantic fronds" of certain species; but in the Tropics at least they were not considered representative, and therefore, as a rule, received only a passing glance. It was perhaps wrong to so treat these abnormalities; but it must be said by way of excuse that, with regard to them, botanists and plant collectors have a very bad example set them by Dame Nature herself. We are amazed at her productiveness as regard such forms, as well as her seeming want of maternal interest in their welfare, for the majority of them speedily "go to the wall." I am, however, acquainted with a few favoured exceptions which are severally colonised and spreading from their centres of origin. A form of Blechnum occidentale with the terminal pinnæ repeatedly forked, forming a crest, grows on a bank near to the Government Cinchona plantation in Jamaica. There are, or were two years ago, many plants of it. A variety of Asplenium cultrifolium, the terminal pinnæ of which are pinnatifid, is met with in rather extensive colonies in the same island. In Wisconsin, U.S., about twenty-five miles north of the capital and near the river of that name, I discovered, two years ago, an extensive colony of Cystopteris bulbifera, characterised by having all the pinnæ of the fronds terminally tasselled. I have before me a frond of Nephrolepis exaltata, collected in Jamaica by a friend, which is remarkable in being distinctly bipinnate, but in a peculiar manner. The pinnæ are simple or sub-entire, as in the type, for from 1 inch to 2 inches from the rachis, when by degrees they become compound or bipinnate, extending from 2 inches to 4 inches on either side of the rachis. The pinnules are from six lines to eight lines long. I may here remark that the fronds of the Jamaica Nephrolepis, especially those of N. exaltata, have what may be called a biannual growth or extension of the rachis. In the abnormal specimen before me the second growth referred to seems to have departed from the usual vertical direction and followed a lateral or horizontal course, appearing in an excess of vegetative vigour at the extremities of the pinnæ. My friend who discovered this variety informed me that there was quite a large clump of it. I also discovered in Jamaica a remarkable plant of the large and handsome Hemitelia horrida, the long segments of which formed crosses in a more or less regular manner on the rachis and costa, somewhat in the way of Athyrium Filix-fœmina vars. Fieldiæ and Victoriæ. It will doubtless interest "G." to know that the Ferns of the East Indies are not less sportive than those of the West and of Britain. In the preface to "The Ferns of Derbyshire," the editor—who made Fern abnormities a special study—gives the following quotation from a letter upon the "Flora of the East Indies," by the Rev. John Barton: "Some of the wild Ferns of Indian hill ranges vary exceedingly, quite as much as the female Fern or the Hart's-tongue at home. Some species of Microlepia, for example, Lastrea Filix-mas, and another species akin to L. dilatata and spinulosa exhibit all manner of varieties. I noticed that in damp warm spots there was a tendency to such irregularities of form, and I imagine this would be the case all over the world." GEO. SYME.

FRUIT GARDEN.

IMPORTING AMERICAN APPLES.

THE following letter addressed by Messrs. J. W. Draper & Son, of Covent Garden, to exporters of American Apples may prove interesting to our readers, and we have to thank Messrs. Draper for a copy of it: "This year may be regarded as the commencement of a new era in the import trade. The exhibitions that now take place annually in London have done much to foster competition between this country and America, but the latest, and perhaps the most successful, of the series—the Indian and Colonial—has given the greatest prominence to matters horticultural. The British colonies are well represented in every department, but in none more so than in the fruit trade. Hitherto the Orange growers of Florida and the Brazils have year by year endeavoured to obtain a footing alongside the Valencia, St. Michael, and other European shippers; but to-day they find fresh competitors from Natal, the Cape, and Australia—the latter we consider likely to be anything but an insignificant rival. In addition to tropical fruits, such as Bananas, Mangoes, &c., there is also every prospect of regular shipments of Grapes and Apples from the Antipodes. 'Will this,' ask some, 'affect the American Apple trade?' We answer, Not in the slightest degree. America enjoys indisputably the reputation of being the best Apple-producing country; for quality, variety and weight she stands unequalled, and, whatever may be on the market, American Apples can always command a sale.

"It has been our custom to issue periodically tabular reports regarding the Apple crops in England, France, Germany, Belgium, Holland, &c., in order that our consignors might in some degree be guided as to the prospects for shipments from the United States and Canada. This season offers fairer inducements to extended operations than perhaps any of its predecessors, as the crops in England, France, Germany, and in the Low Countries are unusually light; while those grown in Italy, Spain, and Portugal do not influence the market, their quality being altogether of an inferior character. American shippers, therefore, need not hesitate to export largely; they have the field to themselves, and, provided the fruit reaches its destination in sound condition, there can be no doubt of a fair result. Of course, in these days of keen competition much depends on the style of packing, uniformity of quality, &c., and for this reason, we think it well to repeat our old instructions concerning these matters, feeling convinced that too much attention cannot be given to them.

"KINDS.—Best sorts, such as Newtowns, Baldwins, Russets, &c., are always in demand, and if properly selected and well put up, will almost invariably meet with a good market. Each cask should have legibly stencilled thereon the name of the Apple, thus, 'Newtown,' 'Northern Spy,' &c.; this saves much trouble on arrival, and facilitates the handling of the goods at our auction sales.

"BRANDING.—One mark should be adopted and adhered to, as by this means a reputation is established. Buyers know in time whether or not they can depend upon the packer, and will purchase or reject according to the position such and such a shipper holds in their estimation. It is for this reason greatly to a packer's interest to deal fairly, and so win the confidence of the purchaser. Once fairly known, his brand will be eagerly sought after.

"PACKING.—Apples should be packed tightly, so as to prevent damage from oscillation in transit. Casks should be filled from the bottom, so that when the head is opened a flat surface is presented. The fruit should also be evenly sorted and uniform in size and quality throughout—as fine at the bottom and middle as on the top. The following remarks, made by a New York house on this point some two seasons ago, are pithy and well worth attention: 'In regard to packing, there is much room for improvement, and faults in this respect are not entirely confined to State packers. A large part of the receipts, especially during the last two seasons, have been "stuffed," the middle of the barrels containing inferior, trashy fruits, topped off with a few layers of good Apples. Buyers soon find this out, and the poor Apples bring no more than they are worth. The stock should be closely graded, the primes and seconds being packed separately and plainly marked. Only one variety should be packed in a barrel, and the kind and grade neatly stencilled on the head. The top layer should show, on opening the barrel, a fair average of the quality throughout the package. Brands packed in this manner will very soon acquire a reputation which will amply repay packers for their care and honesty.'

"ROUTE.—This is a question of the utmost importance, and although a London house, we must say that the Liverpool route is by far the best. Shipments made from New York, Boston, Philadelphia, Montreal, or any other ports to Liverpool at a through rate to London reach us in a minimum of time, and therefore in better condition than would otherwise be the case, while the direct London route is subject to delay, and an additional objection presents itself in the shape of heavy wharf and lighterage expenses; indeed, so great is the difference in these respects, that while 3d. per cask may be fairly reckoned as covering all extras (excepting, of course, cost of cablegrams and auctioneers' commission) beyond the original charge for freight and primage for goods *viâ* Liverpool, the London dock and wharf expenses, with cartage, &c., amount to something like 10d. a cask.

"As a rule the late shipments, more especially if the Apples are of a keeping character, are the most profitable. The demand for the earlier sorts is not so steady; prices fluctuate considerably, and the tone of the market is often capricious; yet, as the European crop this year is a comparatively light one, we think first shipments from the States and Canada will meet with good results."

Apple-tree caterpillars.—During early summer many gardens in Kensington were infested with swarms of small, black or very dark-coloured caterpillars, which cleared every atom of green off the Apple trees, often leaving skeletons of leaves standing; they never touched other foliage, even when mingled with that of the Apple. After some time they spun long threads, of unusual strength and thickness, on which they clustered and swung, sometimes dropping to the ground. Finally, they enveloped the stems and larger branches with web, under which, especially in the crannies, the cocoons lay like grains of rice. The moth is small and white, with minute black spots. Can you tell me its name?—M.

*** The caterpillars which infested your Apple tree are those of the small ermine moth (Hyponomeuta padellus), a very common insect, but it seems to have been unusually abundant this year. The best thing you can do now is to cut or pull the webs containing the cocoons out of the trees, and to burn or bury them. This should be done at once, or the moths will be leaving the cocoons. Next year if the tree is again attacked, shaking the branches will cause many of the caterpillars to fall to the ground

which should be previously spread with quicklime, or they may be killed with the back of a spade. Any which remain suspended in the air may be caught with a birch broom or a bunch of thorny twigs fastened to a long stick.—G. S. S.

GOOD STRAWBERRIES.

In order to secure good and regular crops of Strawberries we adopt the following practice, which has for a number of years proved entirely satisfactory. The soil of the kitchen gardens here is of a heavy retentive character, and if worked when wet it sets about as hard as sun-dried bricks. Land intended to be cropped with Strawberries is in the previous autumn deeply trenched, and cast into ridges 2 feet wide. It is liberally manured, and as the work proceeds a little fresh soil is brought to the surface. When trenching is completed the land is allowed to remain undisturbed until spring, when it is cropped with early Peas, for which, owing to the effects of exposure to frost and rain, it is in good condition. After the Pea crop is finished the haulm and stakes are cleared off; the land is then made ready—by means of levelling, hoeing, and raking—to receive the Strawberries, which are planted from 2 feet 6 inches to 3 feet apart, according to the variety. If the ground is dry it should be well watered, and a mulching of manure applied to it in order to retain moisture. Where it is not convenient nor desirable to sow Peas or early Potatoes for the preceding crop, French Beans may be substituted, and by exercising a little forethought in arranging the distances at which the rows should be sown, they do not interfere much with the growth of the Strawberry plants. The ground is frequently gone over, and all runners not required are removed, and also weeds, either by hand-weeding or by hoeing; but with this exception the ground is not disturbed from the time when the Strawberries are planted until they are chipped off after the third year. Each autumn a dressing of good manure is applied, and in spring a covering of manure as it comes from the stables with the droppings shaken out of it is put on sufficiently early to allow of its becoming thoroughly cleansed before it is needed to prevent the fruit from coming in contact with the earth and decaying manure. For outdoor plantations we layer the runners either in small pots or on pieces of loam, and a stone is placed on each which serves the twofold purpose of securing the plant and retaining moisture for its sustenance. We consider that the extra labour involved by this method is counterbalanced by the increased yield of fruit the first year. We take all runners required off the young plants that produce flowers and fruit, and destroy any that do not flower. Rather than grow many varieties, some of which might be worthless, we prefer to trust to a few sorts of proved merit and suitability to the character of the soil and atmosphere. They are Black Prince, of which we still grow a few on a warm border to succeed the latest batch of plants in pots. The fruit of this variety is small, and the plants are very liable to mildew; therefore, if it was not for its early ripening we should discard it altogether. Vicomtesse Héricart de Thury is eight or ten days later than the preceding; it invariably bears a heavy crop of medium sized fruit of good colour and fine flavour. If I were limited to one variety for all purposes, this is the one that I would grow in preference to all others. Is there any difference between Vicomtesse Héricart de Thury and Stirling Castle? I am told they are one and the same variety; if so, I should much prefer the latter name. President is a good and regular bearer, and the fruit, which is large and handsome, is fine both in flavour and colour. Sir Joseph Paxton is a free bearer, coming into use a few days later; its fruit is large, firm, and finely flavoured. Elton Pine is our latest variety; it is a good cropper, and the fruit large and of good colour and flavour.

A considerable portion of the land in this neighbourhood under Strawberry cultivation for market purposes is reclaimed Moss land, and on this the crop this year is a partial failure, the yield being about half the usual quantity. On the higher ground, which is of a heavy loamy character, the crop is quite up to the average. In both cases there were considerable numbers of plants which failed to flower. Owing to scarcity of rain during the swelling period, the fruit is smaller than usual, but that is compensated for by its enhanced flavour and colour. Bostock is universally grown by market gardeners in this district, as is also Myatt's Prolific, a coarse-looking variety which does not ripen well up to the point. These two varieties are grown in great quantities, the former for preserving, and the latter for dessert. Their chief merits are fruitfulness and firmness of flesh; consequently they do not suffer so much injury from carriage as do softer sorts. Sir Joseph Paxton and Elton Pine are also extensively grown for dessert.—W. Neild, *Wythenshawe, Cheshire.*

—— I have been much interested in this discussion. The remarks of Mr. Douglas (p. 597) are especially noteworthy, and coincide exactly with my own ideas and experience thereto. Of late I have not had much to do with Strawberries, for dwellers in London or the suburbs have in very few cases sufficient space to attempt the culture of this delicious fruit, and are obliged to content themselves with a few plants in pots. But years ago, when living in the country (Worcestershire), we used to grow Strawberries in considerable quantities and with great success. Our favourite varieties were exactly those mentioned by Mr. Douglas as those he would prefer to any others, viz., British Queen, Keen's Seedling, and Black Prince, the first being admired for its size and delicious flavour, the second for its productiveness, and the third for its earliness, free-bearing qualities, and also on account of the rich sweetness of its fruit. As regards the much-abused British Queen, we never had any particular trouble with it, and, beyond its being not quite so good a cropper as Keen's Seedling, we had no fault to find with it. The first place in which I remember it was a garden sloping southwards, of which the soil was a poor and very stony loam on gravel; very little manure was used, but all of the three varieties I have mentioned flourished wonderfully. Fresh beds were made every third year, beyond which we found the old plants did not pay for their room and trouble. A good-sized bed of Black Prince was a grand success; I have never seen since such a crop as that afforded us. Though not large, this is a grand Strawberry, and not half enough cultivated. The next place had a good sound loam on a clay subsoil, and here the fruit did better still, and we had very heavy crops. Another garden, only a few miles away, consisted of a rich loam on a clayey subsoil. This was far away from any town, and here both the Queen and Keen's Seedling literally grew wild. The beds often stood for five or six years, no manure was ever used, and the plants were sometimes allowed to become a mass of runners, yet they bore profusely most delicious fruit year after year. One point we found very important, which was to make and keep the beds as hard as possible. They were never forked up, and I remember that, as boys, we were encouraged to run over the beds as much as we liked, so long as we did not eat all the fruit. All that was ever put on the beds was a layer of fresh clean tan just before fruiting time, to keep the berries clean, and this was cleared off soon after the crop was gathered. Some gardeners about us used to complain that they could not grow Strawberries; but in every case it was pretty plain that they either did not care to succeed, or else coddled their plants too much. Some of the finest Strawberry grounds in Kent consist of comparatively poor and very stony loam, sometimes sandy, and often of a coarse marly character, and in some places this lies on the chalk—such material as no private gardener would think of planting Strawberries in: yet most profitable crops are obtained from it, and by rough-and-ready methods too. I believe that a great mistake is often made in overmanuring Strawberries. A moderate quantity should, of course, be worked in when forming fresh beds, particularly if the soil is naturally poor, or has been exhausted by previous over-cropping; but where the plants can be put out in a good sound maiden or other loam of moderate richness a very small quantity of manure, and this of a well decayed or sweetened character, will be sufficient, and indeed better than a heavy dressing. The Strawberry is naturally a strong-rooting plant, and when in a healthy growing state is sure to possess itself of whatever nourishment the soil may happen to contain.—B. C. R.

MARKET GARDEN FRUITS.

Whilst some growers of Apples think it is useless to grow many kinds, and consequently rely upon just a few for their crops, there is always the chance that they may now and then get blank seasons, and when such is the case considerable loss as well as much inconvenience results. Now this year generally we have a very light Apple crop. It is only here and there there is much fruit, and kinds grown largely are as thin as the rest. The chief exception is Lord Suffield, but even this is generally thin. I grow but just a tree or two of many kinds, and as a result seem always to have a few fruits in bad seasons and a fair crop in good ones. Thus this year that steadfast old kind, Waltham Abbey Seedling, in my mind the most constant bearing Apple we have, has a good crop, and the fruits will be of good size. The tree, which is large enough to carry a good crop of some six or seven bushels, has during the past ten years never been without some, more or less. I class it as the cottager's Apple *par excellence*, as it is not only such a free and constant fruiter, but the Apples are excellent cookers and keep well. Then Lord Suffield is fruiting well with me, so also are Kentish Filbasket, Tower of Glamis (these two yield good crops), Alfriston also very fair and Margil a good crop. Many other kinds, such as Golden Noble, Warner's King, Late Winter Pearmain, Stamford Pippin, &c., have a sprinkling. All the trees are on free stocks. Thus it is useful to have some kinds that are not commonly grown, especially in a year when Apples generally are scarce. Turning to Pears, all of which are on free stocks with one exception, I have a heavy crop of Swan's Egg, not a first-rate Pear by any means, but better than none. Nouveau Poiteau, a really fine and melting Pear and one of the handsomest and best of natural standards on the free stock is fruiting well; so also is Huyshe's Victoria and that free grower, Beurré d'Amanlis. Alexandre Lambre, almost broke down last year with fruit, is still carrying a nice lot, and is one of the very best kinds we have for bush trees. Winter Bergamot is also fruiting very well. Williams' Bon Chrétien has a thin crop. For the first time after a lapse of some ten years I am getting such a heavy crop upon bush Marie Louise double worked on Quince stocks, that I am compelled to give support to all the branches. Whether due to soil or other cause I cannot say, but with me double-worked Marie Louise has always proved far too robust, making growth equal to what is made by trees on free stocks. It is odd to find so much strength on Quince stocks in a variety never too robust, because on each Quince stock there are some 6 inches of stem of a rank-growing kind for the sap to pass through. Promising as this crop is, I dread the autumn days when the tomtits will play havoc with the stem ends of the Pears. Farleigh Prolific Damson on standard trees in open fields is a tremendous crop, the trees being literally torn to pieces already with the great weight of fruit.

Bedfont. A. D.

American Strawberry culture.—According to a daily paper, Strawberry culture is extending in Ohio, where it appears to be very successful. Before planting, two crops that can be hoed so as to exterminate weeds are grown, and then 100 to 160 loads of good farmyard manure are ploughed in. The plants are grown upon ridges, and they are allowed to remain till they are injured by the white grub, the only enemy of the Strawberry that does much damage in Ohio. From 100 to 140 bushels per acre of Strawberries are produced, and they are sent to Chicago for sale. Pickers are paid at the rate of 2s. a bushel, and at this price they earn from 4s. to 12s. a day.

Early Gooseberries.—Will any of the readers of The Garden who do not look with lofty contempt on this best of British fruits kindly tell me the names of the best early kinds, and about how much they are earlier than the commonly grown sorts—if they have taken notice of the difference?—J. J.

KITCHEN GARDEN.

BROAD BEANS.

All of the Longpod, as well as Windsor Beans are ordinarily termed Broad Beans; hence it is generally understood that in employing the above appellation the whole of the family, from the dwarf Fan Cluster to the huge podded Leviathan, is alluded to. The pods of the former are perhaps 3 inches in length; those of the latter sometimes reach 18 inches. During the present summer I have been enjoying a small trial of Broad Beans, not of varieties of my own selection, but kinds sent me from various sources. I have them on some rather stiff clay, which suits Beans well, but this season, as on most soils, they have suffered somewhat from heat and drought. In spite of this drawback, however, I have never seen Broad Beans so clean and free from black dolphin as they are this season, whilst growth generally has been good. The drought seems to have appreciably affected the setting of the bloom, and the resulting crop is thinner than is desirable, and the pods are hardly so large as would have been the case had we had more rain. Still, a very reliable test has been obtained as to the relative merits of each sort. First as to the Broad Windsors, I have Harlington Windser, which is one of the best, Carter's Improved Windsor and Taylor's Windsor. The first two seem to be practically identical and are both first-rate strains, but the production of three-seeded pods is not at all regular in either case; something is, however, due to the season; hence it is not fair to assume that a lack of the three-seeded pods is the average characteristic of the strains. Taylor's Windsor is less prolific, and the pods are not so large. The Windsors have a marked stiffness of stem, and it would be well if all other kinds had the same property. The Seville, Aquadulce, or Leviathan is just as wanting in stem-rigidity as the other has it in abundance, for when the pods get large the plants fall in all directions. I had some stocks of own saved Seville, also some from Messrs. Carter, and also some of their Leviathan. Just a little this latter seemed the best strain, but it yields no finer pods than their own Seville stock, which does not differ from mine or Leviathan. Generally the finest pods are found singly or in pairs on stems, no one plant producing many of these. In all cases, however, some plants produce shorter pods in greater profusion. These furnish capital household Beans, and early. Probably it is the rule to select all the largest pods and dub them Leviathan or Giant, whilst the smaller pods make up the ordinary Seville stock. No doubt one of the best tests of the relative productiveness of Beans is the seed produce after it is ripe. A capital strain is Carter's Selected Mammoth Longpod, but I take it to be a good form of Johnson's Wonderful, or as sometimes known as Mackie's Monarch. It is a prolific and fairly stout kind, the pods of good length and full. It is much better than the Dutch Longpod, which is the ordinary Longpod of commerce. Last year I selected from the Seville a distinct looking, stiff, erect-growing plant, which bore Beans of a broader and more abrupt-ended form than that kind usually produces. The produce this year is found to be stouter plants than those of the Seville and a better crop of Beans, which seem to come, as it were, almost intermediate between the Windsor and Mammoth Longpod. I think it is a genuine seed sport from the Seville, but hope to give it a wider trial next year. A. D.

Tomatoes at Harefield Grove.—This year there are 28,000 Tomato plants growing at Harefield Grove. The largest house devoted to their culture is 700 feet in length and 18 feet in width. They are planted out in rows the whole length of the house, about 18 inches being between each row, and the growths are tied to slim twine fences put up for their support. The house in question, as I saw it a fortnight or so ago, was a grand sight. Large fruits are not the aim, but multitudes of medium-sized fruits were freely produced. King Humbert is the principal variety grown; it is oval in form, medium in size, deep red, and clustered. Harefield Golden Gem is another one extensively grown here; it is bright yellow in colour, very smooth, from half a pound to one pound in weight, a very heavy cropper, and of first-rate quality. It is a hybrid raised at Harefield, and when better known cannot fail to be a favourite. The whole of the Tomato plants are growing in moderately rich soil well mulched, and in training they are restricted to one or two stems. The points are frequently pinched off the leading shoots; the plants are never allowed to bear a heavy crop of leaves, treatment which is certainly the means of producing most satisfactory crops of fruit.—J. Muir, *Margam*.

LATE TURNIPS.

From this date to the middle of August is a good time to sow late Turnips. They make a useful crop to succeed early Potatoes without much expense as regards preparation. If the ground be made level with the rake, the drills may be drawn and the seeds sown immediately, and after the recent rains the seeds will find a moist bed and germinate quickly. In a dry time I always soak the drills with water, using liquid manure when it is plentiful. This may not be necessary on all soils, but a little encouragement in the beginning, either in the shape of liquid manure, a sprinkling of superphosphate, or some other artificial, enables the plant to rush through its difficulties and makes a crop certain. This crop will be expected to stand through the autumn, and be used after Christmas and onwards till March and later; and the plants should be thinned out well, to ensure a dwarf, hardy habit. If the plants are left thickly on the ground, the leaf-stalks are drawn up weakly, and when the severe weather comes they form little or no protection. From 12 inches to 15 inches apart will not be too much space to allow each plant, and the leaf-stalks, being short and robust, lie close over the bulbs and protect them from a moderate frost. Of course, before very sharp weather sets in (and there are always some indications of its approach) the largest of the bulbs should be pulled up, and either potted or protected in some other way, but a very considerable number will still be left on the land. The best varieties for present sowing are Veitch's Red Globe, Orange Jelly, and Chirk Castle Black Stone. These are very hardy, and are less affected by the weather than most of the white-skinned kinds. E. Hobday.

Potatoes.—It is worthy of note that, although we have had much rain of late and unsettled weather, we have so far no evidence of disease in the Potato, although it is now a month later than the date at which this very destructive epidemic usually presents itself. Generally, the first early kinds are ripening off, all others are tubering rapidly, and growth of late kinds is vigorous and healthy. At present there is every probability that we shall have a heavy Potato crop; indeed, prices are already low, so rapidly is the market being supplied. In this extreme market-growing district, Beauty of Hebron has quite superseded the old Ashleaf and Early Rose for general cultivation. It gives a good turn out by the middle of July, and the ground thus rapidly cleared is at once filled with Coleworts or sown with white Turnips. It is worthy of remark that Beauty of Hebron on Middlesex soil is very dry and floury, and is much appreciated. A white Beauty of Hebron named Duke of Albany is, I find, rather earlier, as on a breadth growing beside the Beauty the haulm of the Duke is distinctly riper, whilst that of the other remains green. Probably, when better known, it will largely take the place of the pink-coated Beauty. Whilst the larger area for late kinds is still devoted to Magnum Bonum, Chancellor is becoming a popular kind, as it is a grand field Potato; and Prime Minister bids fair to take the place of the Regents, as it is such a heavy cropper. The comparative disappearance of the disease is a matter for congratulation, and it is to be hoped that if not quite extinct in this country, it may speedily be so.—A. D.

TOMATOES ON OPEN WALLS.

The present has thus far been a by no means favourable season for Tomatoes on open walls, for, with the exception of a short spell of warm sunshine in July, the weather has been dull and cold, so that such sun-loving plants as the Tomato have not advanced at anything like the pace they do when brilliant weather prevails; still, notwithstanding these drawbacks, many cultivators will doubtless secure good crops if favourable weather sets in. The most common error in regard to open-air Tomato culture is that of starting too late. The seed is not sown soon enough for the plants to mature a crop in the course of our short summers. The consequence is that when early frosts set in green fruits in various stages are all that will be obtained. The only way in which to get really good crops on open walls is to sow in March, pot off singly as soon as the young plants are fit to handle, and grow them on in a warm house or pit, keeping them as near the glass as possible. As soon as they are well established in 4-inch pots give them plenty of air, and by the end of April or early in May they may with safety be planted at the foot of a sunny wall, to which the shoots should be kept securely fastened. Cut away all side growths, and as soon as sufficient fruit is set for a crop stop the growing point and keep all superfluous growths stopped in close. If the weather is dry, water freely, and give them occasionally either manure water or guano. In short, keep the roots moist and the tops dry, and plenty of well-ripened Tomatoes will be the result. Those that fail to ripen we take up, stems and all, trim off the foliage, and hang them up in a warm house where they never fail to ripen. J. G. H.

NOTES OF THE WEEK.

Oncidium Lanceanum.—Mr. Law-Schofield, of New Hall Hey, Rawtenstall, sends us a flower of a very brightly coloured form of this beautiful old Orchid. One of his plants, he says, is carrying two spikes, one with eleven and the other with eight flowers.

Lilium auratum.—As illustrating the unusual vigour of Lilium auratum this season in Mr. G. F. Wilson's wood garden at Weybridge, he has sent us a grand specimen between 6 feet and 7 feet in height, and clothed with leaves over a foot long and 1½ inches broad. The flowers, too, of which there are seven on one stem, are unusually large and fine.

Pelargonium ardens.—No other Pelargonium equals this in colour—a maroon-crimson flushed with scarlet; but the flowers are small and not produced in large clusters. If hybridists could only produce a variety with the colour of P. ardens and with larger flowers, they would be well repaid. Some finely-bloomed plants of this Pelargonium may be seen at the present time in the Cape house at Kew in company with a host of other beautiful species but little known in a general way.

Montbretia crocosmæflora.—This is one of the hybrids raised by M. Lemoine, of Nancy, between the old Tritonia (Crocosma) aurea and Montbretia Pottsi. The flowers are intermediate in size between those of the parents and of much the same colour as M. Pottsi, but perhaps a little brighter. It produces its flowers on tall branching spikes, which are showy at this season. The New Plant and Bulb Company send us some good specimens of it from their Colchester nursery, where it is a favourite.

A new plant label.—Samples of a new patent clip label for flower-pots have been submitted to us for opinion by Mr. H. W. Bennett, Chandos Street, Strand. They are made of strips of zinc about half an inch in width, and are folded in such a way as to fit neatly over the rim of the pot, and hence are unobtrusive. There is sufficient spring in the folds of the metal to take a firm grip of the pot rim, but to prevent the label from being knocked off the two ends dip into the soil inside. The name of the plant is

written with indelible ink in the usual way. The chief merits of this new label seem to us to be its neatness, simplicity, cheapness and durability. Usually a plant label is so large and unsightly, that one cannot see the plant for the label. We could wish that the inventor had in some way so prepared the zinc that it would not coat itself with the white powdery blotches one so often sees on zinc labels; some kind of varnish may answer the purpose. These labels are made in two sizes to fit the different sizes of pots.

Ornithogalum thyrsoides.—A spike of this handsome bulb comes from Mr. Bartholomew, presumably cut from a plant in the open air. This species has tall spikes on which the flowers are borne in a crowded cluster at the top. Each bloom is as large as a shilling and white, except a faint tinge of greenish brown at the base. This species therefore differs a good deal from O. arabicum, which may be at once distinguished by the very dark centre.

Spigelia marilandica.—This showy perennial is not often seen; indeed, it may be called a little-known plant. It is now in bloom, and the flowers being crimson outside and yellow within, a mass of it is showy. The flowers are tubular, about 1½ inches long, produced in terminal clusters. The plant grows about a foot high, or even 18 inches in spots suitable for it, such as a moist and partially shaded peat border. We saw it the other day in the Coombe Wood Nursery, where it has been some time in bloom.

Acis autumnalis.—This delicate little bulbous plant, which is also called Leucojum autumnale, is so seldom sent to us, that we fear it is but little known. Mr. Kingsmill, of Eastcott, Pinner, has sent us some specimens of it during the week, which show what a lovely little plant it is. The stems are slender, about 6 inches high, of a ruddy tinge, and terminated by three small bell-like flowers drooping from slender stalks. The blossom is quite white except at the base, which is stained with claret colour. Mr. Kingsmill does not say under what conditions he grows it, but we fear it is not quite hardy, and moreover requires attention. It is a native of Spain and Portugal, and is also found in the Mediterranean islands.

Cyrtanthus Macowani.—This is a really beautiful bulbous plant, which was introduced from South Africa about fifteen years ago. It is the brightest coloured of all the species of Cyrtanthus yet introduced, the flowers being brilliant orange-scarlet. They are about 1½ in. long, much curved in a downward direction, and produced in clusters of about a dozen on stems a foot or so in height. It is indeed not a botanical curiosity, but a plant worth growing, and if grown in quantity would be valuable at this season for the greenhouse. Mr. Kingsmill sent us a flower-stem of it well furnished with finely developed flowers.

A pretty aquatic.—Mr. Bartholomew sends us flowers of Melanthium junceum, which he has grown successfully as a water plant, treatment which seems to suit it, as the specimen sent is finer than any we have before seen of this plant. It is, we believe, a native of the Cape; therefore, not quite hardy, though we have seen it grown out of doors protected during winter. It has tall Rush-like stems, out of which the flower-spike protrudes nearly at the top. The flowers resemble those of an Ixia in size and shape. They are pale mauve with a beautiful carmine-purple centre. It would be appreciated by those who are fond of interesting plants.

Flowers from Edge Hall.—I enclose flowers of the following plants: Chrysanthemum (Leucanthemum) maximum of De Candolle, a Pyrenean plant of great merit, for which the coarser C. latifolium (syn., lacustre), a native of Naples and Portugal, generally does duty in nurseries. Chrysogonum virginianum (Gray), a dwarf five-rayed N. America Composite, of neat habit and flowering the whole season. Polemonium cæruleum var. piliferum (see Bot. Reg., vol. xv., tab. 1303) This is generally sold in nurseries under the erroneous name of P. Richardsoni, a totally distinct plant (see Bot. Mag., tab. 2800). This was certificated by the floral committee of the Royal Horticultural Society under the name of Richardsoni. Flowers of the very variable Anthemis tinctoria, which produces the greatest mass of flower (a globe 4 feet high and wide) of any plant I have. Flowers of Papaver Hookeri, a plant producing even a greater variety of colour and form than the garden forms of P. Rhœas.—C. Wolley Dod.

Anthurium Andreanum.—It may be interesting to know that this plant stands well in a cool temperature during the summer months. We have had two plants of it in our flowering Orchid house all this summer. This has had no fire heat since the end of May, yet the plants have made growth and produced fresh flowers since that time. The leaves are not so strong as would be made in a stove, but they are quite healthy and the flowers are very brilliant. The fine colour and the length of time during which they will last in good condition make this and the old A. Scherzerianum of the greatest value in the summer decoration of plant houses.—W. Holah, *Rollcaf.*

From Colchester Dr. Wallace sends a gathering of some pretty bulbous plants, among them being Lapeyrousia corymbosa, with small violet-purple flowers, Babiana tubiflora, Ixia viridiflora and monodelpha, and the beautiful new Vallota magnifica, of which we wrote in high praise recently. As regards Iris juncea, sent to us lately, Dr. Wallace says: "We have no difficulty here with it on our light dry soils; planted in or out in winter, it never fails to flower and to produce three to four flowers on a spike. Sunshine and good drainage on a light soil will ensure flowering."

Double Balsams.—The flowering season in the case of Balsams is now at its height, and several samples of good "strains" have reached us from different growers, those from Messrs. Carter, High Holborn, and Mr. R. Dean, Ealing, being the finest. If the flowers sent are fair samples of the strain, it is an uncommonly good one, for the blooms are almost as large and quite as double as those of Camellias and well varied in colour. There are snow-whites, delicate roses, purples and crimsons, while some are curiously flaked and spotted. There are few showier greenhouse plants at this season than well-grown double Balsams.

A hardy Gladiolus.—We have received from the Rev. J. G. Flint, of Bellingham, Northumberland, some flower-spikes of a very beautiful Gladiolus which seems to us to be identical with that named insignis, one of the ramosus section. Judging from what Mr. Flint says in his letter, this must be quite a hardy plant, even so far north as Northumberland. He says, "To my knowledge it has been grown for the last thirty years in the open ground in the counties of Durham and Northumberland without being lifted in the autumn, and without any protection in winter; therefore it must be perfectly hardy. At Ushaw College, Durham, where I got it from, tufts of it in strong clay soil retained their green leaves all through the winter." The flowers are as large as those of the gandavensis group and of a bright cherry-red, blotched with purple on the three lower divisions. The hardiness of this Gladiolus is a great point in its favour.

Hypericum reptans.—All the shrubby species of St. John's-wort are beautiful and worth culture, but no praises I could string together would express the grace and dainty habit of this creeping beauty as seen at its best, growing like a waterfall over stones. It has bright red stems, very slender and a foot in length or more; they are clothed with small, pale green leaves, and each thread-like branchlet is tipped with a shining yellow conical bud, or with a single flower like the flower of a tiny single Rose, but of a clear yellow colour. It is propagated by cuttings, or old plants may be layered and afterwards divided. It succeeds best planted out in the rock garden so that its slender stems can hang down over a boulder, and if planted a little above the eye level so much the better. When well established it forms dense mat-like cushions, and bears its flowers in great profusion. There are several other dwarf species, such as H. Coris, H. ægyptiacum, H. empetrifolium, and others, all pretty when well grown and easily reproduced from cuttings, but none to my mind are so graceful and effective as is H. reptans. Among larger bushy kinds, H. oblongifolium, H. patulum, and H. nepalense are all good and showy, and having about the same degree of hardihood as have the New Zealand Veronicas of the V. Andersoni section.—F. W. B.

AN AUSTRIAN GARDEN.

We have to thank Mr. Otto Forster, who has so frequently contributed to The Garden notes on alpine and other hardy plants, for a beautiful series of photographs taken in his garden at Lehenhof, Scheibbs. Two of these, showing the interior of plant houses, we publish this week, and both show, we think, charming arrangement, forming a striking contrast to the usual style followed in this country. Mr. Forster evidently aims at making his plant houses harmonise with the picturesque surroundings of his open-air garden. A friend who has visited the garden was delighted with it, and writes as follows concerning it:—

"From Vienna the railroad runs through a lovely tract of country, the "Wiener Wald," to the station Poechlarn, whence a branch line runs along the shores of the Erlaf to Scheibbs, a large village, in the immediate neighbourhood of which is situated the residence of Mr. Forster, around which the landscape is most picturesque. The mansion, which was erected by one of the Austrian nobles to accommodate large hunting parties and to serve as a summer residence, is situated at the best chosen spot in the valley, commanding a beautiful view of the Austrian snow-clad Alps. Mr. Forster has considerably improved the place; everything in and about it indicates the refined taste of its present possessor. There is a large range of glasshouses specially adapted for plant culture. The largest house is a winter garden in two divisions, the space between the warmer and cooler parts being a sort of rockery tastefully planted with appropriate plants, which produce a very good effect. Orchids are cultivated to some extent, and the place is famous for Rhododendrons and their hybrids, of which some very fine forms have been raised here. In the park-like garden, which is kept in excellent order, some parts are devoted to the naturalisation of Primroses and alpine plants. Primula cashmeriana grows plentifully on some sloping ground, and for the cultivation of other alpines advantage has been taken of a natural rockery, on which some very rare specimens may be found growing in the greatest luxuriance. A large collection of European and foreign Primroses may also be seen here, as well as multitudes of herbaceous and greenhouse plants."

Alstrœmerias.—In your notice of my Alstrœmeria (p. 66 you speak of it as Alstrœmeria pelegrina. I think this is wrong, though several books have it so. It is an error crept in, and the proper word is peregrina. Herbert (Amaryll., p. 91) puts it "peregrina–pelegrina"—the first being correct.—A Rawson, *Windermere.*

Whortleberries.—These are unusually plentiful this season. Vast quantities of them are sent by rail from the south-western counties to all parts. I have known as many as twenty-one tons to be sent from one railway station in one year; but this season I think the quantity will surpass even that amount.—J. C. C.

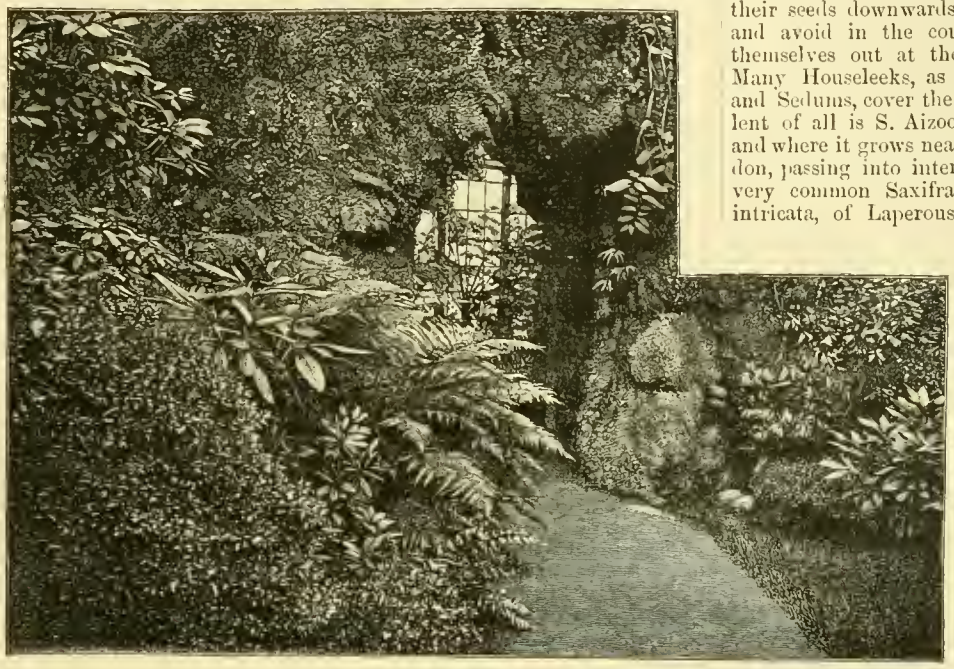
Flower Garden.

SPRING FLOWERS IN THE PYRENEES.

The Pyrenees, as a native home of garden flowers, are second only to the Alps in importance. It would be tedious to enumerate all the uncommon plants seen in a hasty visit to the chief watering-places of these mountains, but I propose to mention a few of the more interesting flowers as I saw them growing at the end of spring in this year near one or two of the better-known centres to which tourists resort. It is a pleasure to recall the delightful drives and walks, of which I made no notes at the time, except in memory; and some of those who know the flowers only as garden plants may like to learn how they grow in Nature.

St. Sauveur les Bains stands in the most beautiful as well as the most flowery of those magnificent roads constructed during the Second Empire to connect the chief watering-places of the Pyrenees, and called Routes Thermales. A branch railway from Lourdes runs up a beautiful mountain valley to Pierrefitte, which is the terminus for four important towns, Cauterets, Luz, Barèges, and St. Sauveur. The first of these places is surrounded by the grandest mountain scenery in its immediate neighbourhood, but for accessible flowery roads, St. Sauveur is the best station. The road from Pierrefitte runs along a narrow valley, with a large Gave or torrent roaring at the foot of precipices below it sometimes as much as 200 feet. Where the steep rocks and forests afford room the land is cleared into meadows for hay and pasture, artificially irrigated by diverting some of the many streams which fall down the mountain sides. Some of these meadows are on such a steep slope, ending in a deep precipice, that haymaking cannot be conducted without some risk. The hay is all carried out on the backs of the peasants, chiefly the women, who seem to do all the hardest work. At the end of May these meadows are as gay as gardens; they continue at intervals all the way to Gavarnie, where the carriage road ends, about twenty miles from Pierrefitte and twelve from St. Sauveur. At the time we saw them the gayest flowers of all were those of a large field Scabious, perhaps S. arvensis, but larger, brighter, and far more varied in colour than we see that flower in England, being different shades of blue, pink, and clear deep rose. I was not sure of the species, and did not bring specimens. Orchises are abundant, especially in the wetter parts, mostly varieties of O. maculata passing into the rich purple forms of O. latifolia. O. ustulata was there also of large size, the flower-heads being sometimes 3 inches long. Amongst many meadow plants familiar to us in England were others new in appearance. None was more striking than a tall light blue Phyteuma, raising a pyramidal spike of flower above the Grass. Its name is P. betonicæfolium. I have never seen its cultivation tried, and it would probably prove a failure. The Columbines formed another conspicuous feature, covering in some places several yards square. They were uniform in colour, of the rich deep blue of the large-flowered typical Aquilegia vulgaris.

Gedre is a village about half way between St. Sauveur and Gavarnie, and when the road has passed this the Grass in the meadows is shorter and the flowers brighter in colour. Daffodils were over, but the leaves showed how abundant they had been. In some spots Hyacinthus amethystinus coloured whole fields, so as to be visible at a distance of half a mile. Scilla verna and S. Lilio-hyacinthus are abundant. Forget-me-nots, with flowers of an intense blue I never saw in England, belonged, I suppose, to Myosotis alpestris, and were very common. The thickets were full of Dog Roses of different varieties, and R. pyrenaica was coming into flower. The white flowers of Amelanchier vulgaris made a great show. I must not forget the large-flowered and low-growing Ranunculus Gouani, which, near Gavarnie, nearly supplanted the commoner forms of Buttercup.



View in winter garden at Lehenhof, Scheibbs, Austria.

The streams attract special moisture-loving plants. Where they fall over steep rocks, the Ferns, belonging often to kinds rare in Britain, are very luxuriant; but where they run through the meadows they are edged by such plants as Thalictrum aquilegifolium, both the common and the purple-flowered form, which was plentiful close to the hotel at St. Sauveur. Cardamine latifolia, a sort of Watercress with rose-coloured flowers, was growing quite in the water; whilst on the drier banks, St. Bernard's Lily (Anthericum Liliago) and Ononis rotundifolia varied the colours. Anthyllis Vulneraria was extremely abundant, but all with pink flowers; I could not see one of the normal yellow in the Pyrenees.

I have not yet spoken of alpines proper, which, of course, are in great quantities amongst the rocks. It is quite delightful to see beautiful collections of them on high ledges of the precipices close to the road, which can be reached neither by ladders from below nor by ropes from above, and which must for ever defy plant gatherers. There is Ramonlia, pyrenaica abundant everywhere along this route which delights to nestle under a moist, overhanging ledge, just out of the sun; the plant is turned either downwards or sideways, but seldom looking straight up to the sky. But the most beautiful plant of all I saw here is the exclusively Pyrenean Saxifraga longifolia, which grows on the perpendicular faces of the highest precipices, the rosette being always turned horizontally, and the flower-spike growing always at right angles to the face of the rock. The first I saw were when looking down from that grand bridge, the Pont Napoleon, which spans the wide Gave at St. Sauveur, at a height of more than 200 feet above the water. It is a character of this Saxifrage that it nearly always grows in a single large rosette, which at the age of four or five years flowers and dies, and is reproduced from seed. As I saw the beautiful flower-spikes of pure white, and nearly a yard long, projected from the precipice, a botanical puzzle occurred to me. How do these plants, which must always shed their seeds downwards, maintain their altitude, and avoid in the course of centuries running themselves out at the bottom of the valley? Many Houseleeks, as well as other Saxifrages and Sedums, cover the stones. The most prevalent of all is S. Aizoon, a very variable plant, and where it grows near S. longifolia or S. Cotyledon, passing into intermediate forms. Another very common Saxifrage I made out to be S. intricata, of Laperouse. The various London Prides are too familiar to attract notice, but occur here everywhere.

Amongst the rocky slopes near and beyond Gavarnie 5000 feet above the sea level alpines become more prevalent. There were large masses in flower of Rhododendron ferrugineum. The moist rocks are in many places covered with Primula viscosa, growing as I can never make it grow in cultivation, its roots clinging to the moist stones like Ivy.

Teucrium pyrenaicum is still more plentiful, but of this we can imitate the growth in our gardens. In the soil amongst the stones Primula elatior—our Bardfield Oxlip—grows everywhere at high elevations. I noticed, too, large breadths of Horminum pyrenaicum, a plant with little to recommend it.

Primula farinosa fringes the stony little rills, and Gentiana acaulis and verna are everywhere where conditions are suitable, the former common near the road in many places. On the ledges of the higher rocks Alchemilla alpina, Lychnis pyrenaica—a plant I have never seen tried in gardens—Linaria alpina, Dryas, Saxifraga oppositifolia, are all of them represented, together with many similar mountain kinds.

Besides the flowers already mentioned as growing by the roadside were many others, varied in character according as the banks are constantly wet with the drippings from a long upward slope, or dry from a break in the continuity, as was generally the case on the lower side of the road. Here were masses of Cerastium, probably alpi-

num, Helianthemum polifolium, canum, and vulgare; Lamium longiflorum, a very prevalent weed in the Pyrenees, ornamental neither as it grows there, nor in gardens, where its introduction has proved a failure; large-flowered Mulleins of the biennial class such as I never saw in England. One tiny plant which grew out of crevices on the dry stones especially attracted my notice, forming close-growing silvery masses of crowded flowers. It was Paronychia capitata, a plant which has hitherto been all leaves on my rockery, but it should evidently be grown quite without soil. I must not omit Erinus alpinus, which is everywhere, though the white variety is scarce. On the wet banks of every roadside the most beautiful flower was the great Butterwort, Pinguicula grandiflora. The abundance of this was often such that I have seen at least a hundred flowers in the space of a square yard. Another plant, less universal in its distribution, but always growing from under dripping ledges and covering surfaces of wet rock, was Hypericum nummularium, its habit affording a lesson to those who try to grow it on a flat, dry surface of soil.

I noticed only one Androsace in the Pyrenees; this was common in many places at high elevations, but most abundant on bare stony ground above Gavarnie; it bears a profusion of white flowers with a purple centre, and is exceedingly pretty, though not easy of cultivation. It is certainly the A. villosa of Linnæus, but is of entirely different habit and appearance from a Himalayan plant of the same name, which I find easy to cultivate. If I am told on authority that the two plants are botanically the same, I am not going to dispute it, because I write as a gardener. In similar situations to those occupied by this Androsace I observed dwarf forms of Veronica, Teucrium, Vicia pyrenaica, a plant of dwarf growth and richly coloured flowers in its own mountains, merits which it loses entirely in cultivation; Jasione humilis, Globularia nana, Hieracium villosum, the latter not nearly so fine as it becomes in cultivation, by which some alpines are decidedly improved. I have not a flower in my garden which gets more admiration from good judges than this. I find, however, on reference to the "Botany" of Grenier and Godron, that the true H. villosum is not found in the Pyrenees, but is represented by H. pyrenaicum, a closely allied form. I hope to be allowed to speak another time of other flowers which I saw about Luchon.

C. Wolley Dod.

Roses and Gladioli.—One of the best arrangements which we have at the present time by which cut flowers can be supplied in quantity is Roses of the Perpetual type planted in rows 5 feet apart, with a single row of Gladioli between them. By Perpetual Roses, I mean a selection of kinds that really do keep on flowering more or less during the entire season, *i.e.*, like Gloire de Dijon, and others that can be had in abundance out of doors from June to October, and with but very moderate appliances in the way of glass for nearly the year round. It is very disappointing to plant Roses simply because they are classed as Perpetuals, and to find that they have nothing of a perpetual character about them but the name. By means of rigid selection, however, one may get sorts that really are perpetual. The Gladiolus is certainly one of the grandest of hardy flowers, and cutting the spikes, so long as one does not cut the leaves, rather benefits the bulbs than otherwise, as the entire strength of the plant then goes to perfecting the bulbs. We keep our Gladiolus roots in the ground the whole year round, and when lifted for dividing and replanting, we do so with as little delay as possible, as drying the bulbs by exposure is of very doubtful benefit; and I am thoroughly satisfied with the results thus far obtained by my plan, as under it the bulbs not only increase rapidly, but the flower-spikes push out two or three good side spikes nearly equal in strength and beauty to the central one.—J. G. H.

THE LOST HELLEBORE FOUND.

Helleborus lividus has for nearly a generation been a lost plant—lost not only to gardeners, but even to botanists, so that its identity was denied. The two published drawings of it in the *Botanical Magazine* and Sweet's "Flower Garden" were considered apocryphal, and the name itself was given to another Hellebore because of a fancied resemblance to the original plate. The name of H. lividus thus became attached to another Hellebore altogether, viz., H. corsicus or trifolius. All this is to be found fully set forth in Vol. XXVIII. of The Garden (pp. 28, 528, 608, and 645). At page 28 I gave a summary of the discussion which had been commenced in the previous volume, and which had been continued by Mr. Archer-Hind and myself. This article concluded with the expression of a hope that botanists who might be visiting the shores of the Mediterranean would try to solve the puzzle by finding H. lividus, the lost Hellebore. It was also stated that Mr. Baker, of Kew, thought it most probable that it might be found in the Balearic Islands.

In this discussion it was shown that plate 72 of vol. ii. of the *Botanical Magazine* undoubtedly represented a plant that formerly abounded in English gardens. That a second portrait of the same plant was published many years later in Sweet's "Flower Garden" (vol. v., p. 190), and that it had been described both by Aiton and Don as a beautiful garden plant. Mr. Archer-Hind and Mr. Burbidge afterwards published evidence of its still more recent existence in English gardens. The record, however, was all that remained, and the plant itself was not to be found.

In pursuance of the search for the lost Hellebore, I forwarded strips fully describing it, and giving particulars of the discussion, to many European botanists, and to some I sent tracings of the plates above referred to. By the kindness of friends the island of Corsica was thoroughly searched for it, and my friend Mr. Schloss, of Bowdon, spent two months in the Riviera searching every likely locality and inquiring about it from all the botanists whom he met. This was the most likely locality, because the specimen of H. lividus in the Forsyth Herbarium at Kew was labelled Nice, and it was thought probable that it might again be found in the neighbourhood. Mr. Schloss was, however, unable to find it. Particulars were also sent to the Balearic Islands.

Mr. Baker, of Kew, wrote me on the 23rd ult. that a dried specimen of H. lividus had been sent to Kew, and that this Balearic Hellebore agreed capitally with *Botanical Magazine*, t. 72. It had been found in Majorca, and occurred on the banks of rivulets and rocky places on the Sierra de Toller in calcareous soil at 130 feet to 3250 feet above sea level. He identified it as the Helleborus lividus of Aiton. Here, then, is the lost Hellebore re-found; and we may hope in due time to obtain living plants of it again for English gardens. Wm. Brockbank.

Brockhurst, Didsbury, July 24.

Gentiana gelida and G. septemfida.—"Veronica" remarks (page 96) that G. gelida has become the accepted name in gardens for G. septemfida. It may be so, but if so, more's the pity, as plants ought to be called in gardens by their right names. Gentiana septemfida (Pallas) and G. gelida (Bieberstein) are both natives of the Caucasus, but differ from one another in the following particulars. The name septemfida, which means seven-cleft, refers to the scales which separate the divisions of the corolla, and are fringed generally with seven divisions in the former species. In G. gelida these scales are entire, or at most two-cleft. In the second place, the colour of the corolla in G. gelida is pale yellow (ochroleuca) not blue. G. gelida, as far as we know, has never been in cultivation in England.—C. W. Dod.

NOTES ON HARDY PLANTS.

Campanula pelviformis.—Few Bellflowers show themselves off to better advantage than this one. It grows about a foot in height, and is neither top-heavy nor does it suffer its handsome saucer-shaped flowers to be beaten down by rain. Those who are unacquainted with it would perhaps be a little surprised at the length of time during which it continues to develop its soft grey-blue flowers. Wherever the more rare and attractive alpines are cultivated this is surely entitled to a place. As regards its treatment, it practically wants none; the most ordinary soil and positions do for it. Anyhow, it will thrive under the same conditions as the common carpatica, and it is even more readily increased by division.

Gymnothrix latifolia.—This is one of the handsomest broad-leaved and deep green Grasses we have tried. It may be planted in beds, borders, shrubberies, or as isolated specimens in summer, and if it has some rich and light material to root in it will soon grow large and imposing, though seldom more than 4 feet high. Let no one leave his whole stock out of doors to be frost-bitten if it is intended to keep it, for as sure as the frost nips it it will die, though it is spoken of it as being hardy. The best way to deal with this Grass is to lift it and pot it when frosts threaten. So long as the leaves keep green the plants may be employed for decoration indoors; when they turn yellow, dry off and place the pots on their sides, secure from frosts, until spring, when the plants may be started gently, and as soon as the bulky crowns sprout it will be better to divide the clumps, pot and grow the pieces close to the glass until April or May, and then plant them out again.

Papaver pilosum.—This has medium sized orange-red flowers. Seen growing many would not care for it, the pilose and rough stems and leaves are so hispid to the touch, and not of the most desirable hue, but the well branched flower-stems are a feature in this Poppy, and they serve to render the flowers less formal than straight, long stalks would. This Poppy is very hardy; it will grow in almost any kind of soil, and forms a big bush like specimen in two years, from which great quantities of bloom may be cut for a long season. The late period to which it continues flowering renders it valuable, and if the seed-heads are regularly picked off the results are very satisfactory.

Nierembergia rivularis.—If those who covet this charming little plant could only see some of its roots they would not be surprised that it is not easy to establish. The small runners, just under the surface, depend on roots of a very different kind which go a good depth down. The latter are as thick as strong packing twine, very strong, and remain alive, feeding the plants, for seven or eight years. It is some of this class of root that should be got up when it is sought to further increase it. The White Cup, as this plant is called, is a water-side plant, but we have grown it successfully for years in a sunny raised bed. The soil is, however, both deep and well worked, or rather it was deeply worked some years ago for Asparagus. A deep well-worked soil, with plenty of manure dug into it, is a good substitute for the damp positions said to be needful for moisture-loving subjects.

Veronica crispa.—If this handsome wrinkled Speedwell never bore a flower it would be worth a place in collections, consisting of the rarer and more beautiful hardy plants. It is apt to go off, not from any want of power to resist cold, but from being placed among tall growing plants which deprive it of sunshine. It likes an isolated sunny situation, where it can send up its straight stems charmingly furnished with leaves which shine with an almost metallic lustre. It does well in stiff clay, but plenty of light and as much sunshine as possible are indispensable.

Saxifraga aizoides.—This is a much more useful plant for the rock garden than hundreds of plants often seen there; native though it be, can a more pleasing yellow-flowered Saxifrage than this be

found either for midsummer or earlier use? When I speak of aizoides, of course I include the pretty dark-flowered variety called autumnalis. These remain in good form for several weeks. Let no one debar himself of the pleasure of big masses of these because he has no damp places in his garden corresponding with the watery habitats of the wildlings; they will grow beautifully under the ordinary conditions of a well-made bit of rockwork or in ordinary beds.

Spiræa palmata.—This is generally seen in an unsatisfactory condition in open borders. In, perhaps, nine cases out of every ten the cause may be put down to either planting too late or in positions too dry. I believe that in most gardens a suitable place may be found or made for it with very little trouble, and if that is the case, there is no reason why this plant should not be freely and well grown. The difficulty seems to be to find a moist and cool rooting place for it, but let it be put, say, an inch or two lower than the surrounding ground, where surface water, after a heavy shower, would run to, and it will succeed. If the soil is thin or porous, it should be removed to the depth of 18 inches, and a close-grained sand substituted; this, if top-dressed during the growing season, will induce this Spiræa to produce fine flowers and foliage. It is hardly necessary to say that sand put in a hole into which water can run in rainy weather will keep as cool and moist as a bog, while, if we want a warm bed for forcing or rooting purposes, we could scarcely employ better material during summer if formed into a raised bed in full sunshine. If, therefore, by such simple means we can accommodate this moisture-loving plant, we ought to do so, and the roots cannot be set too soon after the tops have turned yellow. On this point there is a little difference between roots that are to grow out of doors and those intended for pot culture.

Potentilla lupinoides.—I fell in love with this plant at first from seeing it in autumn in its rich leaf hues—bright yellow and red on a smooth glistening surface, and the small leaves withal of a handsome shape. The plant is a neat creeper, forming itself into a dense mass of stems and leaves, among which, in July and August, the large and bright yellow Rose-like blossoms nestle; the deeper orange-yellow anthers are conspicuous in the cup-formed flowers, and contrast charmingly with the now dark green and deeply-cut leaves. So far as I know it is not in general use, but for the rock garden it should be noted as "a good thing." It appears that this Pyrenean species is variable in the colour of its flowers.

Anemone rivularis —As a plant or flower with fairly good all-round qualities this may be mentioned. It is perhaps the only generally known Anemone that blooms in July and August, and we are so far indebted to it for keeping our thoughts fixed on its family which is always so gay in spring. Where well-established roots of this happen to stand near A. alpina and sulphurea the Windflowers are not likely to be forgotten even in midsummer, for the immense seed heads of the kinds just named greatly enhance the effect of the pretty, if somewhat small, flowers of the River Windflower. Its starry white flowers not only withstand wet weather, but, unlike the big Japan Anemone, they keep open no matter how dull, and if there is no sunshine for several days together the anthers may be seen to be furnished on the newly-opened buds with sky-blue pollen. No other Anemone gives cultivators less trouble. It is easily established in almost any sort of soil, and it soon makes a fair show of bloom.

Gypsophila paniculata.—This in many gardens seems to soon run its course, often ending its days in four or five years; by that time the woody stools may have become as stout as a man's fist with roots of corresponding thickness, but they suddenly decay after perhaps a most prolific crop of useful little flowers. Those therefore who desire to keep their gardens furnished with this plant, the flowers of which are valuable for picking, should see that young specimens are coming on to form a succession. It would not, indeed, be amiss to plant one every year, as until the second and sometimes the third year they do not produce much bloom. It thrives best in light soil.

Polygonum sphærocephalum.—This is the same plant about which I wrote under the name of P. affine. I understand it has recently been renamed at Kew; ugly as the new name sounds, it is a good descriptive one. It is doubtless a plant for the future for the following reasons: Its flowers are lasting as well as brilliant, and they are produced in succession: then it ripens seed—always an important matter where it is desired to have plenty of a certain plant. The roots in this case are knobs or tubers, which, so far as I can at present see, do not yield offsets. I have already gathered and sown ripe seeds, which show a tendency to sprout almost as freely as those of P. viviparum. J. W.

NOTES.

The garden after rain.—One of the fairest and most satisfying of all things is, to my mind, a good garden in late summer or early autumn time as seen in the sunshine that follows rain. Gone the dust, and gone the thirsty dryness of the leafage, and instead there are exuberant freshness and elasticity in every bud or leaf, and in every uprising stem. The last of the white Lilies glisten among tall blue Larkspurs, and Jackman's Clematis hangs its wreaths of royal purple amongst the gold-leaved Ivy on the walls. There are the most delicious whiffs of fragrance as you walk among the flowers, Carnations, Roses, and Stocks, and from the sweet-smelling leafy things, such as Musk, Rosemary, and Lavender, or from Sweet Brier and Thyme. Last, but not least, the rain has given freedom to cuttings and seedlings of many beautiful things. All through the dry, dusty weather these were huddled together like children forbidden to play. But now they are safely planted out and growing in health and vigour every day. This warm, showery weather is also the best for propagating nearly all kinds of hardy plants from slips or cuttings under handlights in the open air. So, too, between the showers one may dig and transplant Daffodils, Squills, and the hundred and one hardy bulbs now at rest, but which, after these soft warm rains of August, will soon begin to root and grow. The single Dahlias and the white Japan Anemone are opening their flowers; some of the earliest of the Chrysanthemums are in bloom, and yesterday I caught the first twitter of the robin's song, all of which are sure signs that fruity autumn is with us once again.

A sweet posy.—Take two Moss Rose-buds half open, a spray of Rosemary, and half-a-dozen of the flower-heads of Lavender, to which add a cluster or two of Mignonette, three old Clove Carnations, a small bunch of white Jasmine, and a few leaves of the sweet-scented Verbena (Aloysia citriodora). If to the above you add a half-opened old Provence or Cabbage Rose so much the better, and the result will be a sweet posy that a duchess might like to have near her, and which, if tastefully put together, will delight the eyes as well as the nose. This sort of sweet posy was far more common in the days of our great grandmothers than now. You will notice how careful the late R. Caldecott was to give his sweetest of early eighteenth century maids a dainty little posy to sniff at as they cross their tiny feet and sit demurely in the fine old Chippendale chairs he must have liked, or he would not have drawn them so well. Well-made *pot-pourri* is delicious in winter, but during summer time every room in every house which has a garden ought to be full of fresh flower fragrance, leaving the mummied odours for the winter of our discontent. You must not for a moment fancy that the above recipe for a sweet posy is a bit of literary labour out of my own head, so to say. The truth is, I found it written inside the cover of an old herbal, and to-day I tested its efficiency, and having found it not wanting, I offer it to every Lady Corisande who reads The Garden.

Spiræa palmata alba.—Plants are like men, inasmuch as nothing tries their character and capabilities like time. When I first saw the above plant in bloom my verdict was one not at all likely to extend its distribution in any way, but I obtained a plant, and when it first bloomed here as a novelty nearly everyone said, "Ah! what a pity; that is Spiræa palmata spoiled, is it not?" This year, however, the plant has quite vindicated its character, and as now in bloom is a lovely thing. It is planted in a half shaded peat bed among Rhododendrons and other shrubs, and bears about a dozen of its pure white feathery sprays. It is by no means the first new introduction that has been "under a cloud." The Bornean Jasminum gracillimum had a narrow escape from total oblivion, and those who refused a certificate to Cypripedium Lawrenceanum can see it now in the best groups of Orchids at the best of exhibitions, but this white-blossomed Spiræa is really just at this season one of the most beautiful of hardy flowers, and as such, now well established and well grown, everyone admires it. It has at any rate proved to me that nothing but actual trial under favourable conditions can decide whether a plant is a good one or not. The position, soil, surroundings, and culture make all the difference with this feather-flowered Spiræa, as with many other things.

Aconitum variegatum.—The old purple Monkshood is a welcome flower early in the year, but there are now far more attractive kinds in blossom. A. japonicum is one of the best, and later in the year A. autumnale and its white variety will be masses of flowers 7 feet or 8 feet in height. Just now we have nothing in the genus finer than this A. variegatum, which is also known as A. bicolor in some gardens. Its hooded blossoms are borne on branched spikes 5 feet or 6 feet in height, each flower being half white and half pale blue or lilac. It is easily increased by division, and comes tolerably true from seeds sown as soon as they ripen, in which case they germinate during the following spring. A good group of this plant looks well as seen against a background of evergreen shrubs, and is robust enough to hold its own in open sunny positions, beside woodland walks or drives. Another species with panicles of pale yellow flowers, A. Lycoctonum, is also adapted for similar positions, and is quite distinct from its allies in general effect when in flower.

Lilium longiflorum.—This is one of the cheapest and most beautiful of all the Japanese Lilies, and should be grown in all gardens where white flowers of noble form are appreciated. In mild localities near the sea it is hardy, but, as a rule, the best results are obtained by pot culture in a cold frame. Its growth appears early in spring, and is very apt to be frost-bitten; but if the bulbs be grown in pots in a frame they are safe from harm, and flower beautifully if plunged out of doors in May or June. A pot so grown and plunged out among other things in a peat bed is now very pretty. It bears ten perfect flowers, a result never attained by unprotected clumps which are left outside with us all the year. In some few places I know this Lily really does beautifully outside in beds or borders, but, as a rule, pot culture will be found a preferable plan of growing it to anything like perfection. Five strong bulbs in an 8-inch pot make a show when they flower. On such a pot I have seen five stems, each bearing four or five of its great trumpet-shaped blooms. There are several varieties, of which eximium and Harrisii are perhaps the best, but the typical plant is much

cheaper. L. Harrisii may be forced quite readily for Easter decorations, and a pot of it in full flower at that festive season is a great prize.

Cuttings or slips.—When I was a boy nearly everything was increased from slips, and I am not sure that the more modern and now general practice of taking cuttings is more successful than the old plan of slipping off short axillary shoots with a heel instead of cutting them with a knife. If ever I feel the least doubtful as to which method is best, I try both ways, and after some little experience in this line, I find the balance in favour of the slips. Milky plants, such as Euphorbia jacquiniæflora, often fail as cuttings, but short growths stripped off grow well. Pinks, Carnations, Cloves, and mule Pinks, Onosma tauricum, small Veronicas, &c., we propagated quite successfully from slips planted under cap-glasses or handlights on a sandy border. Hollow-stalked Pansy cuttings generally fail to grow, but the same growths stipped off at the crown and inserted deeply in sandy soil grow quite freely. Of course, facilities for the rooting of cuttings are now greatly improved, yet for hardy plants more especially I believe we might return to the old-fashioned habit of planting slips of many things with advantage, and especially when cuttings have been tried and failed.

Gingerworts.—As a family these are very beautiful in leafage as well as in blossom, and the economic usage of their rhizomes is as yet in its infancy. The fleshy rootstocks of any kind of Alpinia, or Hedychium, or Kæmpferia would afford fairly good "ginger" if cured in syrup or candied on the Chinese plan; indeed, so far as proof goes, there is nothing to show that the genus Zingiber proper is ahead of other plants of the Order in aromatic and stimulating properties. When I was exploring in the Bornean forests, a few years ago, I found Scitaminaceous plants very common, and in pulling up the plants themselves I was very much impressed by their fat and aromatic rhizomes. The Bornean, or native, Ginger is made from an Alpinia with banded or zebra-marked leaves. Kæmpferia Galanga I found in plenty in one place only, a hot, swampy plain, the road through which was knee-deep in soft mud, roofed over with tall Sedges and Grasses, and when passing through these Grass-lined tunnels the mosquitoes neglected not their right to take toll from the passing traveller. Wherever an open, sunny mud flat was reached there the flat leaves of the Galanga covered the soil, or its pretty white and purple flowers were seen. The Chinese were settlers in North Borneo centuries ago. The largest mountain there is Kina Balu (*i.e.*, "Chinese Widow"); the largest river is Kina-batangan (or "Chinese rock-fringed stream"); and if ever the Chinese colonise that country again they will find Ginger roots awaiting them by the ton. I speak subject to correction, but I should say the fleshy rhizomes of any Hedychium or Alpinia would make good "ginger."

Colour and perfume.—Botany was in a state of chaos until the time of Linnæus, whose numerical arrangement of anthers and stigmas simplified the science into an order until then unknown. The natural system carried progress still further, but it is only quite recently that any attention has been paid to colour or to perfume as essential characters in the science of botany. You may read descriptions of plants by the dozen without getting the slightest information as to whether the flowers of the plants described are red or yellow or blue. In a word, colour has been to a great extent like the round 0 of our cricketing days; it has stood for nothing through decade after decade of classification. So, too, the perfume of flowers has been left to our Rimmels and Piesses, for it was held beneath the dignity of a botanist to tell us anything of these subtle things. Shakespeare, indeed, never forgot the main facts of Nature, and so he generally tells us that Roses are sweet and that Rue is bitter, but even yet colour and perfume are unknown quantities in the botany of to-day. The amateur gardeners are more exact, size and colour and perfume being essential points in their eyes. The absence of a yellow spot on the lip of a Coelogyne, or a few purple bars on the petals of an Odontoglossum may add fifty or a hundred guineas to the price of any individual plant. It may never be practicable to add the natural perfume to our coloured plates of flowers, but we may at least expect that some indication of their fragrance be conveyed in words.

Betonica alopecuros.—We have in this genus some very effective and free-growing garden plants. B. grandiflora forms a mass of red and purple flowers early in the year, and just now the species above named is very beautiful. It is known as the Foxtail Stachys, and is a plant a foot to 16 inches in height, and its erect leafy stems are each tipped spear-like with a conical cluster of flesh-pink or rosy-salmon flowers. Like all its allies, it is most readily increased by division in spring or in autumn—that is to say, either before or immediately after flowering. As seen here on a free, light and sandy soil both the above plants are very showy and well worth a place in even good gardens. Another good and distinct Labiate now flowering is Ajuga Brockbanki, a plant having clear blue spires rarely exceeding a foot in height and very pretty as seen at its best. In deep rich soil in a partly shaded place this plant is very attractive. The history of the plant is, as I believe, this: It appeared in Mr. Brockbank's garden at Didsbury, near Manchester, as a chance seedling, and was given by him to Mr. Smith when manager of the Newry Nursery, by whom it was named and sent out. As grown here it forms a solid sheet of blue, and is very beautiful as seen at its best in June or July.

Choretis (Hymenocallis) glauca.—This is not very common, but I consider it one of the very best of all the Bridal Lilies (Hymenocallis), all of which are as fragrant as they are fair. I have had bulbs of it for years; indeed, I started with three, and I should have had three now, but I gave one away, and it has been an annual pleasure to its owner. In a word, while the bulbs of this plant flower freely every season, they do not increase so fast as do some other species of this noble group. As seen in blossom, the plant is very shapely and effective. Five or six thick oblong leaves spread from the apex of the bulb, and from the centre appears a flattened scape a foot high or more, and the snow-white flowers radiate from the apex like a tiara or diadem. The leaves are of a pale glaucous shade of green, and not dark glossy green, as in H. macrostephana, nor are the flowers of H. glauca quite so large, but their purity of whiteness and delicious fragrance would be difficult to surpass. The old Pancratium fragrans is not equal to either of the above as a garden plant, and the narrow-leaved P. caribbæum is by comparison a weedy plant not worth pot room. Of course, all these Bridal Lilies are beautiful, but the best known to me are H. macrostephana and H. glauca. Among other bulbs in flower, Urceolina pendula is one of the prettiest, its elegantly-shaped dangling bells being generally admired.

Arundo conspicua.—Years ago a good pot of this New Zealand Grass used to be very ornamental in the Cactus house at Kew. At that time the plant was rare in Europe, but now it is largely cultivated as a hardy plant, and is just now very pretty as seen bearing aloft its silvery plumes each at the tip of a slender wand or stalk. It is earlier by six weeks, and, as I believe, much more graceful in habit than any form of Pampas Grass, and being of smaller growth it is also more suitable for small gardens. The great fault of the Pampas Grass is its lateness, so that in northern gardens its beauty is destroyed by wintry storms almost before it flowers. The Arundo is on this account worthy of a place, even if it be necessary to grow it in pots or tubs, so that it can be sheltered during the worst of winter weather. In most gardens, however, it will prove to be quite hardy, especially if planted on large banks or in dry positions amongst stones, so that it does not become water-logged during frosty weather. A few stones and a little coal ashes or sand will generally suffice to preserve it in exposed positions, and as seen at its best on the lawn, the plant is so graceful and effective, that no pains are too much if its presence be secured thereby. It is readily increased in the spring by division or from seed.

Calystegia pubescens.—I can generally manage to secure any plant that I wish to obtain, but, so far, this has beaten me entirely. The double-flowered variety is, I know, a weed in many gardens and grows well here, but I never saw nor heard of the single-flowered Calystegia pubescens. The common Kerria (Corchorus) japonica is another instance of a plant being common in a double state while the typical wild species is rare, but I have often met with the single form of it, and it is not uncommon in botanic gardens. Can anyone tell us of the single-flowered Calystegia pubescens? The double form is now very pretty, both as twisting about on the ground or as scrambling up bushy supports, its elegant growths being covered with axillary blossoms of a pale rose colour. It is easily naturalised at the foot of a low hedge of Privet or of Thorn, and as so grown forms a beautiful plant; or its roots may be planted at the foot of an Ivy wall on the Grass. In some places it rambles about so vigorously, that care should be taken in planting perennial Convolvuli of any kind. As a rule, they are safer and prettier isolated in beds on the Grass, where the scythe or the lawn-mower keeps their stolons within bounds.

Burbidgea nitida.—This orange-flowered Gingerwort is now flowering freely here potted in loam fibre on a well-drained bottom. We have two plants, and both are flowering on stems less than 12 inches in height. The individual flowers are rather fugitive, but as the buds open in succession this fault is not so great as it at first sight seems to be. Mr. Court once told me that it grew and flowered better in America than in English gardens, but we have had no difficulty with it, except that once we nearly lost it by its having been transferred to a close hot pit among some Nepenthes. When I first discovered the plant in Borneo it was growing on a dry hillside, its roots clasping the mossy boulders of sandstone and growing there in shady positions; its flowering stems were 20 inches to 30 inches high. Its rich orange-yellow flowers in spikes at the ends of the glossy-leaved stems are pretty, but growers always seem to have failed in its culture since the original plant bloomed at Chelsea seven or eight years ago. Our plants stand on a shelf facing the east, and so escape the mid-day sun. If the plants were potted in nodules of sandstone and fibrous loam in a pot drained as if for an Orchid, I fancy fewer failures would result. Its rhizomes are very aromatic, and quite scented the air, I remember, as I tore them off the rocks in Borneo, a country very

rich in Alpinias, Globbas, and other aromatic Gingerworts, many of which might be useful economically. VERONICA.

TREES AND SHRUBS.

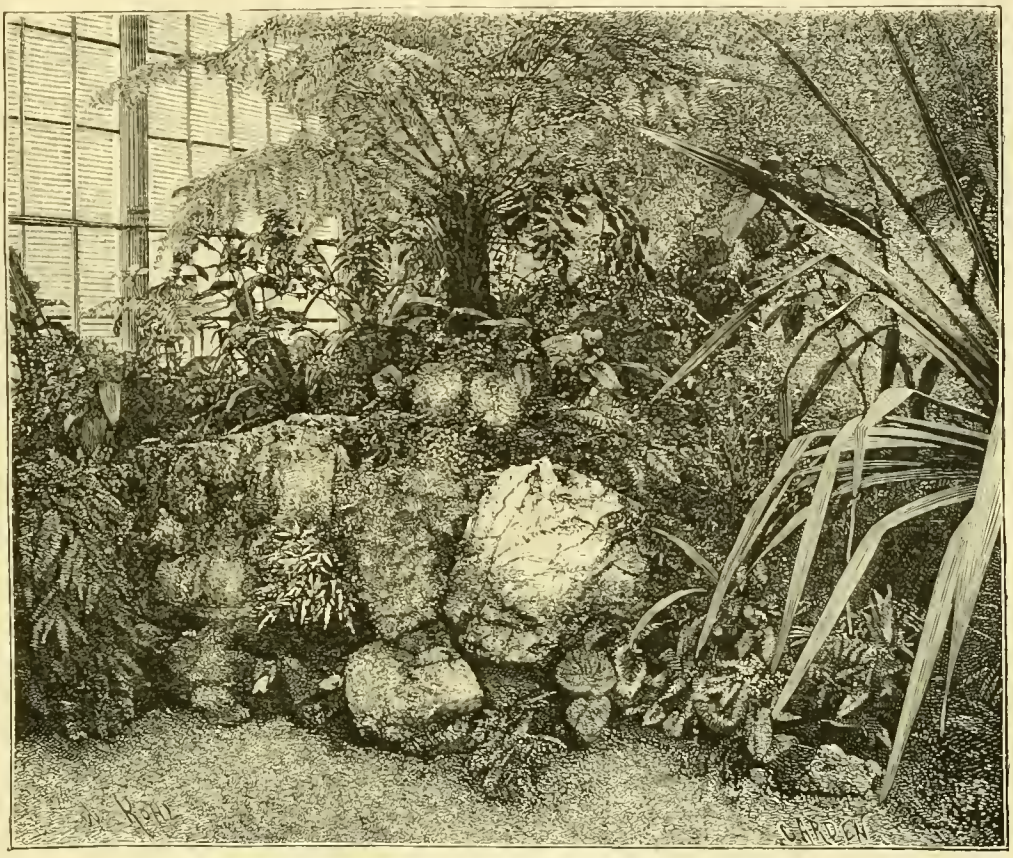
PLANTING STREET TREES.

DURING the past few years tree-planting in provincial towns has been carried out extensively, doubtless in imitation of the good effect produced on the Thames Embankment and other spacious thoroughfares in the metropolis, as well as in Continental towns. Street tree-planting, like most other new fashions, appears likely to be overdone, as already we find them being planted in thoroughfares where before there was barely space for the traffic. The guards necessary for protecting the stems are a great inconvenience to pedestrians, and the tops, if allowed to spread out in anything like a natural way, soon block up the house windows. To obviate this the most barbarous mode of pruning is often adopted — in fact, the trees look like the hideous pollards one often sees in country lanes and hedgerows. Whenever the town authorities undertake to provide trees for beautifying the streets, they should be certain that the positions assigned to them will allow of their growing to a reasonable size without the need of annual shearing, or there can be little doubt that such discredit will be cast on a really good undertaking, that before long we shall find street trees looked on as a positive nuisance, and they will be swept off root and branch. There appears to be little variation as to the kinds of trees used, Poplars, Limes, Sycamores, or Planes being used to the exclusion of everything else. Doubtless they are good trees in positions where there is unlimited space, but surely trees of less spreading growth than these could be found for streets of limited width. Let us hope that before long those in charge of street trees may educate themselves on the subject of trees, and choose kinds that will enable them to put away the pruning-hook, and allow the trees to develop themselves as such beautiful objects should do.

Gosport. J. G.

Spiræa bullata.—This shrub is more suitable for a rockery than a shrubbery, for if it be allowed to contend with ordinary shrubs it becomes overgrown and quickly succumbs, while on a rockery it forms a dense little bush less than a foot high, with small neat foliage and flattened clusters of blossoms, crimson in the bud state, but a deep shade of carmine-pink when fully expanded. It is just now in flower, and a clump of it here at the base of the rockwork forms one of its most attractive features, while a further point in its favour is, that a succession of bloom is maintained for some time. This Spiræa is of comparatively recent introduction, and up to the present somewhat scarce, but as it wins favourable opinions from all, and is, besides, of ready increase, no doubt it will soon be met with much more frequently. This Spiræa is a native of Japan, and is also known under the name of S. crispifolia, from the curled character of its leaves.—T.

Æsculus parviflora.—Though one of the handsomest of all hardy shrubs, and one, too, which is in full beauty when few others are in bloom, this North American Chestnut is comparatively seldom seen in this country. It is, however, perfectly hardy, and only requires to be seen to secure a fuller recognition of its merits. As a rule it rarely attains the height mentioned by Loudon, viz., 10 feet to 15 feet, and is perhaps best treated as a dwarfer subject, a number of the stems being cut away every year. A constant succession of strong shoots is thus secured, and these bear much finer flowers than those produced by older branches. Loudon sums up the good qualities of this species as follows: "The shoots are slender, spreading, and rooting at the joints where they happen to rest on the soil, with ascending extremities. The tree comes into flower about a month or six weeks later than the other Æsculaceæ and continues flowering, in the case of large plants on moist soil, for three months or longer, forming one of the greatest floral ornaments of the shrubbery, at a season when very few trees or shrubs are in flower. The fruit, which is small, seldom ripens in England, but in America it is said to be eaten boiled or roasted; and M. Poiteau, accordingly, has included this species of Pavia in his list of fruit trees." It has red leaf-stalks, glossy dark green leaves, and long paniculate racemes of white flowers, the long white filaments of which, surmounted by the red anthers, impart to them a fine fringed appearance. In various books, &c., this is found under the names of Pavia macrostachya, Æsculus macrostachya, Pavia edulis, &c. It delights in a moist situation or near water, and thrives well in a strong clay soil.—N.



Rocky fernery in the garden at Lehenhof, Scheibbs, Austria. (See p. 116.)

Potentilla fruticosa.—This pretty little flowering shrub forms a much-branched bush growing a yard or more high, with small leaves and bright golden blossoms nearly an inch in diameter. It will grow in dry sandy soils, and if not too dry will flower throughout the latter part of the summer; indeed, I have had it bloom from July till October, and this season it promises to do the same. This Potentilla is found wild in some parts of England, but, generally speaking, in a wild state it does not attain the dimensions reached when under cultivation.—A.

Double-flowered Brambles.—Though most Brambles are far more fitted for the wild garden or woodland, there are two or three kinds well worthy of a place even among the most select shrubs. The pink double-flowered form of the common Bramble is one of these, and most beautiful it is where allowed to ramble at will; but if no place exists in which this can be allowed, it may be kept to a bush shape by tying to some stakes, and occasionally shortening in an unusually strong shoot. In this way it will be now a mass of flowers, which, in addition to other attractive features, are of a most pleasing shade of pink. The closely packed prettily quilled petals suggest the name of bellidiflorus, which it is sometimes called, as well as R. pomponius flore-plena. Under whichever name it may be called this Bramble is very ornamental, while in spite of two or three names being given for double pink-flowered Brambles, as far as my experience goes they are all the same. The double white is altogether different from the last named, the petals being much broader and the blooms but semi-double. Being borne in clusters, they remind one somewhat of the Aimée Vibert Rose; indeed there is a much greater resemblance between these two in the shape of the flowers than is the case with the pink and white Brambles. This kind may be treated in the same way as the pink form, and, like it, is now in full flower. Another pretty double Bramble is R. rosæfolius, a small upright growing kind that flowers during the autumn and winter months, but it is of so tender and delicate a constitution, that it is only seen to advantage when treated as a greenhouse plant. To increase the hardy kinds of Brambles the best way is to layer the tips of the growing shoots, which will quickly root and soon form plants.—H. P.

Olearia Haasti.—It is only within the last few years that this Australian shrub has had attention directed to it from its valuable late summer-flowering qualities. Already it has become popular, and deservedly so, for it possesses many desirable qualities. It has proved itself to be perfectly hardy, at all events in the southern part of England, and where in a thriving condition few shrubs are more attractive at the present time,

for even in the case of small specimens they are so densely covered with good-sized clusters of small star-shaped pure white blossoms, as to present quite a mass of that tint, while even when out of bloom the neat evergreen foliage and compact habit of the plant render it valuable without taking into account the flowering qualities. When the clusters of blossoms are cut just as they commence to expand and placed in water, they remain a very long time without withering—more so indeed than most shrubs at this season. It is not difficult of increase by cuttings of half-ripened wood, put in sandy soil and kept under a close handlight or bell-glass till rooted, when they should be potted off and kept for a short time in pots before they are planted out. This shrub is also known as Eurybia parviflora, and is interesting from being one of the few composite plants of a shrubby nature hardy in this country.—Alpha.

THE WINTER IN YORKSHIRE.

Now that Mid-summer Day is past it may not be amiss to note the effects of the unusually prolonged winter of 1885-86 on the more or less tender trees and shrubs which we grow here, including, perhaps, an unusually large number of Coniferæ. I may say that our elevation is about 400—450 feet above the sea, and that the plants spoken of are all fully established, many of the Coniferæ, however, being seedlings raised here. I congratulate myself that the only real loss which we sustained was in the three plants Chamæcyparis sphæroidea variegata, Coronilla glauca, Desfontainea spinosa. The first of these was grown in an open, but sheltered, situation near a running stream; the two latter were planted against the house, with a south-west exposure. Until the end of June I thought that Desmodium penduliflorum and Aloysia citriodora (Verbena triphylla) in similar situations had shared the fate of the Coronilla and Desfontainea, but I find that this is not the case, as they are both throwing up strong shoots from the ground.

Of plants injured, but not killed, it seems strange to say that old plants of Rhododendron ponticum and Aucuba japonica, both of which are assumed to be very hardy, fared worse than most other things, whilst the numerous hybrid Rhododendrons, including some very choice ones of the Castle Kennedy strain, remain unhurt. Biota orientalis in a border near the house, with a south exposure and a wall behind it at 3 feet distance, was killed. In open places, the side exposed to the sun was destroyed, whilst plants in other situations escaped entirely, showing clearly that the damage was caused by the action of the sun during frost, which is, I find here, one of the greatest evils with which we have to contend.

The following, amongst others, escaped unhurt, viz., Abies Alcoquiana, Albertiana, Engelmanni, polita, and Smithiana; Athrotaxis selaginoides, Biota pendula, Cedrus atlantica and Deodara, Cephalotaxus Fortunei, Cryptomeria japonica and elegans, Cupressus Lawsoniana (many forms), nutkaensis, sempervirens, macrocarpa, and Lambertiana; Fitzroya patagonica, Olearia Haasti, Picea amabilis, baborensis, cephalonica, concolor, firma, magnifica, Pinsapo, sachalinensis, Veitchi, Webbiana, &c.; Pinus insignis, koraiensis, excelsa, and Pinea; Retinosporas of many kinds, plain and variegated; Salisburia adiantifolia, Sciadopitys verticillata, Sequoia sempervirens and argentea, Thujopsis and Thujas (many), and Torreya myristica.

These have all successfully resisted the inclement season: Cistus cyprius (ladaniferus) and the Rose Lamarque have for a fortnight contended as to which could be the most beautiful against the wall of the house, on which the hardier Roses are now a mass of bloom, having succeeded the Wistaria and various varieties of early-flowering Clematis. Lonicera sempervirens is covered with its scarlet tubes; whilst the brilliant Tropæolum speciosum scrambles up for many feet amidst the bright leaves of Chimonanthus fragrans, which, although 8 feet high, has not yet flowered with me. Hydrangea paniculata and Clematis Jackmanni give fine promise for the autumn; and Eccremocarpus scaber, killed to the ground during the winter, is trying, and I think with probable success, to reach the top of the house. In a sheltered corner Elæagnus argentea and aurea, two or three variegated Euonymi, and Azara microphylla are luxuriant. Bambusa Metake made shoots 7 feet in length last year, which the winter has curtailed to about 3 feet, and it is now pushing vigorously. During the spring the various Narcissi were as fine in their way as the Roses now are, and the alpines, including many Androsaces, Saxifrages, Haberlea, Wulfenia, Ramondia, &c., were never more flourishing.

The above will show that, despite the supposed disadvantages of a rainy and cold climate, the culture of a varied assemblage of plants may be successful in North-west Yorkshire. R. Milne-Redhead.

Ilden Clough, Clitheroe.

White Indigofera.—This is a white form of Indigofera floribunda, and though the pale blossoms are not so showy as the rosy purple ones of the type, yet it affords a good addition to summer-flowering shrubs. Unfortunately, these Indigoferas cannot be regarded as thoroughly hardy, for they are much injured during severe winters, unless protected by a wall or in some other manner. A good way when grown against a wall is to secure the branches thereto, and after the space is covered the plant or plants may be allowed to grow at will, and the slender drooping branches have a very pleasing appearance when treated in this way. An allied species, I. Gerardiana, with deep rosy pink blossoms, is another desirable kind, and may be often successfully treated as an outdoor shrub, for if cut back it quickly recovers and flowers most profusely even in a small state. These Indigoferas may also be grown successfully in pots; indeed, I was much struck with some plants of this white variety the other day in Messrs. Veitch's nursery at Coombe Wood, grown in comparatively small pots, and being laden with their pure white blossoms were most attractive. Some bushes against an open-air wall are also covered with bloom.—T.

Spanish Broom (Spartium junceum).—When the flowering season of most of the different kinds of Broom is past this one is at its best, and a goodly show it makes at the present time, as the curious Rush-like branches are crowded with large rich golden-coloured blossoms, and unless the weather be unusually dry, the specimens of it will continue to bloom for a considerable period. At the same time it will resist drought better than most other shrubs, as the roots take a direct downward direction, and are therefore less susceptible to its influence than in the case of shrubs that root near the surface. As the Spanish Broom will thus hold its own amongst most other shrubs with which it may be associated, it is useful for planting in a mixed border, and may be employed with advantage where a screen or belt of Evergreens is planted to shut out any unsightly object from view, as in the case of shrubs 5 ft. or 6 ft. high the Spartium will tower above them and give a goodly show of its beautiful golden blossom. It is a native of Spain, Portugal, and the south of France, and, according to Loudon, was introduced so long ago as 1548. Seed is readily produced, from which plants can be raised in almost any quantity. Loudon mentions a variety (flore-plena) regarding which questions have been asked from time to time, and having had the pleasure of seeing a specimen in full bloom, I may mention that the flowers are really semi-double, but the plant is less showy than the single form.—Alpha.

SHORT NOTES.—TREES AND SHRUBS.

Thujopsis dolabrata.—The chief defect of this handsome Conifer at present seems to be its slow growth, but in Japan it grows to be a tree which is described as of great beauty.—G.

Berberis coccinna is a charming little Himalayan Barberry, with small neat foliage, light green above and silvery white beneath. The pale yellow flowers appear in July and August, when scarcely any other species is to be found in bloom. It is a distinct and handsome dwarf growing Evergreen, and is most at home in the rockery or in the front of the shrubbery border.—N.

Pinus excelsa.—This Pine, the nurserymen say, is rarely asked for; but if planted and treated as recommended, it will prove an ornament to the pinetum or shrubbery, its long light-coloured leaves contrasting admirably with the foliage of the generality of the dark-leaved Pines. P. excelsa, when left to itself, has rather a sprawling habit of growth, the branches in most cases being widespread, to the detriment of the leading shoot. Trees of P. excelsa have been branch-pruned here, more or less, for the last twenty-five years. Such plants so treated have now assumed the habit of P. Cembra.—M.

The scarlet Oak.—Most planters who grow this fine American Oak are thoroughly aware of the beauty of its large leaves during the summer, and the brilliant autumnal colour they assume before being shed. It grows, too, in almost any soil, and soon forms a distinct and handsome tree. The beautiful tints of the second growth are also a recommendation; in the arboretum at Kew and in other places trees of this species are now very conspicuous, the bronzy red of the young shoots and leaves forming a striking contrast to the older foliage.—N.

WORK DONE IN WEEK ENDING AUGUST 3.

July 28 to August 3.

Having been too busy to make any but the most fragmentary notes, and these most irregularly, this week's account of "work done" is made from mental recollection only. Except an hour's rain in the early morning of August 2, the weather has been fine throughout, so that there has been no interruption on that score. Fruit gathering for preserving—Raspberries, Currants, and Gooseberries—we have completed, and a few trees of each have been netted over to preserve them for future use. Cleared off old plots of Strawberries, and after drawing drills between the rows, planted out at 2 feet apart Purple Sprouting Broccoli, Cottager's and Ragged Jack Kales, three of the best and hardiest types of winter greens that can be had; made the last sowing of Turnips, also of Peas and French Beans. Dug up early Potatoes; they are a remarkably heavy crop, and free from disease; this ground will now be utilised for a late crop of Cauliflowers—Early London and Walcheren; Autumn Giant is longer in coming to maturity, else that variety would be the best to plant. Our last batch of this kind was planted out a fortnight ago. Flower gardening now takes up the bulk of our time, there being always some tying up of plants to be done, not to mention the immensity of pinching and picking over of beds to keep all in neat order, the designs true in their outlines, and the edgings of beds and walks regularly cut, for without such neatness the arrangements, however good, do not afford that amount of pleasure that all have a right to anticipate from a flower garden. Cleared and weeded among-st Ferns and rockwork. The few Phormiums, Bamboos, Ferulas, and Eucalypti that we have about this garden are by far the most charming hardy plants to use as sub-tropicals, and associate well with such annual types as Castor-oi's, Solanums, Chilian Beet, variegated Maize, and Hemp. Lobelias, Calceolarias, Violas, and Verbenas flower so persistently in the early summer, that to keep them in a flowering state the summer through it is necessary that they be regularly kept free of seed pods and be well supplied with water. Lobelias we cut partially over twice or thrice during the season, and this conduces to the production of new shoots from the bottom, and also ensures a bushy habit of growth by causing the plants to make side shoots from the main stem, and consequently we get a succession of flowers. The self-same treatment is applicable to Verbenas, and should be practised if there be any danger of the plants flowering to death. Picked bad flowers and seeds off all plants in vases, and watered them with manure water. This is needful at least once a week, unless the vases, which is very rarely the case, are extra large, and consequently the soil does not get so quickly exhausted. Work about the houses has not been very varied; it has consisted of Strawberry potting, and also of the potting of sundry odds and ends of plants; pinching Vine laterals and tying Peaches and Nec-

tarines to trellis. Staked bush-formed Chrysanthemums, and pinched side shoots off plants that are grown for the production of large flowers. Got out fruiting Pines from pit, and put them in cool house to retard them till required. Watered inside borders of several houses; also Pines; and tidied up the beds by putting a slight covering of Cocoa fibre over the leaves. HANTS.

HARDY FRUITS.

CROPS of fruit on wall trees generally are fairly good; Peaches and Plums super-excellent, and Pears will be more plentiful than we at one time anticipated. Moreover, trees of all kinds are remarkably clean, but the fruit is decidedly late; indeed, some of our finest varieties of Pears are so far behind, that it is questionable if the brightest autumn will finish them properly. With this disappointing prospect before us, it will not do to lay down our oars and drift with the stream, as such a course would be sure to lead us into breakers. What then must we do? Why, look round and see what can be done to help the trees forward and hasten the swelling of the fruit. Cleanliness and moisture at the root are decidedly in our favour; all we now want is sun heat and warm nights; the rest is in our own hands, for we can keep all growths thin and closely nailed into the walls to give them the full benefit of every reflected ray, and we can pinch every lateral and sublateral where their presence is likely to rob the fruit or produce too much shade. To this end, then, let every Peach tree have two dressings where in forward seasons it might do with one; pinch the points out of shoots which will not be wanted after the fruit is gathered, and let every leaf and shoot retained for next year's fruit-bearing have free exposure to light, air and sunshine. Keep the foliage clear of spider by washing it once or twice a week with pure water; if warm, so much the better; and protect the surface roots from drought by mulching the 4-foot way with fresh stable litter. As growth advances and the fruit begins to colour turn the leaves aside, but do not cut them off, as some advise, for much as this practice may check the vigour of the tree and hasten maturity, the time gained is purchased by the sacrifice of size and flavour. Apricots require similar treatment, not so much on account of the fruit as the wood and spurs, as we often see trees in favourable situations ripening their fruit under the most primitive method of summer management; but these favourable spots are exceptional, and for this reason the treatment under which they thrive is by no means applicable to nine-tenths of the trees grown throughout the kingdom. Let pinching, training and mulching then be regularly performed, and on no account allow the roots to feel the want of water, for much as Peaches enjoy an abundance of this element, the Apricot in a well-drained border is capable of taking more. It is neither wise nor necessary to water during the time the fruit is hanging in a ripening condition, as well managed borders are watered and mulched before that stage is reached, but copious washings with the hose again become necessary after the fruit is gathered. Here a word as to mulching may not be out of place. All admit that the mulching of south wall borders is a great help to the trees as well as the fruit; but enthusiasts do not always exercise a wise discretion in the selection of suitable materials. When hardy fruit trees show unmistakable signs of weakness from poverty, rich, solid manure is the proper material, as it keeps the roots cool, and constant washing in soon changes the character of the growth and increases the size of the fruit. But Apricots and Peaches planted with the greatest care we are capable of bestowing always grow quite strong enough in the compost prepared for them, and become unfruitful and unmanageable when the growths are gross and root-lifting is neglected. Moreover, the roots as well as the shoots must have warmth to ripen them, otherwise bud-dropping, blister and gumming soon settle the account with the trees. Of two evils then it is best to choose the least by erring on the side of moderate growth of root and shoot, and getting them well ripened before winter sets in. Moisture, it is true, must be kept in the borders, otherwise the most valuable roots will suffer and the fruit will ripen prematurely; but this difficulty can be met by the use of stable litter, which, while preventing evaporation, will let in sun heat and air, and feeding where necessary can be supplied in the form of diluted liquid or artificial manure.

PEARS

must be kept closely pinched, and the leading shoots nailed or tied into the walls or trellises. Some kinds, notably Marie Louise, Louise Bonne of Jersey, the old Crassane, Pitmaston Duchess, and that excellent Pear Josephine de Malines, have set heavy crops and require much thinning. From these we have removed all the small and deformed fruit to favour the full development of those left, and trees on the Quince stock have been well mulched with half rotted manure, a material which the surface roots thoroughly enjoy. Many of these trees having been root-pruned or entirely removed in the autumn of 1884, aphis and drought prevented them from making much progress last year, but they took well to the new loam, thanks to a plentiful supply of water, and formed more flower buds than were needed for a crop. To these an extra supply of mulching has been applied, but a portion of it will be cast over the vegetable borders and forked in when the time arrives for letting warmth and drought into the soil in October.

RASPBERRIES AND CURRANTS

having made an immense growth of young and rather soft wood, the first should be well thinned down to five or six of the best canes, when the old ones are cut out and carefully tied with strips of matting to secure them from injury in wet and windy weather. The fine rains of the past fortnight having penetrated the quarters, the canes retained will become very strong, and the season being late, timely thinning to let in light and air is of more than ordinary importance. The Currants we thin out and shorten back to keep the trees within bounds, and let the sun into the spurs as soon as the fruit is gathered, while those upon which we wish it to hang for late use are slightly thinned, but not shortened, as we find a moderate quantity of foliage the best protection from sun and birds when other soft fruits become scarce. We do not, however, trust to foliage alone, as nothing short of stout herring netting will keep out those greedy marauders.

GOOSEBERRIES.

The heaviest crop we have had for some years has made very little wood; consequently the fruit is quite open to feathered foes now the fruit is ripe, but friends in the past, as immunity from insects is, no doubt, due to their vigilance through the early part of the season. To circumvent these and prevent them from taking more than their well-merited share, we transfer the nets from Raspberries to the Gooseberry quarters, and elevate them sufficiently to allow the pickers to pass underneath them. The worst pests we have to contend with are wasps; although abundant in the spring, they have not yet put in an appearance, and at the present time the weather, unfortunately for the crops, is against them. Nottingham or some other light small-meshed netting is the best protecting material, and this should be applied to trees or bushes before the wasps attack the fruit.

STRAWBERRIES

from which the crops have been gathered should forthwith be divested of runners, sticks, and ties to let in light and air. Old beds intended to stand another year, after being cleared of weeds and loose straw, will well repay another mulching with good rotten manure or fresh heavy loam to draw out new and feed existing surface roots. Where the land is light and unfavourable to the Strawberry, there should be a steady and constant gathering of suitable materials throughout the season for this purpose. Roadside parings, old Melon soil enriched with liquid, old lime rubble, anything, including marl, that is fresh, rich, and heavy, together with a fair quantity of soot, can be got together in an out-of-the-way place in every garden, and if turned over occasionally, it will be found invaluable for top-dressing or planting. If new beds have to be made, and the ground is vacant, no time should be lost in getting it properly prepared and planted. So much having recently been written, every reader of THE GARDEN now knows the Strawberry requires deep, rich, heavy soil, firm planting, plenty of room, and good mulching.

THE ORCHARD.

Now is the time to look through the plantations, and continue notes on the health, vigour, and general good or bad qualities of the trees. If too thick on the ground the least promising trees should now be marked for cutting down to let in light and air, as overcrowding is one of our greatest failings. The great difficulty we have to contend with in old orchards is the immense number of trees without names; but this can be got over by attaching numbers and entering them in a book, together with notes, until the varieties, if good, can be determined. If the autumn examination proves them to be bad, the sooner they are grafted or cut down and reduced to ashes for top-dressing the better. Apples this year are partial, and many trees are not in a condition for testing by their fruit; but work of this kind cannot be taken in hand and completed in one season. All that is wanted is a system of close observation; time and attention to the removal or improvement of that which is bad and the encouragement of the good will soon tell on the appearance and value of our most neglected orchards. Since my report was written I have examined a great number of small holdings on the fringe of the Hereford and Worcester plantations, and find my remarks that the crops will turn out better than was at one time anticipated more than realised. The best orchards are those which have been well grazed by stock or get an annual top-dressing. The lightest and poorest crops are on large farms where this system is only partially carried out or altogether neglected. In the first the trees will return a handsome profit; in the second the yield will be small and disappointing. Autumn and winter are no doubt the best seasons for draining and general overhauling, but the present is not an inopportune time for top-dressing. If the trees are carrying heavy crops, artificial or animal manures will improve the quality of the fruit and most likely insure a good set next year; if they are fruitless, a step in the right direction cannot be taken too soon.

Newly grafted trees should be examined, and the strongest of the young growths secured to sticks to prevent them from being blown out by the wind. This point secured, the less they are interfered with the better, as wild growth from the stems of large trees keeps the sap in motion and very often prevents them from going wrong in dry seasons. Notch cleft-grafting is the best system for mature stocks, as there are neither ties nor ligatures to look after; consequently the clay need not be disturbed at a critical time. Young stocks, on the other hand, on which the scions are growing and swelling fast should be examined, and the ligatures cut to favour free expansion at the union. The clay need not be removed, although the trees will do equally well without it. A few training sticks inserted in the ground, to which the young growths can be tied, will save many of the best from destruction in gusty weather. Young trees, like the old ones, we allow to make all the growth they throw out the first season, and only shorten back the second. We also frequently introduce three grafts where ultimately there will be left but one, as every leaf and twig the first year gives life to the closely-headed stocks, while the superfluous wood makes the best of scions for future use.

BUDDING.

We frequently are told that the finest of the old sorts of Apples are dying out, and so great is the prejudice on the part of native grafters, that they positively refuse to put on the scions. Grafts from old stunted trees no doubt make weak growth; the second generation is stronger, and the third is still better; but three removes take time, and as buds can always be obtained, the best way to resuscitate old sorts is by inserting them on the Paradise stock, the which, if healthy, will produce the best of wood for grafting on the free stock. One instance I will give. My grafter refused to put in grafts of an old favourite, the true Flanders Pippin. Unwilling to jeopardise his skill, I gave way. Buds were inserted on the Paradise, and next season he will have clean wood the thickness of one's forefinger and set with flower-buds, with which he will go away rejoicing. The budding of Apples in August

is very simple, and although I do not wish to tread on the nurseryman's heels, private growers who cannot buy any particular old sort true should certainly adopt this mode of helping themselves out of a difficulty. W. Coleman.

Eastnor Castle.

Indoor Garden.

POT CULTURE *v.* PLANTING OUT.

Experience has proved that there are a few greenhouse plants, and also some of the occupants of the stove and intermediate house, that succeed better planted out than in pots. For instance, some strong growing climbers, whose roots will not bear disturbance or breakage, do better in a bed of well prepared soil than in pots, as if kept in the latter they quickly exhaust the soil to such an extent, that it becomes difficult to keep up the requisite vigour in a way that will admit of sufficient shoot extension to afford the desired amount of bloom. Camellias, also, when they have attained considerable size, and where it is desirable they should fill as much space as possible, usually make more progress when planted out than when their roots are more restricted. Old plants of these, when they have got into a stunted condition, recover more quickly when turned out than they generally do if kept in pots. Stove climbers, as a rule, are much less impatient of having their roots disturbed by the removal of the old effete soil than are the kinds that thrive in a lower temperature, yet in the case of such things as Allamandas, the strong growing Thunbergias, and a few others of like character, it is sometimes found advantageous to plant them out, provided the space allowed is not so much as to induce them to make an undue amount of top-growth, for when this occurs the result is that the climbers shut out the light from whatever plants occupy the body of the house underneath in a way that reduces them to a state in which they are useless, unless the knife is used to an extent that is objectionable in several ways. It is scarcely necessary to say that the size and character of the house have much to do with the way in which the plants to be grown should be managed.

In structures as large as the Chatsworth conservatory, or the Palm house at Kew, planting out admits of being carried to an extent that is out of the question in smaller structures, and where there is room it is desirable that large growing plants should be treated in a manner that will allow them to show as much as may be of their natural character in the way that kinds that attain a large size are enabled to do when their roots are not restricted. But a common mistake now made is in turning plants out in beds in houses that, from their insufficient size, are wholly unsuited to this system of cultivation. This error is oftenest seen in Fern houses and in conservatories of limited size; in the former where a more or less attempt is made at growing the plants in the natural style and amongst artificial rockwork, planting out is right, provided the kinds selected are moderate in size and suitable for the house. Yet as often as otherwise some of the large tree species are planted out where, through the unconfined run their roots have, in a few years the heads grow to a size that is not only out of all proportion to the structure that contains them, but also causes them to smother all others that are overhung by them. The same thing occurs in conservatories where Palms and Tree Ferns are turned out in beds where they quickly reach a size such as compels their being removed, which, in the case of Palms, means destruction, as the plants rarely do any good after the loss of roots unavoidable on taking them up after being planted out. And as regards Tree Ferns, they so far dislike the loss of roots consequent on removal, that they are some time before they get over it. The fact is, that when plants of the character named are turned out in unsuitable places a mistake is made like that which is often committed in tree planting in pleasure grounds, where it seems as if there was an absence of any thought that the plants would grow larger.

If a house of the character under notice should be occupied by some half-dozen plants alone, planting out would be the right course to take. But the object which it is most desirable to attain is to get as much variety as possible by adopting a course of cultivation that will give accommodation to as large a number of plants as can be kept in a thriving state. This, fortunately, can be done with the plants grown in pots, tubs, or boxes by the plunging of which in beds a natural appearance is secured, with the advantage that whilst the growth of the plants is thus necessarily restricted, they can be kept for a long time in a healthy condition, such as will admit of their showing sufficient of their natural habit to satisfy reasonable requirements.

During late years some attempts have been made to plant out permanently various kinds of flowering stove and greenhouse plants in addition to such as have been already spoken of—Gardenias, Eucharises, Roses, &c. The advantages claimed are, that labour is saved in watering, and that the plants make more growth. Something may be set down to the former, as the roots will not dry up so quickly in a bed as they will where confined in pots. As to a greater amount of growth being obtainable where the roots are not confined, this is deceptive, for, though the plants so circumstanced may individually under ordinary cultivation make more growth than when in pots, still the house in which they are grown can only hold so much, and so, supposing that they grow larger individually, fewer would fill it. As to the quantity and quality of the flowers produced, which are ordinarily the chief considerations in the matter, plants in pots occupying a given space when they get right treatment will yield as fine flowers, and quite as many of them, if not more, than when planted out. For the longer, more straggling growth that always is made where plants have an unrestricted root-run does not admit of as large a number of flowers being forthcoming within the same space.

It may be urged that on account of some of the plants that are subjected to planting out getting larger than they often do when in pots, something would be saved through fewer being required to fill a house. But the kinds generally so used are so easily increased, that nothing worth naming can be reckoned on that head. All that can be set down in favour of planting out *versus* pot culture is the saving of time in watering, and against this there are two objections which much outweigh the gain thus claimed. The first is, that there can be little control brought to bear on the time of flowering of the plants so managed; they are fixtures; nothing can be done in the way of moving a portion of the stock of any particular kind, either when it is desirable to bring them on into bloom or to retard them; all necessarily have to come on together. This is inconvenient enough when a house is filled with one thing, such as Tea Roses, for instance, but it is worse when the turned-out plants, as they often are in private gardens, are in a house with various other things that need to be either brought on or kept back in a way opposite to that which the turned-out plants happen to require, the result being that the flowers either come in when not required, or are not existent when wanted, or do not open in the right quantity to give the needful succession. The second objection is the difficulty that exists in dealing with insects, which are inseparable from plants that are in a fixed position under glass; in the case of any that are subject to the attacks of scale or mealy bug, the labour of cleaning them and the waste of any kind of insecticide that is used, are very much more than where the plants individually can be moved and placed in the best position for ridding them of the pests with which they may happen to be affected.

It might be supposed that if the planting-out system answered anywhere, it would be with the leading market growers, who, from the quantities they cultivate of the various things they take in hand, often have a number of houses occupied by the same kind of plant, concerning which they would find it to their advantage to adopt the practice. Yet all that I have known who have tried the proceeding have given it up, finding that any apparent gain attached to planting out was overbalanced by the drawbacks that I have pointed out. T. B.

Garden Flora.

PLATE 556.

LILIUM LONGIFLORUM.

(WITH A PLATE OF L. LONGIFLORUM HARRISII.*)

Of L. longiflorum several varieties exist in gardens, but amongst them Harrisii has had by far the greatest share of attention paid to it. This variety is also known as the Bermuda Lily, a name under which a fine spike bearing five flowers was shown at South Kensington by Mr. G. F. Wilson in June, 1883. It is thought to be superior to the ordinary longiflorum in regard to the following points: first, its precocity when forced, blooming as it does in January; secondly, its being more floriferous, large-sized bulbs yielding five and even eight blossoms; thirdly, its prolificacy as regards reproduction, single scales making flowering bulbs in one year, and small bulblets of the size of Peas flowering the first year after being potted. Mr. Hovey, with whom this Lily is a great favourite, has always strongly advocated its claims; when it flowered at Kew, and was decided by Mr. Baker to be the same as eximium, he wrote thus respecting it: "I have had some 500 plants of Harrisii in flower for over six months; potted in October, they began to flower in February, and I could cut to-day (July 24) twenty-five lovely flowers from the same plant that flowered at Easter, when I had a magnificent show, and disposed of quantities of plants 3 feet high, some with two stems and some with only one each, being furnished with from three to five flowers, though the bulbs were very small. No eximium ever did this, besides which it is very much larger, being nearly twice as large as longiflorum." Our supply of L. Harrisii seems to have been from two sources, firstly from Bermuda, and secondly from the United States. The Bermuda bulbs are mostly much larger than any of longiflorum which we are accustomed to see; they produce a stem from 3 feet to 6 feet high, crowned with from three to eight of such blossoms as are here depicted. If treated as a greenhouse plant this Lily blooms during the latter part of June and in July, and soon after flowering, that is before the stems are dead, two or three shorter ones are pushed up from the bulb, and these generally bear one or two blossoms each. In this way a succession of flowers is often kept up till Christmas; indeed, at that time we had several flowers of this fine Lily in full beauty, as well as two or three late blooms of L. neilgherrense. The American bulbs are, as a rule, much smaller than those from Bermuda, but in proportion to their strength they are quite as prolific as regards the production of a second crop of stems, though being weak many of them do not flower. Harrisii differs from L. longiflorum in having narrower leaves more scattered on the stem, and in the flowers being less reflexed than those of the typical kind, while a side-by-side comparison of plants of equal strength of eximium and Harrisii when in flower would lead most people to decide that they were the same; but eximium, as grown in this country or imported from Japan, does not yield a second crop of flowers as freely as Harrisii, though it does so to a certain

* Drawn in Mr. Kendall's garden, Cornwall Lodge, Kingston Hill, July 10, 1885.

LILIUM LONGIFLORUM HARRISII

extent. These characteristics belonging to Harrisii may, however, disappear after a few years' cultivation in this country, but at present it is certainly the best of the longiflorum class.

L. longiflorum itself has long been known in this country, having been introduced from Japan early during the present century. Its name is now, however, a misnomer, its flowers being surpassed in length by those of L. neilgherrense, philippinense, and Wallichianum. Amongst other more prominent varieties of L. longiflorum, besides those just mentioned, may be named Takesima, the principal distinctive feature of which is the purplish tinge that exists in the exterior of the blossoms, especially when in the bud state. In the variety albo-marginatum the leaves are clearly edged with white, but the flowers are the same as in the ordinary form, but are sometimes rather more satiny in texture. A very distinct variety of L. longiflorum is formosanum, introduced from the island of Formosa. This possesses several features so well marked as to almost, if not quite, entitle it to rank as a distinct species. It has more the character of L. philippinense than that

Bulbs of Lilium longiflorum.

of longiflorum, being a slender-habited plant with narrow leaves, but the flowers, instead of being very long, as in L. philippinense, are shorter and rather more widely expanded than in the other varieties of L longiflorum. They are pure white within, but tinged with purple on the outside. Another name which frequently crops up in catalogues is Wilsoni; but as usually grown I fail to see any difference between this and eximium.

The culture of L. longiflorum and its varieties is comparatively easy; while many Lilies are difficult to deal with, these can be not only grown and flowered well, but increased to almost any extent. If planted out of doors the most suitable soil for them is a good, open, sandy loam, in a well-drained, but, at the same time, not dry spot. The bulbs should be at least 6 inches below the surface, and if the soil is at all holding, a good plan is to surround them with sand. In common with all other Lilies, these are most effective when arranged in bold masses or clumps, instead of being dotted singly here and there. To the outdoor culture of these Lilies a couple of objections might be raised, viz., should the weather prove showery, the yellow pollen stains the spotless purity of the blooms, and, moreover, in showery weather the tube splits, and the flowers present a ragged appearance.

As L. longiflorum and its varieties readily submit to pot culture, great numbers are grown in that way. The bulbs should be potted as soon as received in a good open loamy soil with which a little well decayed manure has been incorporated. They may then be placed in a spot sheltered from very heavy rains (if in a frame plenty of air must be given them) till signs of growth make their appearance above ground. If required to bloom early, the most forward may be then shifted into a warmer structure—say, a good light house in which the winter temperature ranges from 50° to 60°. Treated in this way the first lot will bloom in March, and by introducing occasional batches, a succession of blooms may be had till they open on plants out of doors. The long-tubed forms, either eximium or Harrisii, are much more amenable to forcing than those of the ordinary type. The sized pots in which they should be placed will depend upon the purposes for which they are required; for a good-sized single bulb a pot 5 inches in diameter will be needed, while three bulbs in a 6-inch pot form useful little specimens, but, if required, large pots can be filled with a number of bulbs, and thus form large clumps. The relative sizes of pots refer, of course, to ordinary bulbs, and not to the very large bulbs of L. Harrisii, that are imported from Bermuda, some of which will fill a pot a foot in diameter with roots. Thorough drainage is as great a necessity in pot-culture as in the open ground; the roots must not on any account be allowed to become dry; when well drained, copious supplies of water can be given without danger. When the buds begin to swell, weak liquid manure will be of service. The greatest enemies of these Lilies are aphides, which increase most rapidly, and not only injure the foliage, but cause the buds to become deformed, so much, indeed, that unless checked, very few flowers will open properly. Fumigation, or dipping in tobacco water, will kill these pests. L. longiflorum and its varieties can be quickly increased to an almost unlimited extent; when growing freely not only does the principal bulb often separate into two or three, but minor offsets are also produced, and the buried portion of the stem is generally thickly studded with small bulbils, that rapidly increase in size when detached from the parent plant, and soon become strong enough to flower. Another way, and one that has been largely followed in the case of Harrisii, is to strip off some of the outside scales, an operation that can be done without injuring the bulb in any way. These scales should then be laid in pans of light sandy soil, and just covered with the compost. If placed in a warmish structure they will form small bulbs by spring, when they have still a season's growth before them till autumn sets in. The smaller scales may be planted entire, and the larger ones separated in the middle without any ill effects.

H. P.

THE EDGE HALL ROCK GARDEN.

In my opinion there is no gardening like hardy plant gardening, and especially like that on rockwork and mounds. I have just returned from a visit to a well known garden in Cheshire where rockwork gardening is admirably carried out. Pressing home work keeps me from many pleasant and instructive visits, but being obliged to go to the neighbourhood of Liverpool, and having my son with me, I could not resist the pleasure of a few days at Edge Hall. Much had been done since my last visit, and the rockwork, with its varieties of stone, is wonderfully successful, and shows what energy, perseverance and study, assisted by an excellent library, will do in a climate colder and damper than that of our home counties. Many of the plants, some of them difficult ones, grow in such vigour, that it shows that the climate suits them, but sheltering rock and judicious lightening of soil make others grow which prefer warmer and drier situations. Campanulas have always been favourites with Mr. Wolley Dod. Some of the rarer ones were simply masses of bloom. A favourite plant of my old friend Mr. Atkins, of Painswick (Onosma tauricum), had grown more luxuriantly than I ever before saw it. Arnebia echioides showed itself thoroughly at home, as did many of the rare Saxifrages. I will not attempt to enumerate the different plants which are in great numbers and many of them rare. I was much interested to find that Mr. Dod, by his broken granite, had arrived at results which we have been attaining by different means, but on the same principle. In his garden beds Lilium pardalinum in all its varieties and L. testaceum were very fine and in great vigour, and in a rough cold Lily house L. Parryi, L. Humboldti, L. Washingtonianum and L. dalmaticum were as fine as I have ever seen them under any treatment. People often speak of gardening as a pleasant amusement; it is, of course, a pleasant occupation, but, carried out as it is at Edge Hall, it is a study, and as much a science as any of the other more recognised sciences. In conclusion, I would advise anyone with plants, especially alpines, which they cannot master to send some to the Rev. C. Wolley Dod, Edge Hall, Malpas, Cheshire, and I shall be surprised if he does not discover how to make them grow. G. F. Wilson.

Heatherbank, Weybridge.

MARKET GARDENING IN MIDDLESEX.

The dripping weather which we are now having is decidedly favourable to market gardening operations. The chief market gardens in my neighbourhood have a light and rather stony soil, from which water passes away freely, and thus it is soon workable. In a large plantation of standard Victoria Plums, planted about six or seven years ago, the crop is a very small one; it does not average more than ten or twelve fruits on a tree. Last year the trees bore enormously, their branches being borne down to the ground by the weight of the fruit that was upon them. This spring there was abundance of blossom, but, owing to the heavy crops last year and partly, perhaps, to the drought of last year and the inclement spring of this, there is little fruit. The trees are, however, making grand growth, which indeed fruit trees everywhere are doing, and they appear to be wonderfully free from blight. Trees bearing a light crop this year appear to be very thickly furnished with fruiting spurs for next season. Raspberries grow between the lines of Victoria Plums, and, being moist at the roots, they produce excellent crops, which are now being gathered for preserving. Close at hand is a piece of Early Dwarf Erfurt Cauliflower for seed purposes; it is in full bloom, and the plants are singularly clean and free from blight. Nothing else belonging to the Brassica tribe is in flower near it for miles round; therefore no fear of injurious fertilisation need be apprehended. The plants were put out very early in spring in patches of three under hand-lights, and, being in a warm sheltered spot, they did remarkably well despite the trying spring weather to which they have been subjected. This year for the first time, according to my own observation, Leek seed was drilled in the open ground. Hitherto it has been the practice to raise the plants in a seed-bed in a cold frame and transplant. Last year but few of the Leeks comparatively that were transplanted matured well; it was hot and dry when they were put out and scarcely any rain fell, the result being that the Leek crop almost failed, because so little growth was made. The Leeks sown in the open are now very strong plants, and in another month or so will be large enough to market. It was necessary to thin out some of the plants, and such thinnings were used to fill up vacancies in the sown lines in which there were gaps. A great many young plants sown in the ordinary way have just been put out, and the showery weather is enabling them to get a good start. Leek culture appears to be extending in this part of the county.

Tomato growing is extending wonderfully in the open air in this district. One grower has nearly three acres on light, stony land, and no crop could look better.

The sort mainly grown appears to be an early and free-bearing variety of the ordinary Large Red type. A good mulching of long manure, as brought from London, has been placed between the rows, and now the workmen are going over the plants and pinching out the laterals, so that the fruit—in the case of the earliest plants half developed—may have the full benefit of sun and air. The plants are about 2 feet or so in height, and have two and three main stems. If the weather proves favourable there will be a heavy crop, and it is said to be a good paying one.

The ground cleared of spring Coleworts was, some six or seven weeks ago, planted with Brussels Sprouts, and the plants have already acquired considerable size. A large space of ground on which scarlet, purple, and white Ten-week Stocks for bunching for market grew has been planted with Coleworts, which will be marketed in autumn. Spring Cabbages are already above the soil in the seed beds, and they appear to be unusually free from fly. Large breadths of Turnips have just been sown for autumn. Runner Beans are now good. They were late in starting into growth, but having done so are now growing freely. Here it is the practice to sow clumps, each consisting of three beans; then three sticks are placed, one to each plant, and tied together at the top. They are from 4 feet to 4½ feet high, and thus supported beans are produced in abundance. The sort selected is the Painted Lady, chosen no doubt on account of its earliness. By the side of them are lines of dwarf Negro French Bean, a universal favourite with market gardeners. There are gaps in the lines showing that weather and slugs had at one time checked their growth, but the plants having been earthed up within the last week or so are now doing well.

Vegetable Marrows are doing well this season. Last year it was difficult to get anything like growth into the plants put out in the ordinary way, owing to the drought; now they are growing with great freedom and bearing large crops. A good selection from the long white Marrow appears to be the favourite kind here. Some of the market gardeners who have plenty of frame room raise plants of Vegetable Marrow in early spring, and plant them out in the frames, covering them up carefully at night, and giving adequate protection in frosty weather. These plants furnish an early supply under glass; then, as soon as the weather admits of its being done, the lights are removed, and the extending shoots are allowed to overflow the sides of the frame, and spread themselves over a large space. In this way a good supply of Marrows is got into market early, when prices are remunerative. A good surface mulching of long manure is always given to Vegetable Marrows, and this tends to keep the surface soil cool and moist, and prevents the fruit from becoming splashed through rain.

The Beet crop looks wonderfully well. The sort grown is what is known as the Covent Garden, or Pine-apple Beet, a handsome dark variety. The Dell's Crimson-leaved type is too small for market work, though so rich in colour. Ugly shaped roots of Beet, not good enough for market, are manufactured into dog food. The summer crops of late spring-sown Fulham White Cos Lettuce will soon be ready to pull. Ground occupied by early-sown plants will be planted with Coleworts and Cabbage for spring, and successive crops of White Cos Lettuce are now being dibbled out. R. D.

Adiantum rubellum.—Most Ferns are remarkable for their fresh greenness, but several of the Maiden-hair kinds are delicately tinted with dark rose or rosy purple. A. rubellum is one of the most ornamental in this respect, its delicate fronds being richly tinted with a roseate hue, which is all the more apparent when contrasted with other forms of the Capillus-veneris section to which it belongs. The plant is dwarf and compact in habit, and its elegantly tinted fronds, which are produced in abundance, vary from 6 inches to 8 inches in length. It is a native of Peru, and to Messrs. Veitch & Sons, of the Royal Exotic Nursery, Chelsea, we are indebted for its introduction to our collections. It grows well in a cool fernery, or anywhere where there is a very moderate temperature. Its culture is as easy as that of other Maiden-hair Ferns; it should be treated to fresh fibrous peat and sand, together with a moderately humid atmosphere and a liberal supply of moisture at the root when growing.—N. B.

Fruit Crops.

SUPPLEMENTARY ENGLISH REPORTS.

Tortworth Court, Falfield.—Fruits hereabouts this season are most abundant. Peaches and Nectarines are over the average, and good. Apricots are very good. Apples quite an average crop, and promising to be good. Pears and Plums also most abundant. Cherries are over the average, and good bush fruits of all kinds are excellent. Raspberries a full crop and good. Quinces, Medlars, Cob Nuts, Filberts, and Walnuts quite average crops. Strawberries, owing to the exceedingly hot dry weather, have not been so satisfactory as usual. We find Vicomtesse Héricart de Thury and Keen's Seedling to be our earliest and best. These, with President, Sir Joseph Paxton, James Veitch, and Oxonian, are the best for this district.—Thomas Shingles.

Luton Hoo, South Beds.—Apples are abundant on some trees, while on others the crop is light. Most kinds of Apples succeed well in this district. Our crop will be over the average. Apricots do not succeed well here; they are very liable to canker, especially the finer sorts. Cherries are a good crop, but small, on account of the dry weather. Currants of all sorts are abundant. Figs are promising and in good health. Gooseberries are a wonderful crop, weighting the shoots to the ground. Nectarines are a fair crop, as are also Peaches, but the leaves of the trees are much blistered, owing to the prevailing cold weather which in their earlier stages they encountered. Plums of all sorts, excepting Damsons, are a very heavy crop. Pears are under average on walls, but good on pyramids. Raspberries are a good crop, but very small. Strawberries are under the average, many of the plants being blind. Our standard sorts are Sir Joseph Paxton and President, the fruit of the latter being large and well flavoured; it is our favourite variety. My system of culture is to make a new plantation every year, consisting of plants that have been forced, and to destroy the old ones. This I find to be better than keeping plants two years on the same ground.—Wm. M. Baillie.

Bulstrode, Bucks.—Apples here, and in most gardens in this district, are rather thin. Plums, too, are under the average, but in some places they are a full crop, both on walls and standards. Pears are rather under the average. Of Nuts we have not half a crop, and of Walnuts none. Peaches and Nectarines are fair crops, but Apricots are very scarce. Morello Cherries here are an average crop; other kinds abundant. Gooseberries and Black, White, and Red Currants are full crops. Although Strawberries flowered well, they are a very poor crop, owing to the cold winds and rain which we had from the 10th to the 17th of last month. In some gardens they are, however, an average crop.—W. Waters.

Castle Gardens, Warwick.—With the exception of Apricots, all fruit trees here are carrying excellent crops. Apples and Pears are above the average; Peaches, Nectarines, and Figs a fair average. Of Cherries and Plums we have very heavy crops; old people say there never was so heavy a crop of Plums in this district before. All small fruits, with the exception of Strawberries, are plentiful and good. Strawberries suffered much from cold winds when in bloom and from drought when swelling, causing the crop to be light and the fruit to be indifferent in quality. I find the following varieties to suit this district best for crop and quality, especially the first three named, viz., Vicomtesse Héricart de Thury, President, Sir Joseph Paxton, James Veitch, British Queen, and Oxonian. For regular supplies of good fruit I find it best to make a fresh plantation every season by taking runners as soon as possible, and planting them in a bed of good soil; then removing to their fruiting quarters when they have made roots enough to lift with good balls of soil. After the third or fourth crop of fruit is gathered all plantations are destroyed. —A. D. Christie.

Wroxton Abbey, Banbury.—The fruit crops in this garden and neighbourhood are, on the whole, under the average. Apricots are very much under it. Of early Apples we have a few, but late ones are quite a failure. Peaches are an average crop. Plums are very heavy crops. Bush fruits we also have in abundance, Raspberries being laden with very fine fruit. Our Strawberry crop is very much under the average. The British Queen is our best flavoured variety; Dr. Hogg comes next. Sir Joseph Paxton does best in this district, and it is also my best kind for forcing. Vicomtesse Héricart de Thury does well here, and so also does President. Black Prince is our earliest variety. Keen's Seedling is the best for early forcing.—Thomas Doherty.

Shardeloes, Amersham.—Peaches here are a very good crop, and the trees clean and healthy. Apricots do not do well here, and on the few trees which we have there is scarcely any fruit. Plums are abundant both on walls and standards; we find Victoria to be the most useful and a sure bearer. Coe's Golden Drop is a valuable late Plum, and of this we have a fine crop, and the trees are clean and healthy. Pears are a very thin crop, and so are Apples. Gooseberries, Currants, and Raspberries are abundant and very fine, especially Black Currants and Gooseberries, which are wonderful crops. Figs are very good crops. Cherries are a fine crop in orchards, and our Morellos on north walls are excellent, and there is scarcely a black fly on them. Of Strawberries we have had a good crop. We cultivate only a few varieties. We find Vicomtesse Héricart de Thury the best for forcing and early work outside. In addition to this we grow British Queen, Sir Charles Napier, Bicton Pine (white), Filbert Pine (very good), Duc de Magenta, Frogmore Late Pine (a very valuable late Strawberry), President, and Dr. Hogg. We never keep the plants more than two years. We plant a yard apart from row to row, and 18 inches plant from plant, and never dig between them. We mulch well late in the autumn, and place a good lot of long litter between the rows after the fruit is set, which serves to keep it clean and the ground moist. Unless the weather is exceptionally dry, we scarcely ever water.—Thos. Bailey.

Harewood House, Leeds.—Apples here are nearly a failure. What fruit we have are on young trees, consisting of such varieties as Stirling Castle, Echlinville, Lord Suffield, and Warner's King. Pears are quite a failure. Cherries plentiful and good. Plums a light crop. Apricots scarce and very poor. Peaches outside are good crops, but late. Gooseberries, Currants, and Raspberries are heavy crops. Strawberries plentiful, large, and of good quality. The varieties grown here are James Veitch, President, British Queen, and Loxford Hall Seedling.—James Fowler.

Wortley, Sheffield.—Everything is about a month late this season. Crops generally are fair; small fruits abundant. As to Strawberries, Vicomtesse Héricart de Thury is one of the most constant and reliable ever tried in this district, and is a favourite. Both here and in other gardens such sorts as the old and generally prolific Keen's Seedling go barren. Black Prince is good, and that and the first named are also the best forcers. British Queen and allied varieties do little good, but James Veitch promises well. La Grosse Sucrée soon becomes gross and abortive. I have tried most of the popular kinds.—J. Simpson.

Studley Royal, Ripon.—Of Strawberries, Vicomtesse Héricart de Thury, Keen's Seedling, and Sir J. Paxton are all good croppers. James Veitch is large, but rather coarse. Sir C. Napier,

President, Dr. Hogg, and British Queen are our best as regards flavour. Elton Pine is still one of the latest. These, we find, give us regular and constant crops. We take forced plants for making fresh plantations every year, planting on well-manured ground, and destroying a corresponding portion annually. The crop this year is very good, but our strong ground is favourable to Strawberries. Bush fruits are plentiful, though the Currant crop was somewhat injured by the cold winds which prevailed during late spring and early summer. Raspberries seem to have suffered from the dry weather. Plums are a failure so far as our garden is concerned, but I hear of heavy crops occurring in some places. Apricots are plentiful, but the trees have suffered much during these last few years. Ours have been planted twenty-five years, and are going off in the usual way—part of a tree at a time. During twenty years they have only failed once to carry good crops; and I may add that they have never been covered in spring for nearly that length of time. Pears with us are a very light crop indeed. Apples are very partial, and, as a whole, a light crop; the cold winds and frost late in spring withered up all the blooms, which seemed to be weak this year. Peaches we grow principally under glass, but what few trees we have out of doors have fair crops on them. Nuts are a very light crop.—John Clark.

Ribston Hall, Wetherby.—The fruit crop here this season is under the average, with the exception of small fruits. Apricots and Plums are under the average. Of Cherries we have a good crop. Peaches and Nectarines, Apples, Strawberries, and Nuts are all under the average. Small fruits, such as Currants, Gooseberries, and Raspberries, are good crops in this neighbourhood. Strawberries can be bought for 3d. per quart, and Gooseberries for 4d. and 5d. per stone of 14 lbs. Cherries, Currants, and Raspberries are equally cheap. The very best Strawberry for forcing and outside culture here is Empress Eugénie. I grow eight or ten other sorts. Sir Harry, Garibaldi, and Ne Plus Ultra are sorts that do well with us in ordinary seasons. I fruit my plants for three years, and in order to keep up a succession, I plant six rows every year, and cut up six rows that have fruited three years.—Thomas Jones.

Duncombe Park, Helmsley.—Apples, Apricots, and Pears are almost a failure. Morello Cherries and Plums, especially the Victoria, are plentiful. Currants of all sorts are a good average, and Gooseberries a very heavy crop indeed. Strawberries have done fairly well, considering the protracted drought which occurred between the time of setting and ripening. Among the following varieties—James Veitch, President, Keen's Seedling, and Ne Plus Ultra—Vicomtesse Héricart de Thury is decidedly the best as an all-round Strawberry, *i.e.*, taking into account quantity, size, colour, and flavour. Keen's Seedling is our earliest variety; Black Prince is too susceptible of mildew for our tenacious soil and low lying situation. President we like for flavour, Vicomtesse Héricart de Thury for a cropper; Keen's Seedling for early work, and Elton Pine as our standard late kind. Bothwell Bank Prolific promises to be a heavy cropper; it is of good size, but deficient in colour, and as regards flavour not equal to President. Prince of Wales is so acid, that I have determined to consign it to the rubbish heap this autumn. In order to secure good crops on our strong loam, plantations are made on ground previously that has been cropped with Broccoli; it gets an ordinary manuring when it is dug previous to planting in August, and a good mulching of stable yard manure before the plants come into bloom; thus treated, and well supplied with water should drought set in, they yield heavy yields for seven or eight years.—J. Riddell.

Stricklandgate, Kendal.—Apples here are under the average; Keswick Codlin, Lord Suffield, Manks Codlin, and other Apples of the Codlin section are bearing good average crops, but all other varieties with but few exceptions are a complete failure. Pears are a fair average crop; the best sorts are Marie Louise, Althorp Crassane, Beurré Diel, Beurré d'Amanlis and Winter Nelis. Plums are an average; Victorias are over the average; Damsons are a good average. Cherries are over the average; May Duke is the principal sort grown. Peaches and Nectarines are average crops. Apricots are very little grown. Gooseberries are over the average. Raspberries, average. Currants, Red and White average; Black under the average. Strawberries are good average crops: the best for flavour and bearing are John Powell and President; the best district varieties are Vicomtesse Héricart de Thury, Sir Harry, John Powell, President, Sir Joseph Paxton and Keen's Seedling; the best early kind (excluding Black Prince, which being small is little grown) is Vicomtesse Héricart de Thury: the best late varieties are Elton Pine and Myatt's Eleanor; other varieties grown to some extent are Rivers' Eliza, Cockscomb, Duke of Edinburgh, Sir Chas. Napier and J. Veitch. The best plan to secure good and regular crops we find to be to renew the plantations every fourth year and by planting the following varieties we have always obtained most satisfactory results, viz., Vicomtesse Héricart de Thury, Keen's Seedling, John Powell, President and Myatt's Eleanor; the variety grown more than any other in this locality is undoubtedly John Powell, the fruit of which is large and well coloured, and being a very heavy cropper it is being more extensively planted yearly. Nuts are an average crop. Fruit prospects in this district were much blighted by a snowstorm which occurred on May 12. The wind blew with such violence, that many fruit trees were denuded of both blossom and foliage, and the snow laid from 6 ft. to 9 ft. deep in some of the valleys. Many shrubs which had stood the previous trying winter succumbed to the effects of this storm.

Potatoes.—Early varieties are a very light crop, owing to want of rain to swell the tubers. Late varieties look well; as yet there is no sign of disease. A considerable breadth of Potato in the low lands at the mouth of Morecombe Bay were cut down to the ground by frost on July 16.—Robert Craig.

Waterdale, St. Helens.—In this neighbourhood the fruit crops are variable, according as the situation is sheltered or exposed. Pears are a fair crop all round, and the same may be said of Apples, with the exception of Lord Suffield, Keswick, and Hawthornden, on which the fruit is very thin. Cherries are very good. Plums fair, and Damsons an immense crop, and the same may be said of Gooseberries. Currants of all sorts are good. Raspberries a fair crop, Fastolf being the best cropper and good in flavour. Strawberries are only a light crop; Black Prince has been the best for quantity. Vicomtesse Héricart de Thury is good. President is the best for evenness of fruit and cropping; it also bears carriage well. Sir Joseph Paxton is fine as regards fruit, but only moderate in quantity. British Queen is still the best, but on our deep, cold, clay subsoil it is not so fruitful as I have had it on deep light soil under the following treatment. My plan was to trench the ground 2 feet deep; in each trench to put two layers of rotten manure, cow manure being best, and when the plot was all trenched to give a good coating of clay dust, treading it as hard as possible. The plants were put in 2 feet apart each way. The chief point was to select the runners from good fruiting plants. A system which I always found to answer well was to select the quantity of forced plants which I required when in fruit, marking them by putting a peg in each pot; when all the fruit was gathered I removed them to a frame, and gave them a good drenching with the garden engine every day for a week or so. This cleansed the foliage, and then the plants were gradually hardened off for planting out. Before planting out I remove the crocks from the bottom, and with a wooden peg loosen the outside of the ball to liberate the roots, pressing the soil solid round them, and if they show any bloom buds in the autumn I pinch them out, which strengthens the plants for the following season. In spring the bloom buds will show early, but pinch them off as they show themselves in order to encourage runners, which, if pegged down as they grow, will be ready for planting out by the time the early Potato ground is vacant. Any runners the young plants may make in the autumn must be pinched off as they appear. The following spring most of the young plants will show a good truss of bloom or more, and produce some fine fruit. Remove all the runners as they appear. I never dig among Strawberries, but as soon as the crop is gathered I remove all the runners and a few of the outside leaves. I then give a good coat of clay dust and half rotten manure, which the rain carries down to the roots, leaving the litter on the surface to protect the fruit from being soiled. At the end of the third season I trench them down and make a new plantation every year. I found this system to answer best, both as regards quantity and quality. Anyone not forcing plants may select from the open ground by placing a peg to the most fruitful plants and removing the runners from the others to prevent them from getting mixed. This may seem a good deal of extra labour, but in order to get the British Queen to crop well it must have liberal treatment, which also suits all sorts. The clay dust is made by keeping a regular supply of lumps about the boilers to dry. On wet days it is broken up, run through a fine sieve, and then placed in a dry shed ready for use when wanted. It is thirty-two years this season since I first used clay dust and a light boggy soil for pot Strawberries, and the result was so satisfactory that I have used it more or less ever since in the case of many pot plants besides Strawberries, and with equal success.—James Smith.

Lowther Castle, Penrith.—Of Apricots we have a very few indeed. Plums on walls, such as Victoria, Denniston's Superb, Impératrice, Prince Englebert, Magnum Bonum, and Golden Drop, are an average crop; standards and bushes in the open are a failure, as are also Damsons. Apples, with the exception of a few varieties, are very scarce. The sorts that are carrying the best crops this season are Keswick Codlin, Stirling Castle, Tower of Glamis, and Echlinville. Gooseberries and Red, White, and Black Currants are good crops, also Raspberries and May Duke Cherries; Morellos are under the average. Strawberries when in bloom gave promise of being a full crop, but owing to the hot, dry weather which prevailed for some time after they were set, most of the later fruits were destroyed, thus leaving us with not half a crop. Nor is the fruit so fine as in former years; our best sorts this season are Garibaldi, President, and Duke of Edinburgh; these are carrying an average crop of fairly good fruit. Our mode of culture is as follows: The strongest and best runners are layered in 5½-inch pots, and when established are planted on good prepared ground at 2 feet 6 inches row from row, and 2 feet plant from plant. We give them a good top-dressing of half rotten manure as soon as the fruit is gathered, and again early in the following spring; no digging or forking amongst them is allowed from the time they are planted to the doing away with the plantation, which takes place after the fourth year of fruiting.—Frederick Clarke.

Worsley, Manchester.—Our orchard crops generally are deficient, especially Apples, of which the mid-season and late keeping varieties are, as a rule, a complete failure; early varieties are a fair crop, and promise to be of good quality. Pears are very thin and irregular; stone fruits are better than usual, though on our soil (border of Chat Moss) they are never a great success. Gooseberries and Currants are excellent crops, though in some quarters aphides have completely destroyed the growing shoots. Strawberries have been abundant and good, perhaps a little under size, but excellent in colour and flavour. No variety is so generally appreciated as Vicomtesse Héricart de Thury. It is an abundant and constant bearer, bright in colour, handsome in shape, brisk and rich in flavour, and equally suited either for dessert or preserving. I have yet to discover a Strawberry combining so many good qualities,

or one that will adapt itself so well to either light or heavy soil. La Grosse Sucrée is also a favourite here, especially for forcing outside; its tendency to bloom early, however, often subjects it to spring frosts. President is likewise an excellent variety, our great objection to it being that either forced or grown outside it is liable to decay with the slightest damp. For late varieties, British Queen and James Veitch suit us best. We have Helena Gloede on trial, and it promises to be good. I have recently tried Pauline, but I find it to be so uncertain a fruiter, that it must be abandoned. Bothwell Bank I consider a good variety of President, hardly so dark in colour, and generally better shaped; in other respects it is identical. We get best results from planting forced plants, our soil being generally light; we, as a rule, destroy the plantation after the third crop has been gathered; all runners are kept carefully cut off, and the soil is superficially picked up in spring, and mulching with good manure is given just before the bloom shows itself.—W. B. Upjohn.

Seaham Hall, Sunderland.—Gooseberries and Currants, Red and Black, and Raspberries are abundant here. Apples of almost all sorts are a failure, owing to the cold winds we had in spring. Lord Suffield and the New Hawthornden have a few on them. Pears are also scarce; only a few are to be seen on the Jargonelle. Of Strawberries, the most suitable kinds that are grown in this locality are the Black Prince for furnishing early fruit, and President and Ruby are good useful sorts either for forcing or for general use. Comte de Zans is another favourite; this is a sure cropper, and good for forcing. High culture is the secret of success, nourishment having been furnished at the time of flowering and colouring. In this locality several kinds do not fruit well; they have a tendency to grow to leaf instead of flowering. British Queen and Alice Maude are doubtful sorts to plant extensively without a trial in a small way.

Potatoes look well, and the crops in general look well after the late rains. No disease has been noticed in Potatoes up to this date (July 23). —R. Draper.

Knowsley, Prescot.—In this garden Apples and Pears will be less plentiful than usual, especially late sorts. Apricots are a good and promising crop. Peaches are plentiful and promise well, the trees having kept clean and healthy. Cherries are not perhaps quite so equal all through; nevertheless they are good, one of the best being Governor Wood. Plums promised well at first, but seem likely now to disappoint, although I never saw the trees look better. Gooseberries, Currants, and Raspberries are carrying heavy crops, and now that they have got the much-needed rain they seem likely to finish well, but late. Our Strawberries were mulched early in the season, and to this may perhaps be attributed their success in spite of adverse weather. They are later than usual, but plentiful, and of good size and quality. Our indoor crop of Strawberries is of more importance to us than those from the open ground, and therefore we grow chiefly such sorts as succeed best in pots under glass, almost the only exceptions being the Grove End Scarlet and the alpines, which are indispensable. We take our runners from the plantation made last year and fruit from the two-year-old plants, which are then destroyed. Our best sorts include Keen's Seedling, Duc de Malakoff, Sir J. Paxton, President, Sir C. Napier, and Conseiller de la Cour.—F. Harrison.

Shawdon Hall.—The fruit crop in Northumberland is, on the whole, light. Apples blossomed late, and it was hoped that the crop was safe, but the low temperature in June and cold nights prevented the blossom from being properly fertilised, and the result has been that the greater portion of the fruit has fallen off. In many places the foliage of the trees has been affected by caterpillars. Altogether, the Apple crop in this district, under the most favourable circumstances, will be unsatisfactory. The same may be generally said of wall fruits. Apricots are a light crop; so are Pears in all gardens not sheltered from the east. Cherries are not grown extensively in this district; where they are, the fruit is small and the trees affected by fly. Bush fruit is in most places a fair average crop. Gooseberries, having escaped the late frosts, are good in quantity. Black Currants are less plentiful and small in size; so are Red Currants. Raspberries are likely to be a fine crop; they are so late this year, that they are only now (23rd of July) beginning to ripen. The Strawberry crop is the lightest that has been gathered for some years. Although the blossom was abundant, the rain came too late to swell the fruit; in some places the fruit-stalks are so short as hardly to raise the berries from the ground. Sir Joseph Paxton is largely grown, both for sale and in private gardens. The most useful kind for all purposes is Garibaldi; it is an excellent kind for preserving, and stands our moist climate better than any other sort. President possesses qualities very similar to Garibaldi, and succeeds it. Dr. Hogg is one of our best and richest flavoured Strawberries. In gardens on Tweedside it has an aroma that is seldom found in our choicest sorts. Where Marguerite is grown it has been found to be an acquisition. Perhaps no sort of fruit is so much influenced by soil as the Strawberry. This is so much the case, that the same sort will bear freely in one garden, while in another a short distance off it is all but barren. This is the case with Keen's Seedling; therefore it is only grown in a few places in this district. Black Prince will grow and bear in almost any soil; but it is seldom seen at its best when it is grown on the same ground more than two years. Marshal MacMahon is an exceedingly handsome fruit on the dessert table, but here the foliage becomes bloated and easily affected by such weather as we have had this season. During the whole of the month of June the thermometer fell here during the night to the freezing point. Altogether the spring and early summer of 1886 must be recorded as one of the coldest we have had for several years.—James Thomson.

Heckfield, Winchfield.—In this district fruit crops generally are by no means so good as the profusion of blossom led us at one time to expect. Apples are very thin; indeed, on a large proportion of the trees there are none. Apricots are all all but an entire failure, but the trees are in fine health and have not lost a solitary branch—a fact which puts an end to our theorising that branch-dying is caused by extremes of heat and cold, and by long-continued frost in particular. It would appear that over-fruitfulness may be the source of the mischief, not cold certainly, seeing that to this cause must be attributed the failure of the crop this year. With fruit buds the trees fairly bristled, but few unfolded; they dropped off as growth became active—alternate frost and thaw, for weeks continued, being the only possible cause of the failure. Pears, too, are a thin crop, all varieties, forms, and aspects sharing alike in this respect. The extra heavy crops of last year must to a great extent be credited with the present season's scarcity. Plums and Morello Cherries are good, the former a full crop—which was by no means the case last year. Peaches and Nectarines have never been finer nor heavier crops, nor the wood-growth more healthy, than this season. Our trees were well protected with canvas blinds, which can be let down and rolled up at pleasure—a decided advantage compared with fixed coverings, which, perforce, must be left on in all weathers. Currants and Gooseberries are extra good, and Strawberries would have been the same but for the roasting weather that set in just as ripening commenced, the result being a crop about half what it should have been. As to varieties, we have tried, and continue to try, most of the sorts sent out, but two kinds only do superlatively well, viz., Vicomtesse Héricart de Thury and President. We wish for none better, either as regards forcing or open-air growth, for dessert or preserving. In a word, quantity and quality were never more perfectly combined. Three years is the utmost limit we allow the plants to occupy the same ground, and, as a rule, only two. Our soil is a light, deep, sandy loam, which, if trenched deeply and heavily manured, suits Strawberries well. It would perhaps be better were it a little heavier or more clayey in texture; but we meet that requirement by rolling the ground before putting out the plants, and, in addition, they are well pounded into the soil, and never afterwards is it disturbed, except to hand-weed, till the plants are cleared off. Heavy manurial mulchings are given early in autumn, and this is added to in spring-time in the form of long stable litter, which, as it gets washed by heavy rains, also serves as a strawy covering to keep the fruit clean. —W. Wildsmith.

Strathfieldsaye, Mortimer.—I can report, I am glad to say, rather favourably of fruit crops here this season. Apples are quite a full crop, and the trees freer from insects than usual. Warner's King, Lord Suffield, Cox's Orange Pippin, Duchess of Oldenburg, and King of the Pippins are the most certain bearers on our cold clay. Pears are a fair crop both on walls and standards; Marie Louise, Williams' Bon Chrétien, and Doyenné du Comice are our very best varieties, and appear to suffer less from spring frosts than many others. Peaches are a fine crop. A rather remarkable circumstance in connection with them is that green fly and red spider have been less troublesome than I ever knew them to be. After trying many new varieties, I have found few equal to Royal George for mid-season and Walburton Admirable for late in the year. Apricots are thin, but Plums and Cherries plentiful. Small fruits, with the exception of Strawberries, are abundant; the latter suffered much when in bloom from frost.—J. Bell.

Conholt Park, Andover.—Fruit prospects in March and April this year were good, but the trees suffered from the cold frosty nights which we had in May and early in June. Apples are almost a failure. Apricots under the average. Pears average. Cherries on walls are plentiful and fine in quality. Plums are a good average crop; those we grow are Victoria, Washington, Orleans, Diamond, and Denbigh. All bush fruits are heavy crops, especially Gooseberries and Red Currants. Strawberries very seldom fail with us; Vicomtesse Héricart de Thury, Sir Charles Napier, Eclipse, President, and Elton Pine are our best varieties.—John Bisset.

Leigh Park, Havant.—The fruit crop generally hereabouts is fairly good, with the exception of Strawberries, which have not been worse for some years past, a circumstance to be regretted, for this neighbourhood generally sends heavy consignments of them for the London and other markets. The best sorts for open-air culture are Vicomtesse Héricart de Thury, Sir J. Paxton, Sir Charles Napier, President, and a local Strawberry called Kimberley, which is a good bearer, fine in flavour, and travels well. It also forces very well. Apples are fairly good, but partial, and the same remark applies to Pears. Peaches and Plums are very good. Small fruits are generally abundant, but very difficult to keep from birds, which being strictly preserved, and therefore plentiful, are hard on small fruits.—C. Penford.

Englefield, near Reading.—Apples here are about half a crop. Two or three kinds, such as Cox's Orange Pippin, old Keswick Codlin, Hawthornden, and Yorkshire Greening, are bearing good crops, but other well-known kinds are quite a failure. Pears, consisting of Williams' Bon Chrétien, Brockworth Park, Pitmaston Duchess, Marie Louise, Glou Morceau, Seckel, and other well-known good kinds are all bearing fair crops. Peaches, both indoors and out, are good. Plums the same. Morello Cherries are very good indeed; dessert kinds a fair crop. Currants very good. Gooseberries an average crop. Apricots about half a crop. Raspberries good. The Strawberry crop here this year has not been good, the well-known and highly-prized Sir Charles Napier being quite a failure. On the other hand, Sir Joseph Paxton has borne more than an average crop, and President and Pauline average crops. The four varieties just mentioned are the only ones

growing here. We used to grow Vicomtesse Héricart de Thury, but after growing it for two or three years with great success, it singularly enough died off to the extent of almost every other plant in a bed, also in pots. If we potted 1000 plants at the end of the autumn we might have 500 left. This year I am getting a stock of Duc de Malakoff for forcing next spring. It has been recommended to me as being a good all-round Strawberry both for pots and out of doors.—James Coombes.

Albury Park, Surrey.—Hardy fruits here, with the exception of Apricots and Strawberries, are all good average crops. Many sorts of Apples, indeed, are bearing very heavy crops. Peaches, Nectarines, and Plums of all kinds are also excellent. All fruit trees have been very free from blight and spider this season. Cherries have been good. As to all kinds of bush fruits, I never remember seeing them finer both as regards quality and quantity. We did not protect any trees on walls, but nevertheless we have fine crops. As regards Strawberries, the sharp white frosts and cold cutting east winds which we have had ruined the crop. Keen's Seedling, President, Sir J. Paxton, and Sir C. Napier do well here, and under good cultivation I consider there is no need of more kinds. Sorts that were grown twenty-nine years ago are as yet unbeaten, but in many gardens Strawberries are not too well treated. We might do worse than take a lesson from market growers in respect to this fruit. Nuts both in gardens and woods are abundant.

Potatoes and all other vegetable crops look well, and promise to yield an abundant supply.—W. C. Leach.

Killerton, Exeter.—Peaches and Nectarines set their fruit this year as thickly as Gooseberries, and had to be thinned down to what we considered to be a full crop; even the Walburton Admirable, which with me never bears well, is carrying a fair crop. The trees, too, are all clean and healthy, and in spring were free from curled leaves. I am gathering some highly coloured fruit of Early Beatrice from open walls. All our Peaches and Nectarines are on a south-east wall by east. Apricots are a fair crop generally; I am now gathering fine ripe fruit of St. Ambroise. Apples generally are scarce, both in gardens and orchards. Among the best are Lord Suffield, Cox's Pomona, Manks Codlin, Mère de Ménage, Golden Spire, Ross Nonpareil, and King of the Pippins. Pears, both pyramids and on walls, set very thickly, and although a great many fell off there is still a fine crop. Plums are scarce; Cherries very good, and the trees clean and healthy. Filberts are a moderate crop; Walnuts a good crop. Gooseberries, Black, Red, and White Currants, and Raspberries have been abundant and fine. Strawberries have been good; the bloom was unusually fine, but the plants were much affected by the drought. Our earliest sorts are Black Prince and Sabreur, next Sir Joseph Paxton, James Veitch, and Bicton White Pine; the latest are Crimson Queen, Elton Pine, and Nimrod. As to the last sort, its lateness and good appearance are its only recommendation. For new beds we layer in small pots and transplant as soon as ready into deeply trenched, well manured ground. We always grow a few beds of the white and red Alpine Strawberry, which give a good supply of fruit throughout August and September, when other sorts are over. I am also growing the Quatre Saisons, but have not yet sufficiently proved it. It is similar in appearance to the alpines, but I think not equal to them in flavour.—John Garland.

Sherborne Castle, Dorset.—With the exception of Strawberries and Raspberries, fruit crops in this neighbourhood are fairly good. Apples in the garden here are an excellent crop, but very partial in orchards. Pears vary a great deal, being spoiled to a great extent by the cold nights and east winds which we had in the end of May and beginning of June. Apricots in most places are very good, but with us the trees have suffered more than they have ever done before. In some instances as much as half and three parts have died away. Peaches and Nectarines outdoors and under glass are carrying very fair crops. Plums are abundant both on bush and trained trees. Morello Cherries are also a heavy crop; other varieties do not do well here. Of Gooseberries and Currants we have had too many, the market being glutted. Of Filberts there is a nice sprinkling; and the common Hazel Nuts in the woods are plentiful, but Walnuts are very thin. As to Strawberry culture, I adhere to the old plan of deep trenching, giving plenty of strong manure and a good dressing of soot. For a great number of years I have adopted and advocated the system of layering in turves. I peg one runner on a piece 3 inches square for forcing purposes, and three on pieces 6 inches square for open-air culture, well soaking the turves in liquid manure before using them. I have found this plan to answer admirably. We only grow four sorts, viz., Keen's Seedling, Vicomtesse Héricart de Thury, President, and Sir Charles Napier.—W. G. Pragnell.

Canford Manor, Wimborne.—Apricots here are under the average. Apples average, and good. Morello Cherries average. Nuts the same. Peaches and Nectarines average. Pears under the average. Small fruits average and good. The Strawberry crop in this part has suffered from drought. We depend on the following varieties for forcing, viz., for first crop Keen's Seedling, which we prefer to Vicomtesse Héricart de Thury, on account of the fruit being larger. Our second batch consists of La Grosse Sucrée, and for the main crop indoors we depend on President, Marguerite, and Sir J. Paxton. These carry us through till Keen's Seedling is ripe in the open air. The varieties that do best here for the open air are Keen's Seedling for early use and for preserving; then President, Marguerite, Pioneer, Aromatic, Sir Joseph Paxton, Sir Charles Napier, and Frogmore Late Pine. With good culture and under ordinary circumstances these yield us a good supply, but the outside crop this year suffered from want of rain after the fruit was set. Pioneer, rather a new variety, is rich in flavour, solid, and travels and keeps well. Aromatic is robust in habit and excellent in quality. In order to secure regular crops it is advisable to renew the plantations every three or four years, and by planting a batch of old forced plants in August in good ground well trenched and manured we can depend on a crop the first season after planting, and a good crop the second and third year. After that the fruit becomes small. We destroy a patch and plant one of equal size every year to keep our stock in good cropping order.—David Williams.

Down House, Blandford.—Apples here are very bad, with the exception of King of Pippins, Irish Peach, Striped Beaufin, Nonpareil, Cornish Gilliflower, and one or two other sorts. Of Pears, Marie Louise is bearing a heavy crop; others fair average crops. Apricots under a glass coping very good. Plums and Cherries very good. Gooseberries and all sorts of Currants are very heavy crops. Raspberries very good. Filberts and Medlars the same. Strawberries have been fairly good crops; the sorts mostly grown and best for flavour and general purposes are Vicomtesse Héricart de Thury, President, and Sir Joseph Paxton. The plan by which I get good results is planting those which have been moderately forced in spring in 6-inch pots. As soon as the fruit is gathered we harden off the plants at once, and plant them out on the first opportunity, say the latter end of May or early in June. The plants thus treated get well established before autumn, when they produce good crops the first season, while by planting runners one has to wait till the second season before any quantity of fruit is got from them. By doing away with a third of the old plants every season and planting the same quantity of young ones on fresh ground we invariably get good crops.—Thos. Denny.

Moreton, Dorchester.—Fruit crops in this district are, on the whole, fairly satisfactory. In some gardens the Apple crop is light, in others fairly good, though in all under the average. Of Apricots we have few; not many are grown in this district. Pears are good average crops. Of Peaches and Nectarines we have few on open walls, and here not a full crop even in an unheated orchard house. The temperature was very low when the trees were in bloom, and they did not set well. Plums on walls are very good crops. Cherries a good average crop. Raspberries, Gooseberries, and Currants abundant. Strawberries have also been good. The sorts most in favour in this district are Vicomtesse Héricart de Thury, President, and Sir C. Napier. Other kinds are grown, but the two former we find to be the most reliable in our light soil.—D. Uphill.

Strensham Court, Tewkesbury.—Plums and Damsons are extraordinary crops here. Peaches and Nectarines very good crop and clean. Apricots half a crop, fruit fine. Apples, a very good crop. Pears, not a crop on walls, but fair on standards. Filberts, very thin. Bush fruits very plentiful. Strawberries, both early kinds and late, good; intermediate kinds very unsatisfactory. Pauline is our earliest Strawberry, and one to be recommended for size, flavour, and colour. I gathered our first dish from a warm border on June 15 this year—five days before Black Prince. Oxonian has been a failure; British Queen not so good as usual, but still our best flavoured Strawberry. Of Keen's Seedling a good many plants did not flower; otherwise good. Sir C. Napier fairly good, but not large. Frogmore Late Pine I consider to be our best late Strawberry; we are now gathering from it. Last winter killed great numbers of the plants, which could not withstand the long-continued frosty weather and cutting winds. My system of growing Strawberries is to have the ground well trenched, and to put into it plenty of thoroughly good manure. I layer the plants in little pots, and keep them well watered till rooted; then I plant (after well treading the ground) in rows 2 feet 6 inches apart and 2 feet asunder in the rows. I manure well in autumn, and fork it into the ground. I also mulch with good half-rotten manure when the plants are coming into flower. We renew the beds every three years.—W. Evans.

Redleaf, Penshurst.—Apples this year are very variable. On some trees there is a heavy crop, while on others there are none. There was a wonderful show of blossom in spring, but late frosts, hot sun, and cutting winds were too much for a good deal of it. Among our best sorts this year are Wellington, Blenheim, Cellini (bearing a heavy crop), Bromley, a very useful cooking Apple; Waltham Abbey Seedling, a really good kitchen Apple, a good grower, attaining a large size, and handsome, almost a certain bearer, and very hardy; Royal Russet, Norfolk Beaufin, Lord Nelson and Lord Suffield—all standards in the orchard, and mostly old trees. Of dessert kinds we have Kerry Pippin, King Pippin, Golden Reinette, Golden Harvey, Winter Quoining, and a fair lot of Ribston Pippins. These are about the best this year. Bush trees on Grass are very poor, but in the kitchen garden a little better. Those bearing the best crops are Cox's Pomona, Cellini, Hawthornden, Worcester Pearmain, Lord Suffield, Beauty of Kent, Margil, Grenadier, Lord Derby, and Duchess of Gloucester. Other varieties are scarcely up to the mark. Our neighbours generally, and especially in low-lying parts, complain of very light crops of Apples. Pears are a thin crop. Williams' Bon Chrétien, Doyenné du Comice, Duchesse d'Aremberg, Baronne de Milo, Pitmaston Duchess, Knight's Monarch, Brockworth Park, Emile d'Heyst, and Comte de Lamy are our best on walls. On bush trees we have Beurré Hardy, Eyewood, bearing a heavy crop; Beurré Bachelier, Pitmaston Duchess, Bergamot d'Esperen, and Olivier de Serres, the last a really good Pear, which keeps well and is most delicious. Other sorts are very thin indeed. Apricots are a poor crop. The Peach variety is our best this season; some of the old trees have died back a great deal this year. Peaches and Nectarines are a fair crop. Early Louise, Early Grosse Mignonne, Noblesse, and one named Falcon have the most

fruit among Peaches; and Lord Napier and Violette Hâtive among Nectarines. Plums are a very large crop, and promise to be good both on walls and in the open. Our best are Early Rivers, Orleans, Yellow Impératrice, Emperor, Mitchelson's, Prince of Wales, Victoria, Pond's Seedling, and Blue Impératrice, the last an excellent Plum, which hangs on the tree until frost or wet spoils it. Green Gages are also good, old standards being loaded. Small fruits are most abundant, Gooseberries, in some instances, breaking down the trees. All our quarters were mulched in winter with about 4 inches of stable litter, and not dug in any way. By this plan we get fine fruit, clean healthy foliage, and strong wood; Black Currants are especially fine. This has not been by any means a Strawberry year in this district; ours were strong and vigorous, and showed flower well, but the long and extremely cold spring continuing until the fruits were nearly ready to colour caused the blossoms to set badly, and seemed to cripple the young fruit so much that the greater part of it did not attain the size that is so desirable to Strawberries. Then a sudden change to very dry, hot sunny weather seemed to induce premature maturity. Black Prince ripened on June 19; this was followed by President, Vicomtesse Héricart de Thury, La Grosse Sucrée, Sir J. Paxton, Sir C. Napier, and Loxford Hall Seedling; the last two were our best both in quality and flavour, and the only really good Strawberries we had, but they certainly had the advantage of being young plants, and of being on an excellent piece of ground. The fruit on the older beds were somewhat the earliest. The old Bath Scarlet we always grow for preserving, a purpose for which it is preferred to any other. This variety has been grown here for years on an easy plan and one which answers well. The runners are allowed to grow out on one side of the bed as far as they will go, the soil being made good for them to root in. These are left to fruit the next season, and a piece on the other side is chopped off with the spade, so as to keep the bed about 5 feet wide and easily reached over to gather the fruit; when the plants have got right out on fresh soil, the old soil is cropped for a season or two, and the process is repeated in a backward direction, and little or no trouble is involved in this plan, and we always have plenty of fruit. The variety being a very small one, the plants grow quite close and seem to like the treatment thus given them; we top-dress them with some fine rotten manure early in the spring, and that is all we do to them. For dessert fruit we trench 2 feet deep, manure freely with manure from the cow yard if possible, plant from 2 feet 6 inches to 3 feet apart—3 feet when we can spare the ground, mulch in spring, and do not dig between the rows at all. In this way in ordinary seasons we have good results; the beds are mostly cleared off after the third year. The last two seasons have taken more out of the Strawberry plants than double that number would have done if rain had fallen and had the weather been more suitable. Raspberries have borne a very heavy crop; the much-belauded Baumforth's Seedling has not turned out any better than the old Antwerp Red at present. Nuts—Cobs and Walnuts—are scarce. Cherries are a very fine crop; all good, especially the Bigarreau.—W. Holah.

Hall Place, Tonbridge.—The Apple crop here is a failure—at least as far as orchard trees are concerned. Pyramids and bushes in gardens are bearing about half a crop. As to Pears, the late spring frosts proved disastrous to not only bush trees, but also to pyramids, and the fruit is still dropping. They are somewhat better on walls. Peaches and Nectarines under glass copings are abundant. Apricots under the same condition are a full crop. Plums on walls are plentiful, also culinary sorts on standards, and the same may be said of Damsons. Sweet Cherries are about half a crop; Morellos a full crop. Gooseberries are very plentiful. Raspberries are a good crop. Black, Red, and White Currants average crops. Kentish Cobs and Filberts are thin, but Walnuts are plentiful. Quinces and Medlars are good crops, and Mulberries promise well. Strawberries here and for some distance round are very light crops—I may say the worst we have had at Hall Place for sixteen years. Some varieties hardly ever known to fail here, such as Keen's Seedling, Sir J. Paxton and Sir C. Napier, were destroyed before flowering, or when the flowers were just pushing. Later sorts, such as the Countess, Unser Fritz, and Loxford Hall Seedling were badly damaged by frost when in full flower. The above six sorts, with La Grosse Sucrée, we consider to be our very best as regards flavour, travelling, and cropping. We have tried many new sorts here, but very rarely do we find one superior to those just named. King of the Earlies and the Captain suffered so much from the late severe winter, that they are now in so weak a condition that I cannot say much about them. Should the flavour of the latter prove good, it will be a good addition to our better sorts of Strawberries. It is large and good looking, and seems to bear freely. Before planting we trench the ground deeply and manure well. In autumn we dress the surface heavily with well-rotted manure, and in spring with fresh stable litter. This we do each year, and never fork or dig between the rows. Our soil is rather retentive.—J. Berry.

Homewood, Chislehurst.—Apricots here are very scarce, many of the trees not bearing a single fruit; Breda, a small round sort, is doing best. It is rather dry-fleshed, but when ripe has an agreeable flavour. Apples are very thin, except a few free-bearing sorts—trees grown as espaliers in the kitchen garden. The trees in our principal orchard bore a grand crop of blossom, but when fully open caterpillars completely destroyed it, and the leaves, too, were quite disfigured; even now they are only just recovering, and scarcely a single Apple can be seen. We have another orchard in which the trees are bearing a fairly good crop, *i.e.*, such sorts as Early Harvest, Keswick Codlin, Cellini, Warner's King, London Pippin, and Bascombe's Surprise. This last is quite a local kind, a constant bearer, and its fruits keep till late in the spring. Tower of Glamis and Stirling Castle are also bearing heavy crops. Cherries are grown rather extensively in this district, and the crops in general have been abundant; our crop of Cherries growing here in the garden, both standards and trained trees, have borne very abundantly, but the fruit has not been quite so large as usual. The varieties which have bore the heaviest crops are May Duke, Bigarreau Napoleon, Elton, and Governor Wood. The Kentish has borne a very heavy crop, as has also the Morello. Currants are very plentiful and the berries extra large, more especially the Black Naples, which is bearing an extra heavy crop. Figs, upon a south wall, are a fair crop. Gooseberries are most abundant. Peaches and Nectarines, on a south wall, are thin, but the trees are healthy and making clean firm wood. Nuts are a very thin crop. Plums are bearing an average crop on walls, but not so good on pyramids or standards. Damsons are plentiful. Quinces are an average crop. Raspberries are very plentiful, and the fruit has improved in size considerably since we have had rain. Carter's Prolific, Prince of Wales, and Yellow Antwerp are our best sorts. Strawberries have partly been a failure with us, taking the whole crop and the different sorts grown into account. The best have been Vicomtesse Héricart de Thury, Sir Joseph Paxton, Keen's Seedling, and a medium crop of that useful variety, President. Hundreds of acres in this district are cropped with Strawberries, and, taking the whole, there has not been, on an average, much more than half a crop, but the late rains have improved the late crop considerably. Pears are an average crop upon trained trees on walls and espaliers, but only about a third of a crop upon pyramids and standards.—Wm. Christison.

Cobham Hall, Gravesend.—Apples are a failure hereabouts, except such sorts as Lord Suffield and Manks and Keswick Codlins. Pears, too, are a bad crop. Plums an average crop, Victoria and Gisborne being by far the best. Apricots bad. Peaches and Nectarines an average crop. Of bush fruits we have a good average. Filberts are a bad crop. Of Strawberries there has been on heavy soil a good average crop, and I have had the same on light gravelly soil, but I always use forced plants. In planting, I have trenches thrown out similar to those for Celery, 3 feet apart. These I fill with manure and plant out in May or June, and if we have some showers after planting to keep them growing, I generally have some fruit in the latter end of August. I never have any digging done between the rows, but mulch with old spent Mushroom bed manure. Our best sorts are Keen's Seedling, Sir J. Paxton, Sir C. Napier, Vicomtesse Héricart de Thury, President, and La Grosse Sucrée.—F. Deuxberry.

Papworth Hall, Cambridgeshire.—Apples here are quite a failure, and Pears are not half a crop. Plums on walls are abundant. Those on pyramids are rather thin. Cherries have not been at all plentiful on some trees, though a fair crop. Gooseberries have been abundant, likewise Black and Red Currants. White have not been quite so good. Strawberries with us and around this part have been abundant, but the dry weather came upon us soon after the blooming season and caused a great many fruits to shrivel up before it acquired its full size. The varieties which we grow are the following, viz., Keen's Seedling, always good both in flavour and size; Black Prince, good; Sir Joseph Paxton, always very good indeed; President, one of our very best varieties; James Veitch, fairly good; Eclipse, a useful variety; Frogmore Late Pine, very useful late variety and always good. We have tried British Queen, but on our cold clay it never came satisfactory. We make new beds every third year, using strong runners layered in 3 inch pots. We always prepare the ground well before planting. A grand variety, both for outdoors and also for late work in pots, is Atherton's No. 1, which, when better known, will be, I think, a favourite. There used to be a variety in cultivation some twenty-five years ago called Oscar. I recollect it was thought well of for some years after it was distributed. What has become of it?—Thos. Smith.

Hallingbury, Essex.—Our Strawberry crop this season is very poor indeed, being cut off when in bloom. The following sorts do well with me, viz., Keen's Seedling and Garibaldi for early crops; President, Sir J. Paxton, Sir C. Napier, and James Veitch for second early crops; and for late crops British Queen and Frogmore Pine. Pears and Apples are but light crops. They got cut very much by the cold east winds which we had; here and there on a tree well sheltered may be seen a fair crop, but they are few and far between. Plums, including Damsons, are very fair crops where sheltered, but, generally speaking, they are only average crops. Currants and Gooseberries are a good crop, but the fruit is rather small. Peaches, Nectarines, and Apricots are under the average. Although sheltered, the bloom was very small, and the fruit dropped when just set. Nuts are a good crop. Raspberries the same, but small from want of rain.—Edw. Spivey.

Aswarby Park, Sleaford.—Of Apples we have none; in the neighbourhood there are a few. Apricots are a poor crop. Cherries, a full crop. Currants, Red, White, and Black, excellent. Figs in the open air a full crop. Gooseberries abundant. Plums fairly good. Strawberries a heavy crop, and fine in quality. The varieties grown here are Early Marguerite, Keen's Seedling, Garibaldi, President, Duke of Edinburgh, British Queen, Dr. Hogg, and Loxford Hall Seedling. As regards cultivation, we trench deeply, manure heavily, and top-dress in October, to remain on the ground until the fruit is gathered. We then clear away all runners not required, slightly fork the old top-dressing into the ground, then top-dress with good manure, to remain on the surface until the fruit is gathered. I make new plantations every year in August, and from these, if the season is favourable, we in general gather our finest fruit.—Richard Nisbet.

Hardwicke House, Bury St. Edmunds.—With the very important exception of Apples and Pears, fruit of all sorts may be said to be plentiful in the open air, and even Apples are less scarce than Pears, and here and there fair crops of both may be found, but, on the whole, they are very far from being an average yield. Peaches, Nectarines, Apricots, Cherries, and, in many localities, Plums are a heavy crop, the latter being, as usual, somewhat capricious, and in some gardens plentiful on standards and few or none on walls. Bush fruits of all sorts are plentiful, and Raspberries an extraordinary crop. Nuts are also fairly plentiful, and Strawberries one of the best possible crops. Some of the early ones suffered considerably from the intense heat and drought, but the rains came in time to save and fully develop the later varieties. As already stated, we have largely reduced our number of varieties, only growing a very few in bulk, such as President, Keen's Seedling, Eleanor, and Frogmore Late Pine. We used, however, to grow a far larger collection, including Black Prince, Vicomtesse Héricart de Thury, Lord Napier, Sir Joseph Paxton, James Veitch, Sir Charles Napier, Bicton Pine, Lucas, Dr. Hogg, British Queen, Elton Pine, Admiral Dundas, Carolina superba, Cockscomb, &c. Some of these have been discarded, owing to the sorts or soil here not suiting them, and this has been notably the case with the British Queen and its near ally, Dr. Hogg. Others, again, such as Sir Joseph Paxton and James Veitch, did not yield such quantity as President. We are now trying several others, such as Baronne Brize, Gros Bonne, Countess, Duke of Athole, Constantine Tretiakoff, Pioneer, Jucunda, Lucas, &c., but on a scale that hardly warrants an emphatic opinion as yet, though most of them possess three good qualities—free growth, fertile habit, and good flavour. Such sorts as Pauline and Loxford Hall Seedling I have also seen remarkably good, though the former has to be longer on the ground than most sorts before it can be had in full bearing, and the latter has probably too much Queen blood to thrive alike well everywhere. Pauline is not only earlier, but larger and finer than Black Prince. King of the Earlies and Captain are also very early sorts and likely to supersede the Black Prince. The latter, however, is still one of the earliest, most prolific, and highest coloured of all Strawberries, and possesses in a high degree the merit of perpetual bearing, a merit now specially claimed for the new Strawberry Roi Henri. Without at all disparaging the merits of the latter, we have had Black Prince ripen one crop in March, a second in June, and a third in October. These were kept in pots all the while, and well fortified with liquid manure water. Perpetual bearing, or, to write more correctly, two or more crops a year from forced plants is more a matter of culture than of variety. Still, if Roi Henri or any other sort will yield a certain second, or even a third, crop in the open under ordinary treatment, that will be a large step forward in extending the Strawberry season, or making the supply continuous throughout the growing season. Will some grower of new white sorts kindly say if any are better than the Bicton Pine? A good white or lemon-coloured Strawberry is really a very desirable acquisition, as although red, crimson, or pink will probably always be the most popular colours for Strawberries, yet light-coloured fruit would give greater variety to the dessert, the great object being, however, to keep up the standard of quality to the very highest pitch. A good deal more may also yet be done to develop new flavours from the very excellent Hautbois, which is so distinct as to deserve to be reckoned almost as a new fruit. The taste for Hautbois, however, needs to be educated before the flavour can be appreciated; hence, to a great extent their unpopularity, though their frequent barrenness under cultivation has also greatly limited their cultivation. This, however, occasionally happens to the most fertile varieties. Among newer sorts now pressing to the front, several of them, such as Hundredfold and Belle de Bourg la Reine, are so much like Vicomtesse H. de Thury, that it seems doubtful if they are worth growing alongside or instead of it. Will someone who grows the Traveller say whether it deserves its name in the sense of being a good traveller—a quality by no means too common among Strawberries? This last is a point our fruiterers could provide valuable information upon by furnishing a list of sorts that, as a rule, arrive in best condition in their many consignments. Without going now into the different modes of cultivating the Strawberry, there is one point of much importance that needs further discussion, viz., the most fertile age of different varieties. In our rage for what may conveniently be designated baby plant fertility, we have probably lost as well as gained a good deal. At a time when few Strawberry plants are allowed to live more than three years it is rather startling to find Pauline sent out by its raisers with the statement that it is best the third year after planting. This suggests the query, whether the rush after mere fruitfulness of plants in Strawberry culture has not been carried too far for bulk and profit of crop. For mere size of individual fruits the young plants doubtless have it, but for gross weight, the experience of the past and also not a few modern cultivators seems to point in the direction of older plants. Within the memory of not a few of us, Strawberries were provided for among the semi-permanent crops of the garden. Now they are often treated as biennials, and, perhaps, more generally as triennials. Is the latter the natural limit of their profitable productive life? The present most useful discussion, which unavoidable circumstances have prevented me from taking part in earlier, affords a capital opportunity for re-opening the question of the effect of age on Strawberry plants and the bulk and flavour of their produce. That young plants yield fair sized fruit may be taken as proven. But many have doubts about the other points. Neither do I think that any hard-and-fast line about age can be applied to all the many varieties of Strawberry in cultivation; on the contrary, it is more than probable that almost every variety or family has its own distinctive age of maximum productiveness, and this being so, it is more than probable that not a few sorts are trenched in before this age is reached.—D. T. Fish.

Capesthorne, Chelford.—Fruit crops in the garden here and neighbourhood are on the whole satisfactory. Apples and Pears are slightly under the average. Cherries are abundant; small fruits are the same, and very fine. Peaches and Nectarines are very little grown out of doors in this part. Apricots are under the average. Plums abundant, especially Damsons: the latter are grown very extensively here, and the trees are literally laden with fruit and fine in quality. Strawberries are not grown here very largely, the soil being too light for them. The varieties which I grow are Keen's Seedling and President. To do Strawberries well they require to be grown on stiffish soil, deeply trenched and well manured, and the plantations need to be renewed every three or four years.—Alexander Dewar.

Cholmondeley Castle, Malpas.—Strawberries here are a good crop and fine in quality. Plums are a fair crop. Gooseberries very good. Currants an average crop and the fruit fine in quality. Morello Cherries are an average crop; sweet Cherries under the average. Peaches are a good crop. Raspberries the same, and the fruit is good. Apricots are a moderate crop. Pears a fair crop, and the fruit clean. Apples on pyramids in the garden good, but on standards in orchards under the average.—C. Flack.

Biddulph Grange, Congleton.—Fruit crops here are not so good as was expected; although we escaped the spring frosts, we did not escape the cold, cutting winds which followed. Peaches and Nectarines are very little grown out of doors here and seldom do any good, and this year is no exception. Of Apricots there are very few. Apples are under the average; the following sorts are the best here, viz., Lord Suffield, Hawthornden, Keswick Codlin, King Pippin, Ribston, Dumelow's Seedling, and Warner's King. Pears are under the average—more on walls than standards. Of Plums there are good crops of the following sorts: Victoria, Golden Drop, Kirke's, and Damsons, and the trees are freer from blight than I remember seeing them for some years. Bush fruits are plentiful, especially Gooseberries and Black Currants: Red and White Currants are much blighted. Raspberries are good. Strawberries partial. The sorts that have done best here this year are President, Sir Harry, and Elton Pine.—Robert Bass.

Abney Hall, Cheadle.—Apples and Pears are under the average here. Some Apples that have been good and regular bearers, such as Hawthornden and Prince Albert, have nothing on them this year. Cellini, however, is bearing a full crop, and so are Grenadier and Cox's Orange Pippin. The best of our wall Pears is Marie Louise this year. Beurré Clairgeau, Louise Bonne of Jersey, and Beurré d'Aremberg are the best amongst standards. Of Plums on walls we have very few, but on standards and Damsons they are very good. Gooseberries, Currants, and Raspberries are also good crops. Strawberries are next to a failure—the worst crop we have had for a dozen years. Is this owing to the wet autumn last year? From the end of August we had perpetual rain for weeks; therefore the crowns could not ripen. There was, however, a fair crop on a patch of Black Prince, upon which we never depend; although early and of good colour, the fruit is too small to be of much value. From what I can learn one of the best cropping kinds in this neighbourhood is Myatt's Prolific: it is, however, rather coarse. The best samples of fruit, however, that I have seen grown in this part have been that of President and Sir Joseph Paxton, two well-known kinds.—Robert Mackeller.

Brentry House, Westbury-on-Trym.—Plums here are very abundant; in fact, I never saw standard trees more heavily laden than they are this year, and I believe it to be generally so in the west of Gloucestershire. Pears, too, are very abundant, particularly the earlier sorts. Apples as a rule are a failure. With regard to small fruits, such as Gooseberries and Currants, the trees are literally covered with fruit. Strawberries as a rule have borne very heavily, but the berries have not been so large as I have seen them in former years. In my opinion Vicomtesse Héricart de Thury still stands pre-eminent as a preserving Strawberry and for very early forcing, with the exception, perhaps, of Princess of Prussia, which is a fortnight earlier and larger in the berry, but not nearly so well flavoured. For second and later sorts I find President, Sir J. Paxton, and Princess Alice to be the best. Alexandre de Kief is said to be a very fine Strawberry, but I have not had much experience in regard to it, although I have seen it wonderfully good at some exhibitions. Loxford Hall Seedling, however, stands first in this neighbourhood as a market Strawberry. It equals Dr. Hogg in flavour, but is not quite so large. It is a very heavy bearer and travels well. In order to secure good and regular crops the best plan is to plant out the forced Strawberries as soon as the fruit is gathered in a plot of ground ready to receive them. Let new plantations be made every third year. The soil should be well trenched and, of course, well manured, and if planted early a fair crop will be produced in the autumn of the same year, and fine crops the three following summers. Before planting the balls ought to be slightly shaken. Where forcing is not carried on to any great extent, the best plan would be to secure runners from the previous year's planting. Lay them in 3-inch pots, which should be plunged, and the runners should be kept in their place by putting a stone on them, which I prefer to pegging them, as it keeps the soil damper. The loam in which they are layered should be light and rich. As soon as the pots are filled with roots, say about the first week in July, plant them out in well-prepared ground 2 feet apart.—Frank Nichol.

Powderham Castle, Exeter.—Peaches and Nectarines here are average crops. Peach blister in many cases almost destroyed the trees; ours escaped with only a slight attack, which we kept pinched off as it appeared in order to prevent its spreading. Nectarines in our case seemed to be more blistered even than the Peach. Has this been found to be the case generally? Apples are under the average, but they promise to be very fine in consequence. Pears are generally a good crop, and everywhere look remarkably well. Plums are a heavy crop in some districts, and particularly free from aphides. Early Cherries did well; Morellos, which suffered at the stoning period, are not half a crop. Apricots are under the average, but very fine in quality. Bush fruits have been very good indeed, especially Raspberries. Strawberries commenced well, but the growth of mid-season crops was arrested by drought. Late varieties, too, were not able to set their bloom owing to the same cause; all were doubly mulched, but we suffer sadly from drought. Sir Joseph Paxton is our best kind for cropping, flavour, and packing—three good qualities. James Veitch we are discarding, and also Elton Pine. We have planted Sir J. Paxton on early borders for our first crop, and intend to plant the north or late borders with the same variety. It is the only one we use for forcing, so highly is it thought of here. Walnuts and Cobnuts are full crops. Medlars good.—David C. Powell.

Hornby Hall, Lancashire.—In this locality all sorts of Currants—Black, Red, and White—Gooseberries and Raspberries are generally very good crops. Apples are nearly a failure; of Pears we have a fourth of a crop. Damsons are a very fair crop in certain places, not so good in others. In respect to Strawberries, we had a good general crop. President is generally the favourite in this locality both for preserving and flavour; Elton Pine is considered to be the best late variety. In reference to culture, with newly trenched ground 2 feet deep and an ordinary quantity of manure, almost any soil will grow Strawberries; and I would recommend the three years' system, that is, planting every year, and digging down some every year.—James Young.

Cuerdon Hall, Preston.—Strawberries do very well here. Our soil is a brown loam on limestone. It is not a heavy soil. Keen's Seedling is our favourite for an early crop. We have a south border that has been planted more than twelve years, and yet every year we have good crops of early well-coloured fruit. It is manured every autumn, but never dug. British Queen bears well, but not so well as on heavy loam or marl. We grow regularly, besides the two sorts just named, President, Carolina Superba, Vicomtesse Héricart de Thury, James Veitch, Sir Joseph Paxton, Oxonian, Sir Harry, Duc de Malakoff, and several other sorts, including some lately introduced, but of which, without further trial, we cannot speak. We had abundance of bloom and a heavy crop of very fine Strawberries. We like Vicomtesse Héricart de Thury and President for forcing.—J. Roberts.

Enville Hall, Stourbridge.—In this district, as far as I can learn, Apples are under the average. They bloomed well, but set very badly, and many have since fallen. Pears are a good crop on walls, espaliers, and pyramids. Plums are a good average. Peaches under glass are very good, and also on walls protected by glass copings. Apricots, where protected by glass copings, are grand crops; previously to glass being used I scarcely ever had half a crop, but since their use I have not had a total failure. The coping projects about 2 feet and is a fixture, remaining on all the year round. Gooseberries, Currants, and Raspberries are abundant and fine. Strawberries are not a good crop, and small. The best kinds I find for this district are Keen's Seedling, President, La Grosse Sucrée, and British Queen. These are the only kinds grown here for main crops and for forcing. La Grosse Sucrée I consider to be one of the best for forcing as a variety to follow Keen's Seedling and President. British Queen I find to be invaluable as the last batch for forcing; in point of flavour it cannot be surpassed by any other kind.

Early Potatoes are a poor crop with us; second early and late kinds are looking very well, and promise to be good crops.—Geo. H. Green.

Thirkleby Park, Thirsk.—Apples with me, and as far as I can ascertain in this neighbourhood, are almost a failure; also Plums. Stone fruits, too, are much below the average, and will require a fine autumn to bring them to perfection. Bush fruits are plentiful with us and fine in quality. Strawberries are below the average, but what we have are large and fine in quality. The varieties which we grow are Keen's Seedling, James Veitch, President, and Dr. Hogg. Empress Eugénie also does well here.

Potatoes are a fair average crop and free from disease at present, but rather small.—H. Brunton.

Half-opened flower of the white Ramanas Rose (Rosa rugosa alba).

Gorhambury Park, St. Albans.—The Strawberry crop here has been a light one and of short duration. We have discarded all but three varieties, and these are Keen's Seedling, for early forcing and for planting in borders for jam-making; Sir C. Napier for second early forcing, and for main crop dessert fruit; and we grow President for late produce both indoors and out. In a good season these meet all my requirements, but this year has completely upset all rotation; there was no second bloom—all came in together—and the crop was soon over. Apricots are a light crop, but good in quality. Plums good, especially Gages. Cherries good. Peaches and Nectarines are a light crop, but good. Apples are below the average, but seem good in quality. Pears are a fairly good crop. Gooseberries and Currants good in every way. Of Nuts we have fair crops.—Joseph Thompson.

Danesbury, Welwyn.—Apples here are under the average and the trees are blighted, especially standards. Pears too are under the average; the best are Beurré Giffard, Brockworth Park, Alexandre Lambre, Beurré Diel, Josephine de Malines, Forelle, and Marie Louise. Of Plums we have heavy crops and good. Peaches too are good and the trees healthy. Apricots are an average crop. Cherries are over the average and good. Strawberries have been bad; the cold spring and long-continued dry weather afterwards injured them. Nuts are an average crop. Bush fruits very good, especially Raspberries and Gooseberries.—R. F. Sawford.

Royal Gardens, Frogmore.—In consequence of a long winter and late spring all fruit crops are much later than usual, but both trees and fruit are remarkably clean and healthy. Strawberries have suffered very much, and some of the plants have not produced any fruit. Sir Joseph Paxton, which usually bears heavy crops, is quite a failure this season. Apricots, Apples, Pears, Plums, and Strawberries are, on the whole, only average crops. Peaches, Nectarines, Cherries, Raspberries, and small fruits are particularly good. Our best Strawberries are La Grosse Sucrée, Keen's Seedling, Sir Joseph Paxton, and Vicomtesse Héricart de Thury for early crops. Of late kinds our best are Frogmore Late Pine, Elton Pine, and Unser Fritz.

Potatoes promise to be excellent, and no disease has as yet made its appearance.—Thomas Jones.

Bearwood, Wokingham.—Apples hereabouts are good. Pears thin. Peaches and Nectarines very good. Plums on walls are clean and bearing good crops. Apricots are under the average. Cherries good. All kinds of small fruits are good average crops, and the recent rains have done wonders in gardens generally. Strawberries have disappointed us this year; cold in the first instance and then drought injured them, and the fruits that did ripen were not of average quality. The sorts grown here for forcing are Keen's Seedling, President, Sir Charles Napier, and British Queen. The sorts just named I also rely on for our supply from the open. My plan has been for many years to plant out the forced ones and to make fresh beds every year. The sort on which I trust most is the British Queen. With me it surpasses every other variety, and this year it has given me more fruit than all other sorts put together. In some gardens it is, however, useless to plant it. Our kitchen garden soil is very stiff on a bed of clay, and very suitable for Strawberries. In planting I have the soil put up in ridges about 8 inches high, and plant singly in rows 2 feet apart each way. By this plan of planting, should the season be wet, the fruit has a better chance of ripening, and is not so apt to rot. In autumn the beds are top-dressed with old hotbed manure, and when they commence throwing up for bloom I put a slight covering of straw over the top-dressing to keep the fruit clean.

Early Potatoes of all kinds have been good and excellent crops, free from disease and good in flavour. Late ones, too, look strong and promising.—James Tegg.

Wotton, Aylesbury.—All sorts of Gooseberries and Currants are bearing heavy crops. Apples hereabouts are an average crop. Pears are under the average, except Williams' Bon Chrétien and Jargonelle, both of which are bearing fairly well. Apricots are under the average; our trees suffered a good deal last winter. Peaches are an average crop, and so are Figs on walls. Plums of all sorts are heavy crops. Strawberries here have been a full crop. The treatment which suits them best here is to plant every fourth year in August, to clear off all runners, and to top-dress with a mixture of rotten manure and loam. I never dig between the rows. The soil here is stony black loam, in a subsoil of yellow clay. The

orts which I grow for main crops are Vicomtesse Héricart de Thury, James Veitch, Keen's Seedling, and President. British Queen also does well.—James Smith.

Alton Towers, Stoke-on-Trent.—Apricots with us are plentiful and good. Peaches fairly good. Strawberries plentiful. Small fruits excellent. Apples plentiful and good, and so are Nuts. Bilberries are a great crop and fine. Pears are fairly good. The hot sunshine which we had some time ago suited this locality well, and the later rains have suited all growing crops. Plums and Cherries are producing heavy crops. All round here there are very large orchards.—Thomas H. Rabone.

Woburn, Beds.—The Apple crop in this neighbourhood is below the average, although when in bloom it promised to be the heaviest on record. Cherries are an average crop. Apricots showed but little bloom, and that very weak; consequently they are very scarce. Plums, including Damsons, are good average crops. Pears average, but they do not swell off vigorously. Currants and Gooseberries are abundant and clean. Raspberries fell off much from want of rain. All kinds of fruit trees are very free from insects. Strawberries suffered much from the long trying winter, and the frosts in May and the continuous cold nights in June prevented the bloom from setting; on the whole, therefore, they are the worst crop I have had for years. We keep to the old kinds. Black Prince for preserving; Keen's Seedling is still good for early work; whilst for general use President, Elton, and particularly Lucas are always grown. After trying various plans, we trust to the simple one of planting out a bed of forced plants on fresh ground every year. As soon as convenient after fruiting, we do away with the same number of plants that have stood about three seasons; by these means we have mostly had excellent crops of fruit.—Alexander McKay.

Madresfield Court, Malvern—With the exception of Apricots there are good average all-round crops of fruit in this neighbourhood, and the trees are looking healthy and clean. The earliest Strawberry here is Early Prolific, which is fit to gather on June 17. La Grosse Sucrée, Vicomtesse Héricart de Thury, and Pauline are a week later. Good one-year-old plants from the earliest runners are found fit to gather from sooner than older plants, and are altogether preferable to them, *i.e.*, if good, generous cultivation be given them. Pauline is an excellent Strawberry, and bids fair to rank high when better known. President is the best main crop kind, and, when the season is favourable, good in flavour. James Veitch is the best for size, and Oxonian for latest crops, although the latter has proved to be somewhat fickle with us this year for the first time. We get our best crop by planting out annually large beds of old forced plants, taking one crop from them and then destroying them, and planting Broccoli on the same ground with a crowbar. Of course, the beds are first well prepared by trenching and manuring.—William Crump.

Highclere Castle, Newbury.—Apples with us are a fair average crop. Pears the same, more especially on standard trees. Peaches and Apricots are poor. Plums are a very heavy crop. Gooseberries and Currants abundant, and Raspberries are also very good. Strawberries here have been abundant and good—quite up to, or above, the average. The sorts depended on for the main crop are Vicomtesse Héricart de Thury and President. The best late kind is Frogmore Late Pine. Other sorts grown here are Black Prince, La Grosse Sucrée, James Veitch, Helena Gloede, and Loxford Hall Seedling. I find it best to make two or three young beds every year. These are especially useful for furnishing a good crop of early runners the first season after planting. I also make a practice of planting the best of the forced plants, which are cropped two years in the open, and then cleared off in time for planting late Broccoli. Those planted from runner will crop three, or even four, years satisfactorily, but it is not advisable to retain them longer than three if the best results are looked for. The ground between the plants ought never to be dug, as the firmer the soil is the better the fruit, both in quantity and quality. I find a good mulching of rotten manure in autumn to be very beneficial.—William Pope.

Wynyard Park, Stockton-on-Tees.—Fruit crops here, generally speaking, are little, if any, below the usual average. Apples are an average crop and very good. The best are Devonshire Quarrenden, Keswick Codlin, Stirling Castle, Tower of Glamis, Hawthornden, Echlinville, Blenheim Orange, Sturmer Pippin, Pitmaston Nonpareil, Summer Golden Pippin, Court Pendu Plat, Cockle Pippin, and Margil. Pears are a moderate crop, but some sorts are good, especially Marie Louise, Napoleon, Williams' Bon Chrétien, and Easter Beurré. Plums, particularly Victorias on standard trees, are a first-rate crop, but fruit on wall trees is very thin. Apricots are a light crop. Morello Cherries are first-rate; numbers dropped in stoning, but enough are left to make a heavy crop. Strawberries are very fine and plentiful, particularly James Veitch and President, these two being far and away the best sorts for us here. With regard to bush fruits, all are very good and carrying heavy crops. Taking fruit trees generally, I have never seen them looking in better health or making better growth, which, I hope, augurs well for next season. Nor do I remember a season in which fruit trees have been cleaner or freer from blight.—H. E. Gribble.

Eden Hall, Penrith.—In this district fruit prospects are exceedingly poor, with the exception of bush fruits, which are good and plentiful. Most kinds showed abundance of bloom for a full crop; but the bitter winds which we had in May not only destroyed the bloom, but almost denuded the trees of foliage. Pears are a complete failure. Apples the same, with the exception of Lord Suffield, Irish Peach, and Ribston Pippin, which hardly ever fail here to produce a crop. Of Plums we have a few on Victoria and Green Gage. Of Apricots we have none; they never do well here. Cherries are very poor. Strawberries are a fair crop. Vicomtesse Héricart de Thury (the best for all purposes), President, and Sir Joseph Paxton do very well here. I find that the best results are obtained by forming plantations yearly from runners layered in pots as early in the season as possible. We plant in well-trenched ground and mulch heavily—a necessary operation, our soil being light.—T. R. Cuckney.

Alnwick Castle.—Last year fruit trees were heavily cropped, and the autumn was cold, with little sun; the wood, therefore, was imperfectly matured, and much of the fruits, even that of Apricots, did not ripen; some of them were on the trees in November. The natural result has been that many varieties of Apples, Peaches, and Pears were scantily bloomed, and what flowers did open have been unable to stand the cold winds which prevailed here through the spring. Of Apples, Lord Suffield is bearing a fair crop, but, generally speaking, Apples are scarce. Pears are much below the average, but the fruit promises to be good. Peaches on open walls are a light crop, with the exception of Royal George (always good), on which there is a fair crop. This is one of the best varieties in the north. Plums are an average crop. Victoria, Jefferson, Golden Gage, and Kirke's are among the best. May Duke Cherries are good; Morellos light. Gooseberries are a heavy crop, and other bush fruits are tolerably good. The Strawberry crop is under the average. We have had a cold, late spring, and the plants in many cases have small contracted leaves, and many have scarcely flowered; whilst others have done so abundantly, and are now yielding excellent fruit. The usual method of planting Strawberries in this neighbourhood is as follows: After deep trenching and heavily manuring we plant in rows 3 feet apart and 15 inches asunder in the row, and allow all runners to grow. These beds fruit the second year, and continue for several years, in favourable seasons, to produce great crops. After trial of a great number of varieties, those found fit to survive are Keen's Seedling (earliest), Garibaldi, Sir J. Paxton, President (this damps badly in wet weather), and McMahon. The last can be gathered to the 20th of August and is a great boon on that account; but we hope that some one will raise a Strawberry (a good one) to fruit into September. Sir J. Paxton and McMahon are the best of those just named. Strawberry plants should be made firm in the ground. We mulch with short manure, and cover it with new stable litter in April—it is soon washed clean with the rain; and about three weeks or so before ripening we dust the ground with a little guano (or use it in a liquid state), and give a heavy watering, the land being light, and the result is a fine crop of Strawberries. Many acres of Strawberries are grown about here for market. Where the runners are allowed to grow thickly, no mulching, of course, is needed.—George Harris.

Lambton Castle, Fence Houses.—Apples are a short crop with us. The bloom was abundant, but was destroyed by spring frosts, from which, as a rule, our garden suffers much, as it only lies a few feet above the sea level. Of Apricots we have none, repeated hard winters having killed the trees. Plums are short, and being late are not likely to be fine. Cherries are a moderate crop, but fairly good in quality. Of Peaches and Nectarines we have none out of doors. Bush fruits have done well, and Strawberries are plentiful and good. I find Keen's Seedling to do well. I discarded it a few years ago on account of its not fruiting, but after getting a fresh stock of runners it has again taken a favourable position, both as a fruiter out of doors and under glass. Duke of Edinburgh does well, and is a fine looking fruit for dessert or for the exhibition table. Eclipse forces well, and is also bearing a heavy crop outside; it proves to be a most useful Strawberry. I grow Black Prince, Captain, and King of the Earlies, the two latter in small quantities for trial. Of Vicomtesse H. de Thury we grow lots; it always fruits heavily, and answers admirably for preserving. We renew our plants every four years; the two last years we generally allow the runners to remain, and we never lose a crop. Gooseberry bushes are weighed down to the ground with fruit.—J. Hunter.

Chatsworth, near Chesterfield.—An error appears in the last few lines of my fruit report (p. 108) referring to Strawberries. What I intended to have said was, that "Strawberries are under the average, and I find a greater percentage of blind plants than I ever remember before, especially in our old plantations, and also in those formed with runner plants. On the other hand, in quarters planted last year with plants which had been forced we have no blind ones, and these, in my opinion, always give the best returns."—O. Thomas.

WHITE RAMANAS ROSE.

The half-opened flower of the white Ramanas Rose (Rosa rugosa) is so lovely, that we have been tempted to again illustrate it, so as to show the bloom in this stage. When fully expanded and showing the golden tassel of stamens, the flowers are beautiful indeed; but the half-opened state is to many even more charming. If cut as soon as the buds are upon the point of bursting, they will expand well in water and last longer than if cut when quite open. Everyone who knows this Rose will agree that it has no rival; even among the multitude of beautiful Roses which we now possess none have such luxuriant green foliage, and none are more beautiful in autumn when adorned with hips, which are unusually large and bright orange-red in colour. It is so well known now as a perfectly hardy shrub suitable for any open sunny spot, that no more need here be said about it.

EVILS OF OVERCROWDING.

The aphorism, "The man who causes two blades of Grass to grow where only one grew before is a public benefactor," is only true in a limited sense; for if the land had been previously well covered with herbage, the doubling of the produce might ruin the whole. In gardening, one of the greatest evils met with is overcrowding, or, as it may be otherwise termed, overcropping. The trees in the wood, the White Thorns forming our hedges, the Apple trees in the orchard, the Laurels and other things in the shrubbery, and annuals in borders are commonly planted too thickly to permit of their displaying themselves to the best advantage. Many fail in gardening from lack of resolution. They know very well that leaving too many bunches of Grapes on a Vine, or too many fruits on Peach trees, or too many Peas in a drill, will depreciate the value of the whole, and yet the excess is constantly permitted. If statistics could be given of the number of inferior crops of Grapes—say, for instance, that were due to overcropping—the magnitude of the evil would be at once seen. Judicious feeding in many instances mitigates the evils of overcropping considerably, but cannot eradicate them. Knowing how and when to give extra support to tree or plant in times of pressure furnishes us with the key as to our mode of procedure. A few weeks ago I noticed a bed of double Zinnias looking weakly and of inferior growth. I sprinkled the surface lightly over with Amie's manure, hoeing it in, and now they are as luxuriant as one need wish them to be, and the flowers large in size. Much more might be effected by means of artificial manures than is now done. I have found an application of phosphates to benefit stone fruits, and liquid manure from the farmyard or house sewage never comes amiss. On porous soil over-feeding need not be dreaded. A tree carrying a full crop of fruit now should be well fed either with liquid manure of home manufacture, or a sprinkling of artificial manure of some kind carried into the soil with a soaking of pond water. If we try to grow two plants of Broccoli or two Lettuces where only one grew before, the chances are we shall gain nothing by it; but Veitch's Autumn Cauliflower, when planted at wide intervals, grows to an immense size, and a Cauliflower a foot in diameter, even when firm, close, and of good colour, is too large for table, so I have found it advisable to plant these near together in order to obtain the small white heart desired, thus showing that there is no rule without an exception. On the other hand, Broccoli which are expected to stand the winter can hardly have too much space in moderation. Four feet for the largest kinds should not be exceeded. Few things suffer so much from overcrowding as spring-sown annuals. By reason of want of space they are often rushed up to blossom and bear seed, and become shabby without having reached proper development. E. Hobday.

Carnations at South Kensington.—Seldom indeed can fault be found with the reports of exhibitions given in The Garden; nor is there anything, perhaps to complain of now, as the matter to which I wish to direct attention may be a matter of opinion. It is as follows: At page 110 it is stated "that only two exhibitors, Messrs. C. Turner and Douglas, of Ilford, succeeded in producing first-class flowers, all the rest being but very third-rate." This is certainly not my opinion. Many exhibitors besides the two named exhibited first-class blooms, notably Mr. Hines, of Ipswich, and Mr. Lakin, of Oxford, in the class for twelve Carnations. Mr. Hines had the most even lot; but Mr. Lakin's collection contained a few superb blooms, and amongst them a fine specimen of C. B. Master Fred. In the collection of twelve Picotees, Mr. Lakin's was also very fine; while Mr. Rowan and Mr. Buxton likewise showed well. Mr. Huson Morris, of West Hayes, Kent, exhibited twelve very fine Picotees, especially a bloom of Liddington's Favourite. Mr. Henwood and Mr. Phillips, of Reading, and Mr. Anstiss, of Brill, exhibited well in the class for six blooms of Carnations and Picotees. All the above exhibitors showed much above the third class. I would decidedly place them in the first class. In the section for selfs and fancies, the amateurs' class was for twelve, not six blooms; and certainly the exhibits were anything but third rate. Mr. Aubery Spurling obtained the first prize with a superb lot of blooms, and they were the more creditable to him, because he does all the work himself after business hours. Indeed, there were no fewer than twenty-nine exhibitors, a large proportion of them being in the same position as Mr. Spurling; and after the efforts they have made and the excellent results obtained, it is, to say the least, somewhat discouraging to be told that their flowers were "very third-rate."—J. Douglas.

MUSHROOMS FOR AUTUMN AND WINTER.

This is the season at which one should commence preparations for autumn Mushroom beds. In ordinary positions and under common circumstances, it takes several days to collect and prepare the materials for making a good-sized bed. Day by day, if convenient, or at least at intervals of two or three days, the manure as it comes from the stables should be shaken over, and the droppings, including the shortest of the straw, should be wheeled into an open shed and there spread out to dry. A little fermentation may not be amiss, as it will assist in driving off the superabundant moisture more rapidly than could otherwise be effected, but it must not heat violently. If there is danger of the manure becoming too hot, a little loam may be mixed with it. A little loam is, I think, an advantage, as it helps to bind the whole together, and at the same time, if the manure should be a little too fresh, prevents overheating. As soon as materials sufficient for one bed have been collected, a second should be commenced; in fact, if a good supply of Mushrooms is required all through the winter, there should be no stay in the making of beds till the end of October. During the time the manure is lying in the shed frequent turning and mixing must take place, throwing the outsides of the heap into the middle, and *vice versâ*. This permits of the drying process being equal throughout the heap. Next to good spawn, the most important matter in Mushroom culture is making the beds firm and spawning at the right temperature. When a proportion of loam is used with the manure, the beds may be spawned very shortly after they are made up, as there is not much danger of over-heating.

At this season Mushrooms will succeed very well in the open air. More labour is required with open-air beds, but otherwise the result is usually a success; in fact, any person succeeding in growing Mushrooms in a house will succeed with them in the open air. The preparation of the materials is the same in both cases, and the construction of the beds is the same also. But the open-air beds should be of larger dimensions if possible, *i.e.*, the beds should be deeper and built up like a ridge, in order that the heat may be more steady and permanent. The beds may be spawned as soon as the heat declines below 80°. I have spawned beds at a higher temperature when the heat was declining, but unless one is quite sure about the condition of the material of the bed, it is better to wait till the temperature falls below 80°. If several beds are made between the middle of August and the middle of October there should be no difficulty about a supply of Mushrooms all winter. If the soiling of several of the last made beds be delayed for two or three weeks, it will extend the season of productiveness, as though the spawn will work freely through the beds, the Mushrooms will not push through till the soil is placed on if the operation be not delayed unreasonably. If the beds in the open air are kept dry and comfortable they will produce Mushrooms after those in the house have ceased to be productive.

The soil for covering the beds should be fresh loam of rather a sandy character, and should be laid on the surface of the beds from 1½ inches to 2 inches thick, and be made thoroughly firm by beating with the back of a spade. The finishing touch should be given after damping the surface over with a rosed water-pot, so as to make all firm and smooth. Thatched hurdles are good coverings for open-air beds, placed on each side so as to form a ridge. They throw off the water in a most effectual manner. In addition to the hurdles the beds should have a covering of dry litter. If the latter, next the bed, by any chance gets wet the spawn may run into it from the bed, and its productiveness be injured. Where many beds are made the expense of the spawn becomes a consideration, as it usually costs from 5s. to 6s. per bushel. Many good growers obtain their spawn by breaking up a part of a bed in bearing, and use the spawn found there for spawning other beds. This is a very good and a very economical plan. It usually takes a fortnight from the time the materials are collected till the bed is fit to make up, but in cases of emergency the beds may be made at once by adding more loam to the manure, blending all together, and making the bed as firm as possible. The bearing of Mushroom beds is very often injured by watering too freely. In the early stages of bearing very little water will be required, especially if a light covering of hay or litter be used to check evaporation. A light sprinkle with the rosed-pot or the syringe, to soften the hard surface and permit of the young Mushrooms forcing their way out, is all the attention needed for several weeks after bearing begins. When the produce falls off in quantity, a good watering may be given with advantage, using a little artificial manure in the water.

E. Hobday.

Chrysanthemum Madame Desgrange.—This is one of the very best of early white-flowered Chrysanthemums. It is much in advance of the small flowered early pompons, such as Model, that flower at the same date. We find the blooms most useful in a cut state, for although when they open they are creamy-white, they soon change to the clearest white, and last for a long time in water. We have grown a quantity of this variety, and a good proportion of the stock is now in full bloom, while others are only just showing bud, thus giving a long season of flowers for one variety. The early flowering ones are those that were left on the old stools when under glass, and that had made considerable progress before they were removed to their summer quarters. The later flowering ones, which are much the finest plants, are those struck from cuttings and grown on in the usual way, and I have no hesitation in saying that this beautiful variety can be had in flower for fully three months by utilising the earlier growths made under glass, and allowing them to grow without stopping for the earliest bloom, and depending on spring-struck cuttings to supply the main and late crop of flowers. This Chrysanthemum is especially valuable from the fact that the season at which it flowers is about the most difficult time of the whole year in which to get good white flowers in quantity, except by those who have plenty of glass structures. I feel sure that the large demands made on gardeners for white cut flowers will lead to this kind being very largely grown, and to its season being prolonged by various devices. I may also add that it makes most effective pot plants for indoor decoration, being dwarf and sturdy in habit, and requiring no stopping or pinching to induce it to form bushy specimens.—J. G., *Hants*.

Names of plants.—*E. F.*—Mormodes pardinum eburneum.—*T. Poyntz.*—Cymbidium aloifolium, Miltonia Regnelli, Cattleya crispa and Odontoglossum cordatum—all good varieties, particularly the latter, which is much deeper in colour than usual.—*C. H.*—1, Leycesteria formosa; 2, Hemerocallis fulva.—*W. M.*—Tulip Tree (Liriodendron Tulipifera).—*Norman*—White flowered climbers, Physianthus albens.—*A. K.*—Balsamita grandiflora.—*K. A. Spurrell.*—Lilium calcedonicum.—*Reader* (*Cork*).—1, Crataegus Crus-galli pyracanthifolia; 2, Bravoa geminiflora.—*W. Cash.*—1, Begonia weltonensis; 2, cannot name without better specimen with leaves; 3, Veronica decussata; 4, Phlebodium aureum.—*G. G.*—3, Leycesteria formosa. Others next week.

WOODS & FORESTS.

"YORKSHIREMAN'S" CORSICAN PINES.

Some of our writers on forestry, and more particularly "Glendye" and "J. F.," have criticised somewhat harshly the merits of the Corsican Pine as a timber tree suitable for planting extensively in this country. "Yorkshireman," on the other hand, has continually and consistently written in favour of it, asserting that it is the most suitable Pine to plant for the future. He drew his inference as to the merits of the tree from its behaviour on the bleak moorland districts in South Yorkshire. He has placed it before the Scotch Pine, and even the Larch, as a profitable timber tree; in short, he has come to the conclusion that it is the tree of the future for British plantations. To satisfy ourselves upon the subject we went the other day to see "Yorkshireman's" Corsicans about which he has written. He took us to several parts of the estate, high and low, sheltered and exposed, so that we had a good opportunity of judging for ourselves as to the character of his climate. In the lower parts it is pleasant enough, but the greater part of the estate lies high and exposed, and is as bleak as any spot in all Yorkshire; in fact, we could not see a very great area where "Yorkshireman" could coddle up his Corsican Pines, as "J. F." seems to allege. Added to this, the soil is not of the best, particularly in the high parts; there it is thin and stony, in fact overlying a stratum of hard rock—about as poor a spot as perhaps "J. F." could find in the Scotch highlands.

"Yorkshireman" first of all took us to the Corsicans in the home woods, which are sheltered a good deal and have fairly good soil. Here they were planted years ago with a mixed collection of other Conifers, Black Austrian and Scotch Pines included, and left to the mercy of numberless rabbits, which are, even at this season, audacious enough to bark Portugal Laurels with stems as big as a man's leg. Side by side you see the Corsican, the Austrian, and the Scotch Pines, and in every case the Corsican has the best of it for height and girth, but in spread of branches and density the Austrian is ahead of it. All were planted at the same time, in similar soil, and were of the same age. The Corsicans are now about 30 feet high, at a rough guess, and with larger boles than the Scotch, which are not much shorter. Moreover, the Corsicans have a clean length of bole without branch or knot. In the wood where these particular trees are growing there are numbers of others, and the same difference amongst the three kinds is perceptible in every part. We then went to the higher parts of the estate—to the moors, in fact, hundreds of feet above sea-level—where there are many acres of mixed plantations which were formed about fifteen years ago. The chief elements of the mixture are Scotch and Corsican Pines, Larch, and deciduous trees, such as Beech and Sycamore, the foliage of the latter being often lashed into shreds on this bleak spot. Of these only the Scotch and the Corsican Pines can be said to be really flourishing, and it did not need a trained eye to see which was the best of these two. One could single out the Corsicans at a distance, so much taller, bushier, and healthier they seemed than the Scotch, and coming closer to them one could see how much stouter and longer were the yearly growths, some being as much as 18 inches. Of course, they had a different aspect also, on account of twisted leaves and less bluish-grey hue. The Austrians in this part were bushy enough, too much so, for their dense mass of branch and foliage gives such a hold to the wind, that they are often blown out of the ground, as the soil is not very deep and often boggy. We saw enough on this hill to convince us that the Corsican Pine is better able to flourish than any other tree, and eventually clothe the hills with good timber; and we are sure that "Yorkshireman" would be glad to show the same plantations to "Glendye," "J. F.," or anyone else interested in the subject.

"Yorkshireman" seems to be quite aware of the defects of the tree which our writers have pointed out. No one is more aware than he that it is a tree not to be handled in the nursery stage like the Scotch Pine. But he makes allowance for this, and his nursery stock shows that he is no more exempt from failure than other people in the matter of dealing with the juvenile Corsican. He can show you breadths of irrecoverable seedlings which had been planted just before a spell of bad weather. It is, indeed, a capricious tree to deal with when young, but this must be allowed for. The broad question is: Is it, or is it not, the best Pine to plant extensively with a view to ultimate profit from its timber? Somebody must try experiments, or where should we be? What if the Duke of Athole had not in the last century boldly planted the Larch when first introduced before anyone knew about its behaviour in this country? It was then presumably a tender tree, and is so now when in a young state; and, moreover, we had the native Pine whose timber was then thought to be scarcely surpassable. What would have happened had every planter waited till the Duke of Athole's trees were big enough for ship timber? The Corsican Pine is almost a parallel case. We have in it a tree which we know yields timber of excellent quality. It is of quick growth, even under adverse circumstances, and will presumably yield a quicker return than the Scotch Pine. At a time when many think that the Larch is deteriorating we should be only too pleased to avail ourselves of a substitute. In conclusion, we are quite satisfied that "Yorkshireman" has not over-estimated the value of the Corsican Pine, that he has described his plantations correctly, and that he has no motive for advancing the claims of the Pine other than a keen desire to further the interests of British forestry.

THE PROPOSED FORESTRY SCHOOL.

"Yorkshireman" (p. 111) quotes the *Standard* on the school of forestry question, and, notwithstanding what is said on the other side, the conclusion seems pretty general that the prospect of having such an establishment is rather a remote one. What, however, seems to be lost sight of is the fact that there are forest schools lying already at hand. Take any 10 square miles of average English country-side and turn it for the nonce into a field of investigation, and I am sure the student will find quite enough to interest and instruct him without any specially prepared site. In fact, I think the advantage is all the other way, and that a stretch of timbered country taken as it comes is a better ground for study than a place cut-and-dried for the purpose. In saying this, I do not dispute the utility of having sites for observations for special purposes, but, looking at the matter on its broadest footing, I certainly think there is too much made of having forests manufactured for purposes of instruction. A week or two ago I mooted the question of more closely studying the relations of trees and soils. This I conceive to be an important point in forestry, but it is certainly a thing which could as well be studied by taking a few miles of country wherever the learner happened to be as it could be at specially appointed stations. There is nothing special in the way in which the district from which I write is timbered, yet by taking a field of, say, 10 square miles from any suitable point, the young forester would get a variety of soils, aspects, elevations, and species of trees. As an outline of the course he could take with regard to trees and soils, I have mentioned that within the distance referred to we have chalk downs, slopes, and levels of greensand, the coral rag formation, and then the Oxford clay. There are, of course, others beside these in the neighbourhood, but these will serve to illustrate. To take the case of the Elm; upon the chalk it grows as upon all the rest of the soils I have spoken of, but to nothing like perfection. The soil, taken in connection with the elevated situation it occupies, does not seem suited to it. Immediately below this, however, both on the slope and on the level where the greensand commences, the Elm assumes quite another character in habit of growth, size, and quality. In fact, the best Elm I am acquainted with grows on this soil. Coming to the coral rag, we get Elm of fair dimensions and quality, but without the especial excellence of the last-named. On the clay it seems comparatively stunted in its growth and of indifferent quality. With the Oak the conditions are in many respects the reverse, as on the clay, although the process of production is a slow one, timber of the best quality is generally to be found. As a rule, the trees are not left to grow very large, and when trade is brisk the fellings are soon bought up. Where the best Elm grows, the Oak, though it often reaches a large size, cannot be depended upon for quality. In some cases the trees turn out sound enough; in others they are practically of little use. Even full information on these points will not be an absolute safeguard to the planter, but there can scarcely be a more important subject for careful study, and it is one which, as has been said, can be as well pursued in any place wherever the student may happen to be as upon any especially arranged ground. In addition to this, there are very few districts of the size I have indicated where there are not young plantations and woods of various ages which may be studied in connection with what appears to be the native growth. There is, of course, the fact of the lands and woods being private property, but, from my own experience, there are very few who would deny access to them at proper times for the purposes of study.

D. J. Yeo.

THE MOST PROFITABLE WILLOWS.

It is very difficult indeed, out of 282 varieties of the Salix or Willow family, says Mr. Hutchison in one of his excellent papers communicated to the Highland Society, to single out one or two of the most suitable and advantageous for general planting as timber trees; but at the same time, though there may appear 282 varieties, botanically speaking, these may be reduced to a very much smaller compass when they are treated of collectively as similar trees. In fact, they present frequently so few features of distinctive merit or difference, that the number might be very safely reduced to a much smaller list of distinctive individual trees worth growing for their timber in suitable soils and situations throughout Scotland. Indeed, after a careful analysis of all the species, it appears that the entire list of Willows, which may be regarded as claimants for popular favour as timber trees, may be simply reduced to four distinct varieties, viz., Salix alba (the White or Huntingdon Willow), Salix caprea (Goat Willow or Saugh tree), Salix Russelliana (Bedford Willow), and Salix fragilis (Red-wood Willow). Of these varieties, the first named, viz., the Huntingdon Willow (Salix alba), is probably, when unpruned and grown naturally in favourable circumstances, the handsomest and finest of all the Willows of really tree dimensions. It is, in truth, a most picturesque and beautiful tree, whether it be regarded for its general outline and habit, or for the peculiar and distinctive whitish appearance of the foliage, which, combined with its general light and elegant outline, contribute to render this one of the most favourite trees for planting

in such situations as conduce to its early and full development. Such situations are river banks in deep, damp alluvial soil in flat marshy ground, and upon those low-lying swampy situations so well known and common in Scotland, where few planters care to risk a general crop of timber trees. This Willow, which we deem worthy of far more universal cultivation in this country than has hitherto been attempted, has, like many other varieties of its tribe, the advantage of thriving very well indeed in rather poor soils, and in thin sandy stretches or on damp sub-soils. Certainly most trees will thrive better in deep rich loamy soils, with rather a damp sub-soil, than in a poor thin one; but the only point of importance to be observed now-a-days is, that the soil (whatever its nature may be) shall be well drained from stagnant water, and trees of magnitude, such as the White Willow, Grey Poplar, and other rapid-growing timber trees, will all benefit immediately. Thus in cold upland situations not only may the Grey Willow, but also the Bedford Willow (Salix Russelliana) be grown with profit and advantage. In any situation of soil, with damp bottom, the progress made by the Grey Willow is truly marvellous. The plants so situated soon attain considerable height, and rush up with clean straight boles when planted closely, and yield timber of no small value in a very few years. It has been observed that the annual increase in the timber of the Grey Poplar, in trees of about twenty years of age, is at the rate of about 2 cubic feet in certain situations—certainly no inconsiderable rent for the ground occupied by the tree—and this measurement has been verified in more than one place both in Scotland and England; and, in some soils, trees planted eighteen years ago have now attained, in strong clayey loam, fully 25 feet in altitude, and girth about 7 feet in circumference at 1 foot from the ground. The wood of the Salix alba is used for a variety of wright-work. It is peculiarly light, tough, and easily wrought, and is adapted for a great number of country purposes—such as cleading of carts and wagons, railway brakes, planking and joisting boards, and for many purposes in connection with millwright work; tool handles, hoops, copper-work, and basket-making. Indeed, there is no part of this tree, from its thick and heavy trunk to its youngest twig, but is adapted to some use. The bark of the Grey Willow abounds in tannin, but does not appear to be sufficiently appreciated, and is worthy of more notice in this country for the purposes of the tanner. In this respect it appears to be much more generally used on the Continent of Europe. The facility with which this tree is propagated, and rushes up into shape after being planted, is another recommendation to its future increased introduction. All that is requisite to commence a willowry or plantation of this tree is to insert into the soil cuttings made from one or two years' wood (about 2 feet long) to the depth, say, of 10 inches to 1 foot. Stobs made of this tree of greater thickness, say even up to 4 inches to 6 inches in diameter, succeed very well in damp sub-soils, and many fine large trees have been grown from them, although, upon the whole, and in a variety of soils and situations, trees grown from the smaller sizes are preferable. The next variety of Willow, well worthy of culture in this country, is

The Goat Willow (Salix caprea), commonly called the Saugh. Although it can hardly be said to acquire a great height and large dimensions, there are, nevertheless, examples throughout the country of immense size, considering the habits of the tree. It thrives in any soil or elevation, but will attain its highest height and dimensions in a dry, rich, deep, loamy soil, with a cool, if not dampish bottom. The wood of the Saugh is tough and elastic, having considerable lateral as well as longitudinal adhesion, and admits of a very fine polish. It is of considerable value for jobbing purposes; but the White Willow (Salix alba), in point of utility as a timber tree, beats this variety completely. The price which the Salix caprea will realise in a sale is about the same (according to district) as that of the Larch or Birch wood. It is very profitable as an undergrowth in many plantations, for in favourable seasons it will yield young shoots fully 5 feet in one year; and very suitable for the purposes of the crate-maker or basket manufacturer. The bark yields a large amount of tannin. Another member of the Willow family worthy of notice is the

Salix fragilis, or Red-wood Willow, a tree regarding whose utility there is considerable difference of opinion. On the one hand, its timber has been condemned by some arboriists as useless; and they have further asserted that the qualities usually ascribed to it are due to another species, with which they say it is confounded, viz., Salix Russelliana; while, upon the other hand, its suitability, on account of durability, lightness, and toughness for many purposes, whether local or for shipbuilding, for which it is well adapted, renders it worthy of more notice than it at present attracts in our plantations, where damp soil, with deep alluvial subsoil, foster its rapid growth. Its wood is likewise available and very suitable for constructive purposes, for houses, water-wheels, planking, &c., and, indeed, for all country work where a really good, clean, light, tough, elastic, and useful wood is required. One considerable drawback to this Willow is its liability to become dead in the top shoots, or "stag-headed;" and as this habit is of frequent occurrence, this variety is in much less repute than the Salix Russelliana or Salix alba as a timber tree of rapid growth. It will thrive best upon a stiff, damp, clayey soil with cold subsoil. The wood is, when cut, red in the heart, with a white margin, and upon being exposed to the influence of the air for a time, the whole assumes a reddish pink hue of agreeable appearance, and of a consistency easily wrought, and of a very useful texture for any domestic or rural purpose. The other species of Willow which has been mentioned as worthy of extended cultivation in this country is

The Russell or Bedford Willow.—Resembling as it does the Salix fragilis, already described, it is rather more graceful and elegant in its foliage and contour; and indeed, in the case of large and well-grown trees, the Salix Russelliana exhibits a far finer outline than any other of the congeners of this family. Its rapidity of growth is fully equal to that of the Salix alba, and far superior to that of the other members of the Willow tribe already described. Its timber is about equal to that of the Salix alba. While light, tough, elastic, and unlikely to crack or split, its timber is highly prized in the building of manufactories, and for flooring and such like purposes; for its non-combustive properties, coupled with its non-liability to shrink or crack, render it very useful in the building of many edifices—such as mills, manufactories, granaries, &c. It is also, like its other neighbours of the Willow and Saugh tribes, greatly used for cleading cart and wagon bottoms, making railway brakes, lining coal pits and stone or lime quarries, and for almost any purpose connected with rural economy. This Willow succeeds best in a deep moist soil of medium description, but is decidedly unsuited to situations where water is stagnant in the subsoil. It will also thrive and produce good timber upon cold clayey soil, if there be due regard to drainage of the till beneath. Upon the whole, the Salix Russelliana is very decidedly a tree to be extensively planted in conjunction with the Salix alba and Salix fragilis upon exposed uplands for timber purposes, and in such situations it will yield a quick and good return to the planter. It should be grown in masses, for in such circumstances it is far more profitable than when planted as a single specimen or hedgerow tree, or when mixed with others whose too rapid side-spreading growth may interfere with its head or stem.

SEASONABLE WORK.

During the present month, when but little special work demands the attention of the forester, every effort should be made to push forward the general work connected with the enclosure, drainage, and cultivation of land intended for new plantations. This is the more necessary upon heavy clayey soils, where winter work proves highly injurious to the prospects of a successful growth of young trees. Pitting for October planting should be done as early as possible in August. Ground intended to be planted the coming season may now receive attention whenever hands can be spared, by means of clearing, fencing, and cutting open ditches to drain wet places, and laying off surface water in low places. Young plantations that are becoming too thick and crowded should be thinned at once while hands generally can be better spared than later on when forest work is more varied and plentiful. Wherever much game is kept in the woodlands the work should be suspended after the middle of the month to allow the game to settle down quietly when driven in by harvest operations, and if the rides are at once mown and cleared, the woods may remain undisturbed until October. In point of convenience, too, where game is preserved, any covers thinned at this season can be left quiet and undisturbed until cover shooting takes place, which is more particularly necessary in the case of outlying plantations adjoining arable lands, for as soon as harvest commences game of all kinds is driven into the covers.

Hedgerow trees should be pruned where necessary as soon as the corn crops are cut and the removal of branches becomes possible. Too much hedgerow timber of low growth is one of the greatest impediments to high and profitable farming. Young hedges should be kept clean by means of hoeing, or, by what is still better, hand-weeding; older hedges may be kept clean enough by cutting the weeds off with a hook and spreading the litter over the roots of the hedges, unless in the case of Docks and Thistles, or other bad seeding weeds, which should be exterminated by rooting out and burning. See that watercourses, culverts, and pipe drains underneath rides and drives are well cleared out and put in proper order for carrying off a sudden flood of water. Clean and scour out open ditches and trenches and cut new ones, where Rushes and other aquatic weeds abound.

Unusual tree growths.—Trees of all kinds develop abnormal and peculiar growths, but the Larch does not often produce deformities—such at all events, until lately, has been my acquaintance of the tree. While wandering on the Garrol Hill, Fasque, in a wood of Larches I was attracted to a Larch by a somewhat strange swelling on its bole a few feet above the ground. Protuberances are not unusual on some trees, such as Alder, Birch, Beech, Elm, &c., but upon the Firs they are rarely seen. The tumour on this particular Larch is 11 in. by 10 in. by 6 in., so that it is quite a conspicuous object, and may be worth preservation one day when the tree is being felled. There are numerous small ulcerous swellings seated on the large burr or knot.—J. F.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

ROSES IN 1886.

THE dejected Rose-grower, who had carefully budded, released, sticked, and perhaps just secured with the first tie, what were to have provided him in the summer of 1886 with lovely maiden blooms, might, any time the first week in May, have exclaimed with Whittier,

Of all sad words of tongue or pen,
The saddest are these, "It might have been!"

All had been going on well. After a winter of rest, a strong, sturdy growth was deliberately proceeding, and affording every prospect of a glorious harvest, when suddenly Stage-manager Eastwind whistles, the sunny scene changes to winter with a rapidity that would do credit to a modern pantomime; only, the transformation is the wrong way, from the "Scene of rustic happiness" to "The maiden in distress." In fact, the thermometer having dropped down to some 12° or 15° below the freezing point, all the tender growing maidens were converted into cut-backs in the most relentless way. Not that the cut-backs got off much better; indeed, on the 1st of May they looked almost the worst of the lot; but then they had so much more material to go back upon than the newly-budded plants, that though they also had to do all their work over again, they recovered in time to throw up good flowers from behind the injured points. Just a few gardens that escaped the ordeal have shown what a season "it might have been," and probably finer flowers have not been seen than Mr. Haywood's thirty-six at Reigate and Mr. Pemberton's thirty-six at Bath; but otherwise the evidence of the visitation has been general. Of course, the displays most injuriously affected have been those of the trade-growers, who rely chiefly on maidens for their exhibition blooms; and, as a consequence, the Rose shows of 1886 cannot be regarded, on the whole, as otherwise than below the average in point of quality. However, if the shows have been less gorgeous than usual, the gardens have been more than usually interesting. In the first place, the checking of the growth of the plants by the late frost has greatly prolonged the flowering season. Many varieties which in the south of England are normally over within the first ten days of July are only now in perfection, so that the usual gap between the first and second flowering seems likely this year to be bridged over. Again opportunity has been afforded for noting the varieties that are most capable of resisting or recovering from such unseasonable attacks, and in this respect the Tea-scented varieties stand out to conspicuous advantage. Not as resisting, it is true; they all "sat down" with a meekness of submission, which, if not gratifying, was at least prompt and unanimous. But as soon as the cold wave that made them "duck" was passed, they got up again and succeeded in looking as if nothing had happened far better and sooner than the more unyielding Hybrid Perpetuals, that tried to stand up through it. The latter affected to go on growing as if there was nothing the matter, but the few that did succeed in producing some dreadful deformity of a flower only proved the hopelessness of the case, and they had to begin again from the bottom after having wasted the time in trying to pose as hardy plants. Even the summer Roses and some of the species were cut off, so that another peculiarity of the season was, that all the Roses—singles, Damasks, Gallicas, Mosses, Ayrshires, Teas, and Hybrid Perpetuals—were seen flowering simultaneously. Some of the more tender summer-flowering sorts never succeeded in producing any bloom at all, while the blossoms of others, though numerous, were nearly all imperfect. Of the former, Fortune's Yellow, which was giving splendid promise of a coming "shower of tawny gold," was a case in point, every flowering shoot being injured beyond recovery; and nearly all the other summer Roses, except the Provence and Mosses, were in the latter condition, flower after flower expanding, each more deformed than the last, being either quartered, or green-eyed, or in many cases having a second flower-bud growing up through the centre of the half-expanded blossom.

Among the Hybrid Perpetuals, the first to recover and get into flower was the popular and thoroughly dependable A. K. Williams, a little under-sized, perhaps, but bright and otherwise quite in character. The way in which this beautiful variety has come through the recent winter and spring, and afforded first-rate blooms throughout the season, ought to remove all doubt as to its claim to be considered as the best all-round Hybrid Perpetual—especially when grown on dwarf Brier stocks. It is generally the first to open and the last to succumb to October fogs. Its upright habit makes it exceedingly gay in the garden, and its flowers being nearly always perfect in form whatever their size, it is equally available for exhibition and general cut-flower work.

The next variety to make a display was Charles Lefebvre, on cut-backs—the maiden plants never recovered at all; and Madame Gabriel Luizet was a good third, producing myriads of flowers in the hope of gaining the verdict, but her usual perfect finish was terribly wanting.

The garden was now gay enough with bloom on the cut-back plants of every kind, though fully two-thirds of the flowers would not bear critical inspection; but the maidens remained ominously green, and, as if to make up for the absence of greenfly and mildew, Orange fungus, or red rust, made its appearance on the varieties that were budded on the Manetti. It is worthy of especial note that the plants on Brier cuttings or seedlings were, and have continued almost entirely, free from this unsightly fungus; while those on the Manetti in their neighbourhood have hardly in a single case escaped.

In fact, evidence is gradually accumulating from all sides in support of the contention that dwarf Brier (cutting or seedling) is the stock upon which all Roses ought to be worked. Of course, as Manetti stocks can be so easily made and budded, and so quickly form big saleable plants, they will die hard, for there is no denying the Manetti the merit of convenience, but that is about its only virtue. Plants worked on dwarf Briers give more perfect maiden blooms than those on Manetti, and, not beginning to grow so early, are less liable to injury from spring frosts; they are hardier, since, owing to the greater hardness and vigour of the Brier roots, they are better able to withstand extremes of drought and cold; they are longer lived; and while numerous varieties, including all the Tea-scented and Noisettes, require Brier, and will not succeed out of doors upon Manetti, no varieties are ever mentioned as succeeding upon Manetti which will not do equally well, or better, upon dwarf Brier.

It is probable that the rapid deterioration of plants worked on Manetti has been the cause of Roses being so often grown merely for cut flowers, instead of being boldly treated as decorative garden plants. To be effective in this way they should be massed in considerable groups of one variety, rather than indiscriminately mixed in ones and twos. A bed of a hundred dwarf trees makes a far more brilliant display when planted, say, in five varieties of distinct colours than if all, or most, of the plants are of different sorts. Care should be taken to select varieties of decided colour and sturdy habit that hold their blooms erect, and that are free and perpetual flowering. By way of an example, a bed to hold a hundred plants might be arranged in five irregular groups of twenty each of the following varieties: A. K. Williams, Hon. Edith Gifford (a valuable erect-growing white Tea of great freedom of bloom), Marquise de Castellane, Merveille de Lyon, and Charles Lefebvre. If a mass of bloom is considered preferable to more brilliant individual flowers, Noble's Queen of the Bedders is an admirable variety to grow. It will thrive in most soils, and is a free and continuous bloomer, throwing up a succession of large trusses of flowers of Charles Lefebvre colour, though wanting individually in refinement. Another beautiful light variety for similar purposes, and not liable to the last objection, is Nabonnand's seedling from La France—Cannes la Coquette. La France itself is a little too much inclined to be pendulous to be quite effective in the garden, and is also easily spoiled by wet; whereas Cannes la Coquette has a stiff upright habit, and owing to its thicker, more substantial petal, is not readily disfigured by rough weather, and its colour is almost exactly that of Lady Mary Fitzwilliam. For a Tea-scented variety to associate with the two foregoing, nothing prettier could be found than Madame Joseph Schwartz, whose great trusses of lovely white shell-petalled flowers, just washed with the tenderest rose, are held boldly up to the admiring gaze of every passer-by. This habit of holding its flowers erect is essential to the permanent popularity of any Rose as a garden plant. Many a good variety, such as Leopold Hausburg and Madame Emma Hall, have gone out of general cultivation because they produce no effect, through hanging their heads. Pendulous flowers are, of course, admissible in climbers where one may stand under the wall and look up into the inverted goblets; but varieties of the normal habit of growth available for making beds or bushes that are not able to hold up their heads on the plant, nor even when cut without the help of a wire, ought not to be encouraged.

It would seem desirable that raisers should pay a good deal more attention to the other points in a Rose's character instead of basing their estimate of a new variety solely upon the merit of its flowers. The flower is undoubtedly the most important part of a Rose, and new colours and more perfect forms are of the highest importance; but gain in this direction may be more than counterbalanced if the plant upon which it is to be displayed definitely refuses to grow, or carries its blooms in such hang-dog fashion as to be completely unornamental in the garden. There is another Hybrid Perpetual sent out last year following in the line of Claude Levet, Louis Doré, and such like; it may be distinct perhaps, but as the tallest plant in the row of maidens is about 9 inches high, it is certainly worthless, and there is no doubt that the reputation of raisers of such varieties would be greatly enhanced if they could bring themselves to refrain from sending them into commerce.

Perhaps this flooding of the market with worthless or consumptive hybrids may be partly owing to the want of sympathy on the part of the raiser with the objects of the subsequent

grower; and in that case the best plan would be for amateurs to raise seedlings themselves, and endeavour to find out by some consistent plan and method of proceeding how far it is possible to attain a definite end. That looking for one thing will result in the finding of something else is perhaps truer of raising seedlings than of many other undertakings, and no doubt the attempt to raise a race of Roses capable of resisting the insidious attacks of mildew would incidentally result in the production of some distinct variety which, if not mildew-proof, might otherwise be a great acquisition. If the avowed object be to raise seedlings that shall be exempt from mildew, the employment of any of the summer Roses, or any of their near relatives, as Madame Gabriel Luizet, should be studiously avoided, for the way in which the pest overwhelms the latter, and even to a greater extent the Gallicas, is hopeless. On the other hand, most of the North American species, as Rosa lucida, Rosa rubifolia, &c., seem always free from any disfigurement of foliage, and are of excellent constitution. It is satisfactory to see that the classes framed at the National Rose Society's exhibition, and since at Manchester and elsewhere, are helping to bring forward some unduly neglected favourites, including a good many of the single Roses, such as macrantha, the Austrian Briers, rubifolia, &c.; and now that the latter are beginning to obtain some share of recognition in our gardens, there will be a better chance of getting their good constitutional qualities combined with the substantial advantages of existing double Roses for the production of the "coming race" of Roses, which, rising superior to the chronic diseases of an effete old-world population, shall keep all gardens gay throughout the summer with blooms of every conceivable shade of colour in which blue is an unknown quantity. T. W. G.

ORCHIDS.

HARDY ORCHIDS.

Seven years ago, in a quiet, semi-shady corner of a little Welsh garden, aspect southern, a small bed was specially prepared for the reception of hardy Orchids, and the following report of both successes and failures with these pretty and interesting, but now, I am forced to add, rather capricious, subjects will, I know, prove of interest to more than one reader of The Garden.

The bed, a rectangle of fully 80 square feet of surface, was formed by removing nearly 2 feet in depth of the soil, placing a couple of inches of rough Anglesey gravel in the bottom, and levelling up with a half of pure and good woodland leaf-mould, a quarter of rough bog removed from a deep railway cutting, and a quarter of the originally taken out soil. Heights and hollows were next formed in the bed, for well I knew that the Marsh Orchis could never succeed on a dry hillock just as well as I knew that the Bee Ophrys was never intended for inhabiting a swamp. To remove the monotony of bare soil, a few limestone blocks, or stones, I should rather say, for blocks are not readily obtained just when one wants them, were inserted in half-natural, half-suitable positions, and against the sides of these such kinds as require calcareous situations were planted with a great amount of success. The bed being thus formed, all the Orchids in the immediate neighbourhood were transferred to it in a most careful manner, generally by the half-dozen, the strongest and best-marked flowers being always chosen. From time to time during the space of two years, whether by purchase or exchange, I succeeded in collecting together all our native species, with, perhaps, three exceptions, these being planted in soils and positions akin, as nearly as possible, to those in which they were found in a state of nature. Foreign species were more readily obtained—Messrs. Ware, Dammann and Co., and Ant. Roozen offering very tempting lists, and a couple of dozens of the reputed hardy and easily managed of these were likewise purchased and planted according to catalogue directions, until in all there were nearly 100 distinct kinds in the bed, the surface of which was carpeted with such low-growing subjects as Campanula hederacea, Anagallis tenella, Arenarias, and Saxifrages, this for the double purpose of imparting an ornamental appearance and keeping the soil cool and moist by preventing excessive evaporation.

Of all these a few have done remarkably well and increased both in size and number; a larger proportion have done but middling, while more than one-fourth have entirely disappeared, a good deal owing, no doubt, to my inability to procure strong uninjured specimens, at least more so than from any difficulty as regards their culture in our English soil and clime. Of those that have succeeded well and become established we will now in turn say a few words, but it may be well to state that they are not treated of or ranked according to merit, but rather in an indiscriminate manner.

Amongst the various species of Orchids, O. foliosa has done remarkably well planted in the dampest ground, and with no attention save an annual top-dressing of rich vegetable refuse. Spikes nearly 3 feet long, and bearing from 60 to 80 flowers each, are not exceptional; indeed at a short distance away the plants look like great, well-grown Foxgloves, the colour of the flowers—a pinky-purple—feigning that of the Digitalis in a very marked degree. Division of the roots and fresh planting should take place every third year, for as these increase rapidly and are of a large size, starvation, arising from poverty of the soil, is sure to come about, the results of which are but too well known to every cultivator, in small, dwindling, ill-flowered specimens. It needs plenty of water during the growing season so that the big, glossy green leaves may become fully developed, after which the flower will take care of itself. Our native O. pyramidalis is, in truth, a lovely plant, and of the easiest management, and might just now well grace any border with its pyramidal spikes of sweetly scented rosy flowers. Here it runs wild in a red calcareous-infected loam, and where the ground is thickly matted with the mountain Cudweed (Antennaria dioica). Of the brown Man Orchis (O. fusca), let everyone who has the chance procure a couple or three specimens and plant them in chalky loam, in sunshine or shade, and in a dampish situation, and during the spring months, about May, "they will charm the eye and gladden the heart" on more than one occasion with their quaintly conspicuously hooded flowers. About our two commonest species, O. mascula and O. maculata, I need hardly say a word, for every one knows their value in alpine gardening—at least if they do not they ought to do—but remember to plant in good-sized irregular-shaped masses of a dozen or more in each, for not till then is their true worth as garden plants found out and appreciated.

The fragrant Orchis, O. conopsea, is a choice and desirable plant, its pretty mauve flowers and delicious fragrance being special recommendations for its extended culture. To get it established requires neither much care nor circumspection. A white-flowered variety of this Orchid was sent to me from Ireland some time ago, and it is doing well. O. Morio is rather insignificant, but rich in colour, and not at all difficult to cultivate; while O. laxiflora, from Guernsey, increases at the rate of one, and sometimes two, new plants in the year. This latter is an ornamental species when well grown, the individual flowers, though rather loosely arranged, being bright and lasting.

By far the finest and most easily managed of the Continental species is O. undulatifolia, a charming plant, with variously-coloured, curiously-shaped, usually pink-spotted flowers, and large glaucous, wavy leaves. It has become quite established in various positions, and increases from year to year, the soil used being ordinary loam, with which a small quantity of old lime rubbish is incorporated. There is a spotted-leaved variety which is a great improvement on the normal plant, the flowers being more numerous, of larger size, and brighter in colour. O. sambucina, the Elder-scented, and O. Cupani have done middling, but if I could only lift the tubers in their native wilds myself, I feel confident they would do much better. All the Helleborines (Epipactis) grow like weeds when established, and several are highly ornamental. Our three native members of this family—E. latifolia, with its variously coloured flowers, E. palustris, with its pretty raceme of pinky white blooms and conspicuously crenated lip, and E. ovalis, that dwarf, purple-flowered, limestone-loving plant—all bloom freely year after year; while one out of two of the nearly allied Cephalantheras is likewise quite at home in a shady corner, where it is almost stifled with Saxifrages and Campanulas. The Musk Herminium (H. Monorchis) is a sweet little plant, whose scant wants—an elevated site and rough chalky loam—are readily enough complied with. As the tubers of this plant are formed at the ends of stout roots, and consequently at a considerable distance from the original stem, unusual care in transplanting must be attended to. On the sloping side of a limestone block the rare highland Orchid, Goodyera repens, blooms freely; while not a foot from it, but in damper soil, Liparis Loeselii, an interesting, though not very ornamental, plant, has regularly appeared and flowered well for five years past.

Thanks to Mr. Gumbleton, I can now boast of possessing healthy, well-flowered specimens of that rare and interesting Irish Orchid, Spiranthes Romanzoviana, a plant that has been found wild in no other part of Europe, its nearest stations being some of the cold, upland bogs of North America. The flowers are creamy white, Violet-scented, and arranged spirally in three rows.

With the three native species of Ophrys I cannot say that I have been very successful, although O. apifera has certainly flowered for several years in a satisfactory manner. Occasionally, however, it disappears for a season or two, and again reappears full of life and vigour—a peculiarity that is shared in by one or two other native Orchids, and which should make cultivators doubly careful about giving up for lost what in reality increases beneath ground to bloom above. The genus Cypripedium is well worthy of attention as garden plants, for some half dozen kinds are perfectly hardy, of the freest growth, and quaintly original in their conspicuous flowers. The well known and deservedly popular Mocassin flower (C. spectabile) is a grand plant when well flowered, and associates nicely with such peat-loving favourites as the Trilliums, Heaths, and plants of a like temperament. With C. parviflorum, the small yellow Lady's Slipper, have I, however, been most successful, not only as regards rate of increase, but quantity of bloom produced. A specimen of it with two eyes and good uninjured roots was planted in pure, coarse leaf mould and sharp river sand some five or six years ago, and this season it produced no fewer than sixteen flowers, and had fully twenty stems. By coarse leaf mould is meant such as is intermingled with pieces of half decayed wood and half decomposed leaves, for this I find, or rather have read, in that delightful book, "The Orchids of New England," is the most natural food for this handsome tribe of plants.

C. acaule I cannot manage, but C. pubescens appears regularly year by year, and is an interesting and pretty plant. That rare and pure flowered species—I refer to C. candidum—likewise does well and increases rapidly, which, sorry am I to say so, is not the case with C. arietinum nor C. macranthum.

I wish someone would send me good roots of either or both, for I quite believe that they are manageable enough; but the stumpy, emaciated specimens which one gets for 3s. 6d. were never meant for succeeding, but rather sold, as the flowers of a much-prized Continental Rose were,

with the eye removed, so that propagation was out of the question.

The English Lady's Slipper, C. Calceolus, puzzled me long enough, but now, thanks to those who kindly sent me eyes, roots and all, it is a treat to see it established in at least three positions, increasing in number and luxuriance, and blooming freely for these two years past.

Mr. Wood's sand recipe for "picking up" mutilated rooted specimens is good, but give plenty of water, as Orchids, above all things, cannot abide drought. There are two or three other North American Orchids, as well as the Cypripediums above referred to, that are worthy of more than a passing note, and, first, let me refer to Orchis spectabilis, for it is a bold, easy-habited plant with an amount of Yankee folk lore attached that is almost distressing, and with a fine dense spike of pinky flowers and a remarkably good constitution. Planted with Cypripediums from the same country it will do well, but try it in dry ground, as somebody did, and you will be disappointed and think the printed directions for cultivating the plant a little bit misleading. Last of all, a Chinese Orchid, Bletia hyacinthina, has done well in dampish peaty soil, where it produces its grassy foliage and spikes of handsome purplish flowers nearly as perfect as the generality of those offered for sale in the market-place at Canton. The genus Serapias has been neglected, for I should have said that three species at least, S. Lingua, S. neglecta, and S. cordifera, are satisfactory, and that is saying a great deal.

In conclusion, I may add that only such species as have done well are treated of above, and any person procuring good roots of these and giving them a fair trial will certainly be far from disappointed with the results.

A. D. Webster.

AUGUST FLOWERING ORCHIDS.

As the present month is considered to be the beginning of the dull season as regards Orchid bloom, every showy kind that flowers naturally now should be grown by those who like to see their houses lit up with bloom, and who like to cut Orchid flowers all the year round. These late-flowering kinds are generally thought to be more difficult to manage than those which naturally flower in early summer, when there is a surfeit of bloom of all sorts, but their value quite compensates for any extra trouble bestowed upon them. Appended is a list of those kinds which come into bloom in August and September, and perhaps earlier, and these also are supplemented by earlier kinds, such, for instance, as Odontoglossum crispum and Peseatorei, which linger on till autumn. The list is not exhaustive, and some of your readers may be able to add to it :—

Cattleya Leopoldi
Dowiana
aurea
Harrisoniæ
Gaskelliana
Eldorado
Schofieldiana
crispa
Lælia elegans præstata
Turneri
Mormodes luxatum
eburneum
Zygopetalum Gautieri
Oncidium Lanceanum
variegatum Rogersi
prætextum
Oncidium stelligerum
macranthum
aurosum
cultum
Miltonia Regneli
spectabilis
Odontoglossum caudatum
maculatum
Epidendrum vitellinum
majus
Acineta Humboldti
Galeandra Devoniana
Bueri
Stanhopea (various species)
Disa grandiflora

G.

Montbretia Pottsi.—A complaint was made by a correspondent about this time last year that he could not get this plant to flower, at which I expressed surprise, seeing that I never had any difficulty with it in that respect. We have just now a plant in a pot with four spikes of flowers and the individual blossoms are unusually large, yet this has been obtained with very little trouble. According to custom, at the end of last October we took off a quantity of side growths from a plant growing in a mixed border; five of these pieces were put round 6-inch pots in ordinary garden soil. All winter and up to the end of April the pots stood on the floor of a cool Peach house and were watered as often as the soil got dry. When brought out of doors in spring, all but the plant now in flower were planted out; that left was put into a 7-inch pot and left in the frame ground exposed to all weathers; the only attention which it has had consisted in giving it plenty of water when it required it. That this treatment has suited it is evident by the strong flower-spikes and large healthy leaves which it has produced. Our other plants are later in coming into flower, at which I am not surprised, as they suffered from want of root moisture, we having had no time to attend to them in that respect.—J. C. C.

Garden in the House.

ARRANGING CUT FLOWERS.

The art of arranging cut flowers does not seem to keep pace with the rapidly growing demand for flowers of all kinds. In the majority of decorations, bouquets, or in whatever they are employed far too many flowers are used, quantity seeming to be thought to make up for lack of arrangement. Even in establishments in which professional decorators are kept, I have frequently been surprised at the lack of originality shown as regards combination or arrangement, while in villa residences and even cottages one often finds exquisite taste displayed. To what excellent use is the common Ivy put by some, who, having but few flowers, are compelled to make the most of what they have; associated with a few common Ferns in hanging baskets, it lasts for months in ordinary windows or corridors. Such sprays, too, are useful in winter time for entwining over the handles of baskets containing cut flowers. Baskets, too, filled with fresh green Moss require only a fraction of the flowers usually considered necessary to fill either them or vases satisfactorily. There can be no doubt that overcrowding is the greatest of all evils in regard to cut-flower arrangement, and unless one has a firm base, such as sand covered with Moss, the flowers press too closely on each other. Unless every flower has room to stand out clear of its neighbours, the arrangement cannot possibly be perfect. Small vases, dishes, or baskets look most striking when filled with only one variety of flower. Even in mixed vases three colours are more effective than when more are introduced. The free use of foliage is one of the greatest safeguards against overcrowding, and, as a rule, nothing suits a flower so well as its own foliage. The old notion of garnishing everything with Maiden-hair Fern has happily to a great extent gone out of fashion. It is very transient and soon gives a worn-out look to the flowers which it is intended to enhance. Very large vases must have flowers and foliage in proportion. At the present time there is a wealth of such material in gardens, notably Gladioli, Lilies of the lancifolium type, Hollyhocks, and Dahlias. These look well in large vases if cut to suit them and dropped into them so as to stand clear of each other. If a good stiff branch of Butcher's Broom be first inserted each stem will then remain firm where placed, and for draping the edges of such vases long trailing sprays of common Periwinkle are very effective. In towns large stems of the common Bulrush are in great request for vases; they last a long time in good condition, a consideration by no means to be overlooked.

J. G. H.

Button-hole Carnations.—I should like to see the National Carnation Society establishing at its annual shows a class for button-hole Carnations. No doubt it will be said that all Carnations are suited for button-holes, but whilst it is obvious that flaked and bizarre flowers are too "bizarre" for such uses, these are the very flowers upon which the society bestows most encouragement. I prefer to class as button hole flowers those which do not produce big blooms, *i.e.*, sorts that have flowers not large enough for ordinary exhibition purposes. Specially pleasing for button-hole flowers are selections from the self, and even some edged flowers found in the French strain. Small, but full, flowers, distinct and pleasing in colour, need not be wanting in beauty or sweetness. It adds much to the merit of these kinds that they can be easily raised from seed, and that they also seed freely. None the less, many of them give plenty of grass for pipings or layers if need be. Still, with seed plentiful it is easier to save some and sow annually. Care in the selection may produce improvements in the flowers, but size of bloom should be less a desideratum than securing good form and substance and beautiful shades of colour. This strain will give plenty of flowers for the million. A class for button-hole Carnations or Picotees in bunches of six blooms, one variety in a bunch, would afford some scope for opinion as to what size of flower and hue of colour were best suited for the object in view.—A. D.

NOTES OF THE WEEK.

Lilium auratum.—Some thousands of this lovely Lily are now finely in flower in the Brooklane Nursery, Ormskirk; each stem bears from six to ten flowers, and amongst them are many of the crimson-banded variety. All of them have been raised from seed, and are growing in beds in the open air, where they improve both in strength and floriferousness every season. With me imported bulbs deteriorate after one or two seasons' growth, but home-grown ones improve.—J. Hathaway, *Latham House, Ormskirk.*

Primula Parryi.—As an ornamental plant, I am unable to make this Primula a success, but others may have done better. Two years ago I raised about fifty from Mr. W. Thompson's seed, and planted them out, as is my habit, under many different conditions. They seem happiest on a raised bed of moist peaty loam, facing the north-east and sheltered. The flower is purple, not much larger than that of a common Cowslip. The leaves are about 8 inches long, rather like an elongated Auricula leaf. The plant is a native of the Rocky Mountains.—C. Wolley Dod, *Edge Hall, Malpas.*

Hybrid Montbretias.—Mr. W. E. Gumbleton sends from Belgrove, Queenstown, specimens of three new varieties of Montbretia crocosmæflora, itself a hybrid between M. Pottsi and Tritonia aurea. All the three sorts differ from the original. One has very dark red flowers, and is named Etoile de Feu. Another, called Gerbe d'Or, is a pure yellow self, while the third is between the two others in colour, and is named Bouquet Fait. Mr. Gumbleton observes that they are all abundant bloomers and quite hardy with him during ordinary winters.

Montbretia Pottsi.—I see complaints made from time to time in The Garden about Montbretia Pottsi not flowering. I send you a few sprays of it, and also of the hybrid M. crocosmæflora. They bloom admirably with me, and yield a full crop of seed.—W. B. Hartland, *Cork.*

*** The specimens which Mr. Hartland sends are excellent, but we doubt if such good results could be obtained with this plant in a less favoured locality.—Ed.

The Formosa Lily.—The variety of Lilium longiflorum which is found wild in the island of Formosa is named formosanum, and a fine flowering specimen of it has been sent to us by Mr. Taylor Shier, from St. Martin's House, Colchester. It differs from the ordinary form of L. longiflorum in several respects. The flowers are slightly stained with purple on the outside, the foliage is longer, and the stems taller. It was introduced by Messrs. Veitch about seven years ago, through their collector, Mr. Maries, and an illustration of the first plant that flowered in this country will be found in The Garden, Vol. XVIII.

The daily papers and matters botanical.—An instance of the way in which newspapers educate their readers in matters botanical occurred in one of the leading London daily papers this week. It contained a long rigmarole relating to "an Orchid sale," written ostensibly by "an Orchid cultivator," but the way in which the writer blundered respecting little details clearly showed that he had been "coached," and that he did not possess great knowledge of his subject. The queer way in which he mixes up "professional and amateur cultivators" is amusing, and scarcely less so his ideas respecting genera. Another reporter writes as follows respect-

ng the tuberous Begonias shown at South Kensington on Tuesday last: "Ten years ago this bloom was a small and insignificant field flower, upon which but little attention was bestowed, whilst now it is one of the garden pets, and its colours have become legion. Yesterday there were shown double flowers resembling Balsams; whilst there was a larger number of new varieties, amongst them a singular duplex!" Alluding to the beautiful Fuchsia triphylla shown from Chiswick, the same writer reports: "A new Fuchsia, more resembling Heather than the members of its own family, was a specialty." Now, when everybody is going to the moors, the writer may have had Heather on the brain, but the Fuchsia in question is no more like Heather than it is like a Cabbage.

Genista ætnensis.—This is one of the most elegant of all the Genistas, and forms a good sized shrub 9 feet or 10 feet high, a prominent feature of which is the elegantly drooping branchlets, and just now the bright golden blossoms impart another and a very attractive addition to its ornamental qualities. It is a native of the district around Mount Etna, from whence the name is derived; according to Loudon it was introduced in 1816, but it is even now quite a rare plant in gardens, though it is so ornamental and can be increased by means of seeds to an almost unlimited extent.—H. P.

National Dahlia show.—Mr. Moore, the honorary secretary to this attractive exhibition, which takes place at the Crystal Palace on September 3 and 4, asks for space to remind growers and exhibitors of this interesting autumnal flower show that the Turner Memorial Prize (silver cup, value £10, for twelve show and six fancy Dahlias) will be open for further competition at the ensuing show, and to say that he will gladly furnish the prize schedule to any person who may apply for it. Entries for the show should be sent to him (at the Botanic Garden, Chelsea, S.W.) on or before August 27.

Lilies and shelter.—Mr. G. F. Wilson made some very interesting statements the other day in The Garden about Lily growing. I can quite agree as to what he says as to the beneficial effects of shelter, especially during the early stages of growth. I had many Lilies planted in various positions through the garden, but those grown in the Rhododendron beds have been much the finest, and I now send you a few samples, including L. Martagon var. dalmaticum (with forty-one flowers on a stem, 7 feet high), L. pardalinum, L. testaceum, L. chalcedonicum, &c.—F. W. Moore, *Glasnevin, Dublin.*

*** The Lilies sent by Mr. Moore are indeed very fine, particularly the L. dalmaticum—one of the best specimens we have seen.—Ed.

Variegated Sophora.—This is a distinct-looking variety, having the leaves marked with creamy white, changing to pure white as the foliage matures. The variegation is not so clear and well defined as in some shrubs, but is effective at a little distance, when the variegated leaves give to a specimen the appearance of being laden with white blossoms. It is far less vigorous than the common green-leaved type, but like that will thrive in dry soils; indeed, grown in this way, the variegation is better defined than in a moister spot. As a single specimen there are few more effective shrubs than this at the present time. It is generally increased by grafting on seedlings of the common green-leaved form.—T.

A new annual Poppy (Papaver pavoninum).—I observe that you have received specimens of my new Poppy, Papaver pavoninum (Schrenk), but as I think it probable the flowers may have fallen to pieces in transit, I venture to send you a few branches, in the hope that the buds may expand in water and thus give you perfect flowers. I think it an interesting, or even a remarkable species. The foliage is decidedly less weedy than that of many annual species, and while the plant is young is even elegant in its pinnatifid lobings, reminding one of the genus Daucus. The singular horn-like appendages of the sepals are, so far as I know, peculiar to this species, and at any rate readily distinguished from all others at present in cultivation. The brilliant scarlet flowers with the deeply contrasted glossy black zone will, I hope, speak for themselves. The specimens sent are from plants which have been some little time in flower, and the blossoms are therefore by no means of maximum size, but rather below it.—W. Thompson, *Ipswich.*

Spiræa Lindleyana.—This Spiræa does not continue so long in bloom as some other species, yet it has such ornamental foliage and is so beautiful when in bloom, that it must rank among the most select shrubs. It forms a large bush 10 feet or 12 feet high, when grown in good free soil, and if in an open position will be as much in diameter. The long wand-like shoots that are pushed up from the base of the plant are now terminated by large feathery panicles of white blossoms, which in association with the light pinnate foliage cause this Spiræa to be so much admired. It is seen to the greatest advantage when planted by itself, for then it can show its full beauty, though it is able to hold its own when planted with other shrubs. This Spiræa is a native of the Himalayas, and is occasionally injured during exceptionally severe winters, but, as a rule, quickly recovers. It may be easily propagated by detaching rooted suckers, which can, as a rule, be done without difficulty.—T.

Ferns.

TASSELLED AND CRESTED FERNS.

I have been much interested in reading a reply to my notes on this subject which appeared in The Garden (p. 113); still, I do not think the writer has disproved my argument. My statement was that, according to my observations, British Ferns were more subject to variation from their normal forms than exotic species. I, moreover, believe that this variation has come about recently. Old British botanists were keen-eyed enough to discover a few abnormal forms, which they duly recorded, and it is only feasible to suppose that, had the varieties we now have been in existence in their day, they would have been noted. I am aware that many abnormal forms have been bred in gardens, but enormous quantities can be gathered wild any day in a good Fern locality. I have made Ferns one of my special studies for about thirty years, during which time I have collected an herbarium of nearly 2000 kinds. I have had working access to some of the largest Fern herbariums in the country, besides having the care of some of the largest collections in cultivation; therefore I approach the subject with some practical knowledge. I have large collections of Jamaica Ferns, and I possess specimens of a forked Blechnum from near the same spot mentioned by Mr. Syme; but the genus Blechnum, or Lomaria combined, has never yet produced the number of sports that our solitary species, L. Spicant, has done. Our British Ferns do not amount to more than about one in sixty compared with the exotic species; and whilst we have hundreds of named varieties of the former, I think one hundred would embrace all the known abnormal forms of the latter. It is quite probable that there are plenty more yet to be introduced; that they may have been passed over by the botanical collector is feasible enough; but as all trade collectors know that there are numerous admirers of these plants, and that they obtain a ready sale at home, they would be greatly to blame if they did not add to our knowledge of them and enrich their employers' Fern collections at the same time. Mr. Syme states that many Indian Ferns vary as much as our common Hart's-tongue, but I would certainly be glad to know what species of exotic Ferns with simple fronds so vary. I have looked through all known to me, but cannot find one; in a large series of Elaphoglossum I can find no abnormal forms. I certainly find the species running into each other in a way which large sets of any genus will always show, but the only crested simple-fronded exotic Ferns with which I am acquainted are Microsorium irioides, Asplenium palmatum, and Niphobolus Lingua. The inference which I draw from the great variation that occurs in our native Ferns is, that some climatic change is going on which influences these plants in a more rapid manner than plants in any other Order; if that be not so, to what can it be attributed? Would Mr. Syme kindly give us a list of the forked, tasselled, and crested forms of exotic Ferns with which he is acquainted? G.

THE BIRD'S-FOOT VIOLET.
(VIOLA PEDATA.)

Well named is this pretty American Violet, the shape of leaf-stalk and leaf strangely resembling a bird's foot and leg;—a pretty, interesting flower, with a look of some shy animal with ears thrown back. The flowers vary a good deal in different plants both in size and shade of colouring—usually a bright cheerful lilac. There is a white variety, and one that is deep purple and white. It thrives in cool peaty ground, but needs careful watching in winter, as the roots die entirely away, leaving only a little stocky stump, which is easily thrust out of the ground by frost.

Crinum giganteum var. concinnum.—This pretty dwarf growing and free-blooming Crinum is now blooming for the second time this year in my greenhouse on a bulb obtained last autumn from Mr. Bull, of Chelsea. Its flowers are pure white, and are borne in umbels of six to eight on a slight stem of only a foot in height, which is very low for a Crinum, the flower-stems of the other varieties now in flower here being C. Moorei, 2 feet 4 inches, and C. Powelli (in open border), exactly 4 feet high. The flowers themselves, though of good size, by no means deserve the name of giganteum, but have to bear it, as the plant is merely a low growing form of C. giganteum, figured in the 86th volume of *Botanical Magazine*, plate 5205, which is, though an exceedingly handsome, undoubtedly an extremely coarse-growing species, only suitable for the largest sized stoves, where it can be planted out, as in the Palm stove at Kew. Except under this treatment, which it would be possible for so very few to give it, it would doubtless be almost impossible to bloom it; while the variety whose name heads this note may be grown and bloomed successfully by any lover of these handsome plants who has an ordinary warm stove to grow it in. It seems to be an evergreen species; whereas most Crinums are deciduous.—W. E. Gumbleton.

Bedding plants in Hyde Park.—When taking a somewhat hasty survey, recently, of the flower-beds in Hyde Park by the side of Park Lane, I noticed two good bedding Lobelias: one is named Snowball, and, as its name implies, it produces white flowers. It is dwarf and compact in habit, and produces large, stout, well-formed flowers, without the slightest trace of blue on them. The other is Omen, clear bright lilac, a charming bedder, and novel in colour; both are used with excellent effect as edgings, and they should be made a note of by those of your readers who are interested in this style of gardening. One of the best of the zonal class of Pelargoniums for bedding purposes is Charles Schwind. In Hyde Park it is strikingly effective; the habit is vigorous, and yet compact, and it flowers with remarkable freedom; the trusses large and bold, and the flowers, individually, of a rich crimson colour. I was pleased to see Carnations, Picotees, Canterbury Bells, and Phlox Drummondi among other good old-fashioned plants, and used in combination with other subjects. Fuchsias and Begonias may be seen here in charming combination, and both make admirable bedding plants. Fuchsias are not nearly so much used in this way as they deserve to be. One very pretty combination bed consists of Phlox Drummondi and yellow Picotees mixed, carpeted with purple Violas and edged with the same; there is an outer circle of Coleus Verschaffelti, and also an outer edging of Poa trivialis variegata. Mixed Verbenas make pretty beds, and they are continuous as regards bloom, *i.e.*, if the decaying flower trusses are picked off. Another pretty bed was made up of the variegated Fuchsia Meteor and Lobelia cardinalis mixed together; round this were Coleus Verschaffelti and an outer edging of the golden Lysimachia Nummularia, or Creeping Jenny. Much useful information as to the adaptability of certain plants for bedding purposes might be picked up just now in Hyde Park.—R. D.

Trees and Shrubs.

MULCHING RHODODENDRONS.

I agree with "J. C. B." (p. 100) that a mulch on the surface of Rhododendron beds would be of great benefit to them. Some years ago when I had charge of a dry bank planted with choice varieties of Rhododendron we made it a practice early in August every year to cut a wagon-load of green Bracken and lay it down between the plants sufficiently thick to require treading, so that when completed it was from 4 inches to 6 inches in thickness. At first it withered a good deal, but there was always sufficient to afford a thick surface mulch. During winter it gradually decayed into a fine mould, on which the roots used to feed with marvellous avidity. Thus the plants were kept in excellent health and vigour. Anyone acquainted with the light and friable character of decayed Fern will readily understand that it is just the kind of material that the delicate surface roots of Rhododendrons would like, for their rootlets are so small that they are not able to grapple with any harsh or stubborn substance. I have had no experience with regard to short Grass as a mulch for Rhododendron beds, but if laid on thick enough where the soil is not very deep and naturally dry, I do not doubt that it would be of service. I should, however, prefer a thick layer of leaves, and where there is not a large space to deal with some large stones laid on the leaves would keep them from being blown about by wind. I have used half rotten manure as a mulch for Rhododendrons with very good results; in fact, I believe that anything that is capable of resisting the drying influence of the sun if laid on the surface is beneficial. Being much troubled with rabbits burrowing in the soil in the case of some plants standing singly on the lawn, I covered the surface with large flat stones, and in a year or two afterwards I found, on lifting the stones, that there was a perfect network of roots beneath them, while the spaces between the stones had no roots so near the surface. From this I am persuaded that in many dry places a surface layer of stones would be of great advantage where no other attention could be given. I have, however, greater faith in mulching material that will feed the roots and at the same time increase the depth of soil. I have practically tested this matter by laying on the surface a coating of soil, and I am convinced that when old plants have exhausted that below, they may be kept in health and induced to flower regularly by an annual application of suitable soil on the surface, *i.e.*, if laid out as far as the roots extend. There are, however, some cases in which neither mulchings nor surface dressings are sufficient to keep the plants in health. When the soil is not deep and of a light dry character, old plants not unfrequently suffer a good deal from the want of root moisture, even as early in the summer as July, and if not watered they either make but little growth, and consequently produce but few flowers, or else they die altogether. None but an observant cultivator can understand how much Rhododendrons suffer from want of root moisture. The inexperienced naturally think that because they resent the presence of too much moisture about their roots in winter, they are comparatively indifferent in regard to drought in summer. But that is not so, for few, if any, hardy plants sooner show their dislike to drought. Therefore, in order to be successful with them, root watering in some cases becomes a necessity, and it does not require a very keen eye to ascertain when it is necessary. If it is found that the leaves quickly flag under a bright sun, and that the young growth is weak and the leaves small, then it may be safely concluded that a good root watering is wanted. During my experience I have found that these plants suffer more in a dry autumn than at any other time; then, I suppose, there is a greater strain on the roots than at any other time, consequent on the formation of the flower-buds.

J. C. C.

AUTUMN-FLOWERING SHRUBS.

Though spring seems the natural time of blooming in the case of trees and shrubs, autumn is not altogether flowerless. One of the prettiest deciduous shrubs that blossom in August is the

Buckeye (Pavia macrostachya).—This is a miniature Horse Chestnut, but does not fruit—at least, I have not seen a fruiting specimen. It is easily propagated from suckers and layers, grows from 6 feet to 10 feet high, and makes a pretty lawn shrub.

The Bird's-foot Violet (Viola pedata). Engraved from a photograph for "The English Flower Garden."

Spanish Broom (Spartium junceum) is one of the showiest things in the shrubbery at this season. With us it has been in bloom some time, and will continue to be laden with its golden blossoms some time longer. It has a pretty effect among dark-leaved Evergreens.

Clematis Flammula is usually considered a wall plant, and it has a pretty effect climbing over a porch or festooning round the windows, but it is also a good thing to set against a pole, and not trained too closely, so that its flowering branches may be allowed a little motion. It has white flowers, which, though small, are pretty and sweet, their numbers compensating for lack of size.

Escallonia macrantha.—This is one of the brightest shrubs for a wall. It was thought a few years ago that it did not succeed except at the seaside, but it will grow here in the midlands, and thrives well on a wall, and in good soil in a sheltered situation it will succeed as a border or lawn shrub. It has pink flowers, which are borne in trusses at the ends of the young shoots of the same season's growth. The flowers are very persistent and very useful for cutting.

Althæa frutex (Hibiscus syriacus) is a very useful class of flowering shrubs, very showy at the present season. There is considerable variety amongst them, and some have variegated foliage. All are deciduous, and grew from 4 feet to 5 feet high.

Venetian Sumach (Rhus Cotinus).—Though not exactly an autumn flowering shrub, this season it will be in blossom with us up till the end of August. It is a handsome lawn shrub, and very striking now with its bright green leaves and large masses of crimson inflorescence.

Spiræa ariæfolia.—This is another August flowering shrub of exceptional merit, not half so common as it ought to be. In good soil it grows from 7 feet to 8 feet high, and when in blossom it has a very striking appearance. The flowers are white, and are borne in large drooping panicles. Spiræa bella is a useful late-flowering shrub of smaller dimensions than the preceding.

The hardy Fuchsias are among the most beautiful of hardy shrubs, and in sheltered situations they attain large dimensions. They must be sheltered from the wind, or the flowers will suffer.

Garrya elliptica is perhaps more a winter blooming plant than autumn, but the catkins appear in October in sheltered situations. I have on several occasions had this Garrya do well as a shrub in the open, but it is only seen at its best on a wall.

Hypericums (St. John's-worts).—These form a large family, and all bear yellow flowers. Many are dwarf and only suitable for rockwork, and some are of doubtful hardiness. H. calycinum (Rose of Sharon) is one of the best plants with which I am acquainted for furnishing bare places under trees or clothing dry banks where other plants will not grow.

Veronica Girdwoodiana and others of the same shrubby habit are very useful autumn-flowering plants, and are largely employed by seaside planters, especially on the south and west coasts. Very large bushes may be seen near the sea in South Devon.

Catalpa syringæfolia and C. Kæmpferi are striking-looking small trees at this season. They are among the latest trees to don their foliage, but they always attract attention. Though the flowers are not showy, they are pretty when looked into.

Among climbing plants the Passion-flower is one of the most beautiful at this season. It grows freely on a south wall, and is worth some pains in the preparation of the site at the beginning. A hard winter will sometimes injure it a good deal, but it is rarely killed outright. The young shoots should be frequently trained in the beginning of the season till the wall is covered, and then more freedom may be permitted. Jasminum nudiflorum is one of the very best late autumn and winter flowering shrubs. Though it likes the protection of a wall, it succeeds very well in a warm situation, and soon forms a dense mass. Perhaps the best autumn flowering shrub is the Rose Gloire de Dijon. Plant it in good soil against a pole or an arch in any position where the young wood need

not be rigorously cut back, and flowers will be produced in abundance till quite late in autumn. Large headed standards are very effective in the front of shrubbery borders, and also on the lawn on the leeward side of a bed of shrubs or some other shelter; it is not only an autumn bloomer, it is also one of the earliest Roses to flower in spring, and, after a little time to recuperate, it goes on through all the summer and autumn without any break, and, contrary to most other Roses, its late blooms are but little inferior to those produced in the first blush of the Rose season.

E. Hobday.

PLANTING ORNAMENTAL TREES.

Trees and shrubs on lawns should for the most part be disposed in an isolated manner; that is, in such a way that each individual plant may assume its natural shape and habit of growth. When trees and shrubs, however, in a pleasure ground attain a large size, they very frequently become more or less crowded, and therefore destroy the individuality which belongs to each. Therefore, as they advance in growth, they should either be cut in or thinned out, so as to fully develop the nobler individuals, and where possible to form groups. Half the trees planted, whether for ornament or for profit, are either disfigured or rendered comparatively valueless by having been originally planted too closely together, or by being allowed to remain too long without thinning; care should therefore be taken to place them in the first instance at a distance apart sufficient to permit them at a future day to display their individuality. The form and outline of trees and shrubs also vary very much according to the physical circumstances in which they are placed, such as soil, situation, and climate, and we only get the full grandeur of character which an individual tree is capable of expressing when, from its youth up, we save it from being weakened and deprived of light and food by other trees.

In planting trees and shrubs, the first point to be considered is the selection of such kinds as are known to flourish in the particular locality allotted to them and to thrive in the soil about to be operated upon; the next thing to be determined is the ultimate object in view, viz., whether you wish to create a permanent wood, or to plant merely as a means of reclaiming the land, or for shelter, or for ornament. In the formation of large masses of trees and shrubs, or when trees are introduced into ornamental plantations, they should be kept as much as possible in the background; great care should also be taken that all the taller-growing kinds are placed in the rear of the less vigorous and slow-growing ones; otherwise they will soon overgrow them, and eventually leave only branchless skeletons, such as we so frequently see disfiguring plantations around many country seats. Again, we often find on lawns groups of trees planted with the full intention on the part of the planter in the outset that the nurses should be wholly removed to allow such trees as are intended ultimately to adorn the grounds to assume their natural forms; but these nurses are, in nine cases out of ten, allowed to become robbers, excluding light and air from those trees which they were at first only intended to shelter.

The predilection which different trees and shrubs indicate for different soils may occasionally furnish hints to planters for the selection of species, and prevent that meagre, starved, and poverty-stricken appearance which too often manifests itself, notwithstanding that heavy expenses have been incurred; for trees and shrubs in a state of nature are all indicators of the character of the soil and subsoil where they grow. They also point out its aridity or moisture, a fact which should be kept in mind by the planter for his guidance in the selection of proper and suitable kinds for particular sites, for it is lamentable to see unsuitable trees so frequently planted by persons unacquainted with their nature and habits in places where they only exist; whereas, if suitable kinds had been selected and properly planted, a very different effect would have been produced. When the planter has only to consider what trees he should like to see growing around him, and not what the land is most suitable for, he can plant what he pleases, as some kind of trees appear to flourish, and really do so, in most soils for a few years; but after some ten or twenty years they become stunted and dwarfed, lose their foliage prematurely, and either actually die or survive only to present a melancholy spectacle.

G.

Loropetalon chinense.—This is especially interesting as being a member of that curious group of plants, the Wych Hazel family, of which the species of Hamamelis, the Sweet Gum (Liquidambar), and Parrotia persica are the most familiar examples. Loropetalon chinense is not unworthy of general cultivation from a purely garden point of view. It is a free-flowering shrub with the flowers, clustered in small heads, terminating the branches, the calyx being pale green, and the long linear petals pure white. When better known this shrub will probably become a favourite; quite small specimens flower freely. It was first introduced into this country a few years ago by Messrs. Veitch. It is a native of China, whence it was sent by Mr. Charles Maries.

The Ailanto (Ailantus glandulosa).—The Ailanto possesses a very different aspect in its ripe old age from the saplings of it often met with. The largest tree of it in the neighbourhood is at Syon; indeed, it is the largest among the many fine trees that exist of it in the country. The Syon tree, which was figured in Loudon's "Arboretum," is nearly 100 feet high, with a clean, erect bole, rising some 30 feet before it branches, and terminated by a huge hemispherical head of handsome foliage. Though a rapid-growing tree when young, it has taken many years for this specimen to attain such a large size, and now that it is fully developed there seems to be no variation in its character from year to year. It occasionally bears flowers, which are succeeded by small fruits. The flowers are produced in terminal erect clusters of a whitish green colour, and they exhale a disagreeable odour. This tree thrives in almost any soil, though that of a light, moist character suits it best. Few trees possess such an elegant foliage and graceful habit of growth as the Ailanto, which is also called the "Tree of Heaven."

Golden Elder.—The summer's sun served to intensify the depths of colouring in this golden-leaved shrub. Just now the exposed portion of the foliage is of a rich golden-yellow hue, and where associated with dark-leaved plants, this golden tint is heightened by contrast with the surroundings. This Elder possesses the great merit of not being in any way fastidious as to soil or situation, though it is seen to the greatest advantage in a fairly dry spot and thoroughly exposed to the full rays of the sun, for though it will not grow so rapidly as in a moister soil, yet the foliage is much brighter where the roots are moderately dry. Besides this, the golden-leaved Elder will grow very readily from cuttings taken when dormant and dibbled in some sheltered spot. Like all cuttings that are inserted in the open ground they need to be put in firmly, so as to be proof against severe weather and drying winds, which often cause havoc amongst cuttings that are not inserted deeply enough in the ground. —T.

Olearia Haasti.—I did not think very highly of this hardy shrub while our plants of it were small, but now they have grown into large bushes I begin to see that it is really attractive, and, what is more, a very useful plant. It is so neat and compact in growth, that it just suits the front line of a shrubbery border, needing no cutting back to keep it within bounds. The flowers are small, but numerous enough to make a large plant attractive; and what further enhances its value is the fact that it flowers in August when so few other hardy trees or shrubs are in bloom. The blossoms, too, are useful for many purposes in a cut state. It appears to be indifferent about soil; our plants of it are growing in ordinary garden soil, but I have an idea that peat would suit it better.—J. C. C.

Ceanothus azureus grandiflorus.—This is a grand plant for south or west walls in any of the southern or western counties, but it would probably prove too tender for the north. Here, in the west, on a wall facing the west, it hardly ever gets injured, and it grows in the most luxuriant manner. It commences to flower in July and continues in bloom for two months. I never prune it until the end of February, when a good many of the shoots which have flowered and some of the old ones are cut away, and young growth laid in to fill up the space.—J.

FLOWER GARDEN.

ALPINE FLOWERS IN THE PYRENEES.

No. II.

Bagneres de Luchon, in the department of the Haute Garonne, is a gay town of some 5000 inhabitants. A friend told me that he once suffered so much from the heat there in June, that he determined never to go to the Pyrenees again. We were there the second week in June, and we suffered more from rain and cold, and were very glad of a fire in the evening. Except to the south, in the direction of the Porte de Venasque, one of the chief mule passes into Spain during summer, where there are fine snow-capped mountains, the scenery from the town is not grand, but it is within easy reach of the wildest parts of the Pyrenees. It is the nearest town to the Malaletta, their highest point, in which the Garonne rises, and amongst whose rocks is one of the last strongholds of the ibex or bouquetin, the "wild goat" mentioned by Homer. Eagles and vultures are to be seen sailing about the sky near Luchon nearly every day, and bears, which in the Pyrenees are neither mythical nor formidable, descend to within a few miles of the town after wild Strawberries which abound there. We heard of two female peasants lately gathering wild Strawberries who were suddenly confronted with competitors for the spoil in the shape of a she bear and two cubs. It was doubtful whether man or beast was the more surprised. The cubs began to growl, but their dam gave both of them a box on the ears for their bad manners, and led them away. As for flowers, the neighbourhood of Luchon has the reputation, perhaps not undeserved, of being the most flowery part of the Pyrenees. We went the usual expeditions from the town, in spite of the weather, and I will try to remember what plants we noticed in each of them. The first trip was to the Vallée du Lys. In spite of the spelling the name suggests Lilies of the Valley, but we are told that Lys is an old word meaning water, and that the valley took its name from the number of cataracts, not from Lilies, there. However this may be, a Lily grows there in great profusion, and was just coming into flower towards the middle of June. It is the Lis de St. Bruno (Anthericum Liliastrum), a plant worthy of giving its name to a valley of which it is a characteristic feature. Still more conspicuous at the time when we were there were the Narcissus poeticus, abundant all round Luchon, but already past in the low meadows near the town, but higher up at an elevation of about 4000 feet it was quite at its best, and

whitened the ground over many acres. I looked about for varieties, but failed to detect any special character by which it could be referred to any of the varietal names given in catalogues, and concluded that it was N. poeticus pure and simple. Pulmonarias were abundant along the road, as also in the whole region of the Pyrenees, the character of the leaves varying greatly, some being spotless, some full of irregular white patches, others with well-defined round spots. They varied, too, from broad heart-shaped to narrow lanceolate, and I soon concluded that it was hopeless to attempt any division of the class founded upon the leaves. Besides the beautiful flowers of Scabious mentioned before, a new feature in the meadows here was the abundance of Astrantia major. A pure white Hesperis matronalis was also common, but I saw no purple forms of it. Geranium phæum also grew everywhere in the fields, the colour of the flower varying a good deal. Hepaticas were not so common by the roadside here as at Eaux Bonnes, but are generally distributed. Many of them have their leaves beautifully marbled, and I selected and brought away a few of the best in hopes that they may keep this character. I was struck everywhere by the one-crowned appearance of the Hepaticas, as if in their second year from seed. On the mountains, where they were still in flower, I did not find the colours mixed, but on one mountain they would be all white, on another all blue. I do not recollect to have seen any pink. Meconopsis cambrica is common in the Pyrenees. I observe that in Grenier's "French Flora" the colour of the flower is given as "jaune orangé," but I never saw it either in England or in France with orange flowers till I saw it covering a bank by the side of the road to the Vallée du Lys. I was too much struck by it to delay securing a plant or two, which was lucky, for when we returned every flower had been gathered by some rival admirers.

Another expedition from Luchon is to the Lac d'Oo. This, too, is famous for flowers; but especially so is a high valley called Val d'Esquierry, 2000 feet or 3000 feet above the village d'Oo, at which the carriage road ends. Botanists call this the garden of the Pyrenees, and, of course, I was most anxious to see it. The landlord of our hotel was quite enthusiastic in his description of the treat in store for me, enumerating a long catalogue of colours, and indicating with his hand, palm downwards, the height from the ground at which I was to expect to see each colour. I was afterwards told that he had never been to the famous valley, being by no means addicted to climbing mountains. During the first part of the drive from Luchon we saw hanging from the rocks by the roadside large masses of Saponaria ocymoides, varying much in the shade of colour of the flowers. This is a plant which I find it better to grow from cuttings than from seed. The best shades of colour are in this way preserved, and the plants are more flowery and less straggling. As we got near the end of the carriage road the meadows became more crowded with flowers known in England only in gardens. Besides such plants as Geranium pyrenaicum growing everywhere on the banks, the fields were full of a light purple Geranium—I think sylvaticum. Here, too, I noticed Meconopsis cambrica with orange flowers. Narcissus poeticus was also there, and so were some splendid Thistles, large and rich in colour. But the most remarkable part of the colouring in the meadows was produced by different shades of Viola cornuta carpeting the ground. We noticed this plant in many parts of the Pyrenees, but here especially. From the end of the road I started with a guide for the promised garden of the Val d'Esquierry. By the side of the steep and winding path I noticed Ramondia pyrenaica—the only place I saw it in the Luchon district. Other notable plants were a quantity of Anemone alpina of dwarf growth and very large flowers, covering a green knoll near a stream. A little beyond, Aster alpinus was in flower, of a bright colour which I can never get it to show in gardens. These, with the exception of a few Saxifrages and Daffodils of the variety nuticus, were about the last flowers I saw there. Promise of flowers there was in abundance. Aconites, I suppose Napellus, and also that form of A. Lycoctonum with the large leaves known as pyrenaicum, were just enough grown to recognise. The large white Asphodel, called by French botanists A. albus, but better known in gardens as A. ramosus, which grows everywhere in the Pyrenees, and the coarse shoots of Gentiana lutea were just showing. Further on the Daffodils were only just putting their noses through the yellow dead Grass, which the snow had hardly left and was again beginning to whiten, for the rain, which had been coming down in torrents ever since I left the carriage and had wet me through, had now changed to snow; still I went on in spite of the bitter cold, hoping that I should come to some hyperborean region where the flowers would be all bright; but my guide at last undeceived me, and convinced me that we were far too early, so we went down again, wiser and sadder, and I advise my friends who wish to see the Val d'Esquierry in its beauty not to visit it before July at the earliest. I have still one mountain walk to describe, a far more successful one, but it must be deferred till another week.

Edge Hall. C. Wolley Dod.

Group of alpine flowers.

The Layias, better known, perhaps, in gardens under the name of Calliglossa or Callichroa, are less frequently met with in gardens than they should be, considering the ease with which all of them may be grown. They are hardy Californian annuals which may be sown in the open border in March. They begin to flower in June, and in ordinary seasons continue in bloom until the end of August. Their flowers, which are extremely handsome and varied in colour, are very useful in a cut state, lasting in good condition, in vases, for a con-

siderable time after being cut. One of the best we have yet seen for this purpose is L. glandulosa, a kind which forms close tufts literally smothered with pretty white flowers: the others, such as L. elegans, L. Calliglossa, &c., have flowers shaded with yellow—some with distinct rings, and others with no well marked hue. They ripen seeds in abundance.—K.

NOTES ON HARDY PLANTS.

Erythræa diffusa.—This is one of the brightest of summer-flowering alpines, and yet one may go into a dozen gardens and not find it, a circumstance attributable possibly to there being something biennial in character about it. Anyhow, in some soils it never survives as a presentable specimen its first season, *i.e.*, if it flowers freely. I know that it can be perpetuated by root division, and, therefore, is not a biennial in the true sense of the term. On the contrary, that operation seems to increase its vigour when carried out seasonably. But perhaps the best method by which its masses of shining rosy-red flowers can be secured for our rockeries is to raise plants of it from seeds. The neat evergreen foliage on the prostrate stems, too, is worth something for winter decoration.

Thalictrum adiantifolium.—This, as its specific name implies, resembles a freely grown tuft of Maiden-hair Fern, and in this its beauty wholly consists, for the flowers are inconspicuous. During the rainy weather of the past fortnight specimens 9 inches or 10 inches high, and as much through, showed themselves off to advantage, the rain-drops clinging to the leaflets like so many crystals. It makes a pretty rock plant if grown apart from all else. It also makes a unique edging, but here again it should be planted sufficiently far apart to show off its pretty bush-like habit.

Saxifraga aquatica is a somewhat rare species as yet, and, in my opinion, will continue to be so so long as we try to grow it under unnatural conditions. It is not unlike S. Wallacei, but it is in every way much larger, especially the leaves, which are also softer, more spread out, and darker green. The flowers, which are clean, white, and fragrant, are freely produced in lax panicles. For several years I grew it on a raised bed in full sunshine in light soil, but deep and rich; there it grew so fast that we had to cut it back several times a year, and finally I had to remove it, owing to the trouble it gave close by a narrow walk. Since then it has been grown in a large 18-inch pot, half filled with manure, on the top of which were put a few inches of sandy loam; the pot has stood upwards of a year fully exposed to the sun and not plunged. I annually cut off all long stems after flowering, and put short cuttings made from them into old cocoa-nut fibre to root. The old plant makes fresh growth from the cut-back parts. From this it would appear that so-called aquatic species may be treated just like other Saxifrages. There are other plants which do quite as well in our climate without bogs as with them. The few that occur to me at the moment are S. peltata, the Pampas Grass, Iris Kæmpferi, some Primulas, and Bambusa Metake.

Stobæa purpurea.—This seems to be a desirable plant, its flowers being both curious and beautiful, and its leaves Thistle-like. Two things it seems to require, or, at least, to enjoy, viz., a loose, rubbly soil and a very sunny aspect. Its ample foliage never turns flabby in the fiercest sunshine or during the longest droughts. One or two plants of it seem quite happy on a disused rubble walk on which there is but an inch or two of soil.

Herbaceous plant cuttings.—Nearly all hardy herbaceous plants may be propagated by cuttings, but seeing that great numbers of them may be readily had by root division and seed, it is questionable if rearing cuttings is worth the trouble. That operation, however, has its value where plants do not divide easily or do not come true from seed. Cuttings when set should be half their length in the soil and half out, and taken slip-fashion from the parent plant, *i.e.*, with a heel. Very often short slips taken off close to the ground or main stems have rudimentary roots attached to them, and one may always add to the chances of success by taking the cuttings from the sunny side of the plant. In pricking them out, too, in beds or pots, all the leaves should face the strongest light; in other words, the under sides of the leaves of newly-inserted cuttings should not be exposed to the sun. Hardy plant cuttings should be rooted as early as possible, so as to get them well grown before winter sets in.

Swertia perennis.—This, according to my experience, is a decided moisture-loving plant, though it may be kept for years in an ordinary border. It is one of those curious subjects which must needs be grown well, or it will not flower. When in good form it is not likely to want admirers, dusky though its starry flowers are. The whole plant, indeed, is very dark in colour, and very different from the Gentians, to which it is nearly related. Owing to its colour and stature—2 feet high or more—its effect in bold patches is striking enough. Its habit is firm and erect, desirable properties in a plant intended for such springy and semi-wild places as it affects.

Polemonium confertum.—This dwarf, but excellent species refuses to grow in some kinds of soil, and therefore soil in which it will grow must be obtained for it. That it is hardy I have no doubt, having grown it so long. The first thing to do is to raise the soil 6 or more inches above the common level. Charge it with light material, such as grit, thoroughly decomposed stable or cow manure and leaves, and in this not only can the plant under notice be grown with success, but many other choice and difficult plants to manage. It likes to be exposed to full sunshine. I have just gathered seeds from a grand variety of Jacob's Ladder, which grows 3 feet or more in height. It is in every way larger than the native form; the flower-stems are less leafy, but the radical leaves are bold, long, and arching. It lasted several weeks in flower, though cramped in 4-inch pots. The seeds came from one of the Southern United States, and the plants raised from them have proved to be quite hardy.

Horminum pyrenaicum.—This is better than all the Ajugas, and if planted would prove far more serviceable than many would suppose; its thick, wrinkled leaves are pleasingly arranged in rosettes from 6 inches to 9 inches across; they are evergreen, and strongly remind one of those of well-grown Ramondias. It has a happy way of tightly holding itself between big stones, where it forms a pretty feature even when flowerless. Its short spikes of indigo-blue blossoms keep appearing in succession for a long time in summer and autumn. It is a plant which anybody may grow, and as it is not rampant or spreading, there can be no fear of its encroachment on other things. J. W.

Culture of Anemones.—Some advice in reference to this matter has recently been asked for in The Garden. In a light sandy soil with a good exposure and where the tubers can get thoroughly baked during the summer months, I do not think anything is gained by lifting and storing them. But, on the other hand, in a heavy clay or otherwise damp soil the stock may often be saved by lifting the tubers after the leaves have become brown, and laying them alongside a south wall or other convenient place where they can get plenty of sun to thoroughly bake and ripen them, planting them again as soon after that has taken place as possible. Another point which I think is not sufficiently attended to, especially in the case of bulbs or tubers that require a little care, is the fact that decaying matter in the soil is harmful where the drainage is in the least defective. Of course, bulbs as well as other plants require food, but other means will readily be found of giving it, such as top-dressings, liquid manure, &c. Nothing I find to be so injurious to the less vigorous class of bulbs as decaying leaves about them in winter, and that even where sand is present in large quantity. The leaves seem to act as a sponge, drawing and retaining all the moisture from the surrounding soil, a state of matters quite the reverse of what is desirable. Good growers of Narcissi prefer pure loam in which to plant their bulbs, and if this is found necessary in the case of Daffodils, it is much more so in that of many other bulbs, tubers, and corms which we grow in the open air.—K.

HARDY SUBSTITUTES FOR SUB-TROPICAL PLANTS.

Knotweed (Polygonum sachalinense).—How is it this once seen never-to-be-forgotten foliage plant is so seldom met with in country gardens? Hardy and as indestructible as the common Dock, it increases steadily, and forms a most picturesque group when planted in shrubberies, or, better still, on lawns, where it can be backed up and sheltered from high winds by Conifers or shrubs. Some years ago I obtained a small root and planted it well on a sloping bank where, backed by Abies canadensis and supported on either side by golden Yews, it now forms a clump 9 feet or 10 feet through and quite as many in height. The creeping roots travel silently and steadily along beneath the turf, and throw up their shoots, not thickly and crowded, but in the most irregular and natural manner imaginable; in some places two or three come together, in others single stems crop up where least expected, but just where they are wanted. Although such a rapid grower, and every cane is clothed with immense red-nerved leaves, it neither requires stick nor string, but sets wind and rain at defiance, and waves majestically over the green sward. Owners of gardens who do not or cannot afford the cost of wintering, coaxing, and hardening off sub-tropicals should not lose a day in getting this hardy herbaceous plant established in quiet nooks where its great height will not render it objectionable. Sub-tropicalists who place out of doors a host of tender plants for the sake of their foliage should plant it extensively, as its free and graceful bearing fits it for the most refined society throughout the summer, and its pleasing nankeen foliage renders it very conspicuous in the autumn after its shivering companions have been cut down by frost or removed to their winter quarters.

Plantain Lilies (Funkias).—In these days of retrenchment, time and money may be saved and our gardens may be made to look more natural by the use of these plants, which increase from year to year and defy the sharpest winters. Take, for instance, Funkia Sieboldi, one of the boldest and best; dig the plants up, divide them, replant in deep rich soil, and they will give a handsome account of themselves in the production of a profusion of cordate leaves of a whitish hue shot with rich purple which no tender sub-tropical plant can surpass and few can equal. Give them plenty of room, and let them expand into large natural masses in nooks and in front of clumps of Rhododendrons or golden Yew, and they will contrast or tone down with anything. But look out for shell snails, for if any exist in the garden they will surely find out the Funkias and speedily disfigure the young leaves when the plants have attained a foot or more in height, and afford safe shelter from the thrush, their inveterate enemy.

The Acanthus.—Of this family I would plant A. mollis, A. spinosus, and A. Candelabrum, not as single plants, but in great masses; not cramped up in herbaceous borders, but in front of shrubs on lawns, where in deep soil and quite open to the sun they would have room to develop their graceful, I may say their classical, foliage, and live for generations. It is generally supposed that these plants will not increase on heavy clay; be this as it may, they do well on heavy limestone marl, and A. mollis with me is now beginning to open its flowers. This clump more than twenty years planted is 6 feet or more in diameter, and has Funkia Sieboldi and Anemone Honorine Jobert equally large for its companions. A. Candelabrum grows well in moist loam, rather shaded by large deciduous trees, and forms beautiful groups through the autumn months. Being such a strong grower it tells well when placed, always on turf, a considerable distance away from the walks. Golden Yews and Hollies, the Retinosporas and Japanese Maples form fine settings for this intensely green variety, and a few pieces of

limestone lying about do not spoil the picture. The spine-leaved variety, more formidable than the others, is well worth a good station, and looks well in front of rockwork or shrubs having deep green leaves. Like the field Thistles, it is a faithful friend when once established in deep rich loam.

Bambusa Metake.—When first introduced I obtained a plant of this Japanese Bamboo and planted it on low moist soil, but it disappointed me. It grew, it is true, and flowered, and then disappeared for a time. Disappointed, another attempt was made—this time in front of a large Portugal Laurel on much higher and drier ground, sheltered from the north and east and fully open to the south. Here in company with the Acers, Quercus glabra, Ilex latifolia and Cunninghami, Aralia Sieboldi of twenty years' growth, Osmanthus ilicifolius and the beautiful Olearia Haasti, the Bamboo soon proved that I had been fortunate in my selection of a site in the Japanese garden. The soil, stiff loam resting on limestone, was broken up, dressed with burnt clay, and the wretched roots were transferred to their new home. This took place many years ago, and they have never been disturbed. They never flower, but send up hundreds of graceful shoots, and the roots, like those of the Knotweed, creep quickly along just beneath the turf. Anxious to lend a helping hand, once in two years I break up a broad strip of the turf a foot or two in width all round the margin of the bed, add plenty of burnt clay and leaf mould and my crescent shaped bed of Bambusa Metake is equal to anything I have yet seen in the way of sub-tropical plants.

Eastnor Castle, Ledbury. W. Coleman.

NOTES.

White Jasmine.—There is a fineness of make and a fragrance about a bush of white Jasmine that lifts it high, in our estimation, above many other shrubs in the garden. It is very pretty as a dense rounded bush on the lawn, or as trained on a sunny wall. At Straffau there is an old plant on a wall, with long branches trained fan-fashion, and the young growth is spurred back to the hard rods every year. This is a very old-fashioned way of growing the plant, and in some ways a very satisfactory one, since plenty of nice long flowering sprays are thus ensured for cutting, if such be required. In Besler's fine old work, "Hortus Eystettensis," there is a figure of the large-blossomed Jasmine, which has evidently been pruned back to the old stem in this way, and as Besler's work was published in 1612, we may fairly say the method is an old one in gardens. A simple cluster of common white Jasmine forms quite an uncommon posy of itself, dark and elegant in leafage, while around its snow-white flowers there lingers an odorous spiciness, rich and satisfying as any from Eastern seas. The large-flowered or Catalonian Jasmine is also worth a place, but it is not nearly so floriferous nor so neat in growth as the typical kind.

Agapanthus umbellatus.—Well grown this is a noble plant, not generally hardy and floriferous in the open air it may be, but well worthy of pot or tub culture, which enables one to give the plant shelter conveniently during the coldest portion of the year. There are several varieties, but none better than the old blue for outdoor culture near the sea. It enjoys a deep, warm sandy soil, and during dry weather it may with advantage be mulched with leaf mould or Cocoanut fibre. If pot culture be resorted to, there are several forms of this plant worth attention. There are a strong-growing white-flowered kind (albus), a dwart-habited, small-flowered blue (Mooreanus), a large-flowered variety with pale lilac-blue flowers (lilacinus), a tall, large-flowered blue (giganteus), and also a double-blossomed blue sent out a few years ago, but never very generally grown. Grown in tubs for plunging on the lawn these plants may be had anywhere, and but few other blue flowers can rival the typical A. umbellatus with thirty spikes on a plant. The white-blossomed kind is doubly useful either as a specimen in a cool greenhouse or for cut flowers. In mild sheltered localities, a bed of the typical blue forms a pretty picture during the autumnal months.

Common flowers.—In the garden nothing is common, using the word common in its right sense, and not as a synonym for plentiful or abundant, and yet there was a time when the words "hothouse flowers" were synonymous with choice blossoms, they in a way being thought of as representing the "Lords," while hardy flowers did duty for the "Commons." All this is now altered, and we find the best of people growing Roses, Carnations, Buttercups, Daisies, Lilies, and Pinks, as well as Orchids or other rare plants from tropical lands. Let us hope that fetish worship in the garden is over, and that no one class of plants will be valued to the exclusion of all others in any one garden worthy of the name. The question now-a-days is whether a flower is noble or elegant in form and good in colour or satisfying in perfume. Certainly we may grow Ferns, Palms, or Asparagus for their beautiful leafage or elegant stems; but, after all, it becomes a question of useful beauty or of beautiful use in the garden. That is the true test of all things, and we never need contrast the Orchid of the tropics with the Dryas or the Saxifrage of the arctic circle, each being equally lovely in its own way. The path of the gardener is broad enough, since the plants of the whole world are his to cultivate if he or his employer wills it so. But in the whole world we find no flowers that are "common," although many that are as numerous as sands on the shore.

The Dutchman's Pipe.—I do not wish to allude to the cloud-producing tendencies of our good friends, the bulb growers of Holland, but simply to draw attention to one of the very best of large-leaved climbing plants, viz., Aristolochia Sipho, a shrub which has for many years been well known under the above popular name. As summer foliage plants, apart altogether from their blossoming, I consider this Aristolochia from North America and the Chinese Wistaria two of the very best and most effective. A friend of mine who has definite opinions once made a dead set at the variegated Acer Negundo, characterising it as a plant one or two of which would suffice to spoil a good garden. There may be a "white-rag-on-a-bush" effect about the Acer, but for wealth of greenery and for variety from spring to autumn no one could well object to the Dutchman's Pipe, with its great heart-shaped foliage as seen scrambling up a tree trunk, or as hung in graceful garlands on a wall. We have here the Aristolochia just now most effective growing up a dead tree on the lawn, and a plant on a wall, so planted that its bold cordate foliage mixes and contrasts with that of the Wistaria, is much admired. Both these plants take time to become established, but afterwards they are very beautiful. The Wistaria acquires a light golden green tint of leafage in autumn, and then forms a delicious picture along with Clematis Jackmanni.

Coreopsis lanceolata.—Now and then I notice people object a little to golden-blossomed composites on account of their healthy vigour, which, being interpreted by the popular mind, is expressed by something like "coarseness of growth," or "a common sort of look, don't you think." But I have now in my mind's eye, and in the garden also, two kinds of Coreopsis, viz., C. lanceolata and C. tenuifolia, than which nothing can well be more elegant and "fine," using that word in its best sense. Both are, moreover, perennials, and I am particularly anxious to say this, for of late years more especially there seems to have arisen a growing dislike to annuals as a class, amongst amateur gardeners more especially. Perhaps it is that the word "perennial" seems to promise much peace of mind if once a plant is secured and planted; while "annual" seems ominous of constant seed-saving and seed-sowing from year to year. To return to my text, however, the two species of Coreopsis named above are so satisfactory in all ways, that they should at once be added to all collections where they are not already represented. They may be divided and replanted any wet day after they go out of bloom with advantage.

Helenium pumilum.—This is a really good garden plant, which I obtained years ago from Parker's then celebrated nursery of hardy plants at Tooting. Since then it has replaced the old tall-growing H. autumnale in many a garden besides our own. It is now in flower at 18 inches in height, a mass of deflected irregular florets, depending from the usual cushion-like disc. Like nearly all the other composites known to me, and they are more than a few, this plant is better for division and replanting every second year at the furthest, and so treated it is a most floriferous and useful thing. This constant, indeed almost annual, replanting in fresh deeply-dug soil is what is needed to ensure the full beauty of many, even if not most of our larger perennial composites. Manure makes them coarse and leafy, while annual replanting seems just the treatment they enjoy best. I see to-day (August 9) some fine flowers on Harpur Crewe's Doronicum excelsum, flowers as fine as the first which came in March last. Nearly all the Doronicums are persistent in their blooming, but this seems the freest and best of all in our soil.

Catananche cærulea.—This is an old garden plant, but is not even yet quite a plentiful thing. It is just now very pretty, each plant yielding quite a sheaf of its rustling flowers of a soft pale lilac or lavender-blue. We find it most useful and endurable for cutting, and a very ornamental perennial to boot, since on light sandy soils it does well year after year. The plant does not divide freely, nor do the seedlings like transplanting, except when very young, so that we now sow a few seeds on the borders where the plants are thinned out and left to establish themselves. A friend of mine who has a garden high up on a rocky hill overhanging the southern side of Dublin Bay told me years ago that nothing would grow there. I recommended her to plant nothing for a year or two, but to sow seeds of all sorts, especially of Cistus and Sun Roses, Linaria, Erinus, and hundreds of other alpine plants hardy in our climate. The only difficulty now is the weeding out of plants which many good gardeners would be glad to grow if they could do so. When seedlings establish themselves their tap-roots find congenial quarters, but in transplanting this provision of Nature is destroyed, and so on hot dry soils failure is courted and often obtained.

Campanula pyramidalis.—Gerard's "steeple milky Bellflower, both blew and white," is too often neglected in English gardens. Well grown in pots, as it used to be for indoor use years ago, it is a noble plant. In rich soils it attains a height of 7 feet or 8 feet, and as much in large pots if aided by liquid manure. When I was very young I remember gazing with something akin to awe at some fine pots of this plant grown by the thrifty blacksmith's wife in my native village. They used to stand in the cool and spacious bay

window of a low-beamed parlour facing the village street, and I have often seen travellers stay their horses to look at them when at their freshest and best, so lovely and uncommon did they appear. In the Royal Academy a few years ago there was a painting of a group of these tall Bellflowers arranged near the altar of some little church in Brittany. No words could express the cool, fresh heavenly blue of their flowers as caught by the painter's cunning. But better than any picture is the lovely reality of these flowers as seen on the borders in autumn, or as potted and grown on in a cool house or porch, where their flowers are untormented by wind or rain. The plants themselves are quite easily obtainable from seeds sown in spring, or from division of the roots at any time.

Helianthus rigidus.—Everyone who sees this plant in bloom here now seems fully persuaded that it is the very best of all the perennial Sunflowers. Be that as it may, it is a most useful plant, and one that should have a place in every garden. Its only fault is the freedom with which it takes possession of a bit of well-tilled ground. Just now its slender stems are topped with yellow Daisies 4 inches across, and each having a dark-tinted centre increases the effect, as also does the buds, which are of a blackish olive colour. It may be as well to say that this plant is also known in gardens as Harpalium rigidum. Last autumn Mr. Archer-Hind gave me a bit of a perennial Sunflower which he had received under the name of Helianthella uniflora. It is now in bloom, and while reminding one of Rudbeckia Newmanni seems an earlier and finer plant. The yellow ray florets are stout in texture and rich in colour, the disc or centre of the flower-head being brownish black. When well established it promises to be a noble plant, and well worthy of a place in all good gardens.

A white Bellflower.—One of the prettiest and freshest of all the Campanulas now in bloom is one I received years ago from the late Miss Hope, of Wardie Lodge, Edinburgh, under the name of C. Hosti alba. It is low growing and spreading, and is just now covered with its elegantly shaped bells of a snow-white colour. It is quite readily increased by division, and is, so far as I know, decidedly one of the most distinct and beautiful forms of the C. rotundifolia group. Another pretty little form from the Engadine has blue flowers peculiarly shortened and piquant in form, and I also notice a fine dark variety of Platycodon grandiflorum Mariesi in flower—a plant now fairly established, since we have had it three or four years, and every season the flowers are larger and better in tint. The most singular of all the Bellflowers just now flowering is that called Michauxia campanuloides. In this plant the bell becomes regularly slit into six or eight segments or more, and these segments reflex like those of a Cyclamen; indeed, there is quite a Passion-flower sort of aspect about these Michauxia flowers. The plant is 5 feet or 6 feet high, and bears a great panicle of white bl ssoms.

Veronica.

Salvia Horminum violacea.—As a bedding plant to withstand rain this Salvia is unapproached by any plant that I know used for summer bedding. It has withstood three weeks of dull and stormy weather; even though subjected to regular downpours, it is as bright at the end of them as at the beginning, while on Pelargoniums, Calceolarias, Petunias, and Verbenas every flower was spoilt. The purple bracts of this Salvia, which constitute its chief ornament seem so persistent that they are able to defy either wind or rain. To be successful with it as a bedding plant I find that a rather poor soil suits it better than a rich one. In good material it requires to be planted a foot apart each way, and it wants but little water, even in the driest of seasons, after it has once commenced to grow. It does better in a bed by itself than associated with other subjects. Being an annual, it can be readily raised from seeds, and if sown in a gentle heat in March the plants can be got of a suitable size for bedding out by the end of May.—J. C. C.

WORK DONE IN WEEK ENDING AUG. 10.

August 4 to 10.

The weather continues dry, and, for August, the small amount of sunshine is remarkable; under the circumstances, therefore, the latter, so far as gardens are concerned, is a decided advantage, for till rain falls in quantity, bright sunshine would have a deteriorating effect on fruit and vegetable crops, which at present are doing fairly well; water and mulch is the order of the day. Peas and runner Beans hold out much longer by a thick mulching than by repeated waterings. Celery, Tomatoes, and lately-planted winter greens are given water as frequently as time can be afforded for such work. Peaches, Nectarines, and Pears on walls are drenched with hose once a week. The latter are a far better crop than was anticipated, and we have had to thin such kinds as Beurré de Capiaumont, Knight's Monarch, Poire Ananas, Nouveau Poiteau, and Beurré Diel. Gathered the first Moorpark Apricots on the 6th, Early Orleans Plums on the same date, and Peach Early Louise on the 2nd. This last is not of first-rate quality, and we intend to replace it by that fine early variety Alexander, which indoors has ripened fully five weeks in advance of Bellegarde; and Hale's Early has ripened a month in advance of Early Grosse Mignonne and was quite as large, as well flavoured, and much finer in colour, being a bright red. With the good supplies of water that we have been able to give, flower-garden plants have thriven beyond expectation, and the whole may now be said to be at their best; combinations of foliage and flowers are our particular fancy. Large beds of one colour, no matter of what hue, have no charm for us; we must have greenery of some description as a setting for the flowers, and we get this by the free use of small standard plants, such as Retinosporas, Grevilleas, Draciænas, Abutilons, Fuchsias, &c. For the dividing lines in designs we always use foliage plants, our best types being Gnaphalium lanatum, variegated Japanese Honeysuckle, and variegated Thyme, of course pegged down till the ground is covered, and afterwards pinched. The best dwarf plants for the like purpose are the various types of Sedums, from the deep green of the variety Lydium to the creamy white of acre elegans variegatum. No edging plant that we have ever used is nearly so good as Herniaria glabra, and not the least of its merits is that very little labour is requisite to keep it in order. Tying up Dahlias, Marguerites, Castor-oils, and other tall growers has to be done once a week, and the seed-vessels we keep regularly picked off single Dahlias, else they would soon be flowerless. At the present time the most effective flowering plants are Violas Mrs. Grey (white) and Blue Bell, Purple King Verbena, yellow and white Marguerites, Ageratums, and Heliotropes, Fuchsias, Salpiglossis, Stocks, Lobelias, single Dahlias, and, lastly and least effective, Pelargoniums—pink and rose-tinted varieties being the colours to which preference is given. Work in houses and framing ground, though abundant, is of such a routine description as to require none but the merest record by way of memoranda for future reference—watering borders, keeping the laterals of Vines within reasonable bounds. On such varieties as Gros Colmar, Madresfield Court, and Mrs. Pince, that are now colouring rapidly, we allow the laterals to remain intact. Lady Downes and Alicante make such a quantity of wood that some of it must necessarily be cut away; still, we like to let the lateral growths of these varieties also have a wide berth. All white Grapes put on a more golden hue if sun can reach the fruit, so that the same degree of freedom in regard to lateral growth can hardly be extended to these, but we stop as little as possible till the "shanking" stage has passed, after which we expose the bunches to light by cutting out part of the laterals and by tying aside any of the large foliage that overshadows the bunches. Air is now left on all night, and warmth is still kept up in the pipes to keep the air buoyant; this is particularly necessary, for the Madresfields and Muscats, that have a predilection for cracking when the atmosphere of the house is in a damp and stagnant condition. Planted out another succession lot of Melons and made another sowing. This may be too late to do much good, but if the autumn be sunny the probabilities are we shall get a good crop of fruit that will help to save Pines when the greatest demand is made on us by way of dessert for the shooting season. Sowed Cucumbers and Tomatoes for winter use, and threw away the old plants of the latter that have been fruiting in pots for several months past; our present supplies are now being had from frames, and a few that were planted out very early in the open garden. Strawberry potting goes on daily, as does tying Chrysanthemums to their supports. Our first buds were taken on the 7th, the varieties being Thunbergi, Boule d'Or, Elaine, and Madame C. Audignier. Top-dressed old plants of winter-flowering Carnations and some Tea Roses that are flowering freely. Potted off another batch of Cinerarias and shifted Poinsettias into larger pots. Tuberous Begonias and Gloxinias now in full flower we shade and keep as cool as possible to prolong their beauty. The flowers we still keep picked off Pelargoniums that are being grown on in pots for winter flowering, and now that the pots are getting full of roots manure water is freely applied.

Hants.

FRUITS UNDER GLASS.

Cucumbers.

A moderate stock of young plants should now be kept constantly at hand for taking the places of Melons as they are cleared out of the compartments. It is not well to have too many of these or young Melon plants standing about, as they are so apt to get starved into a breeding colony; but, by sowing a few seeds at short intervals and throwing old ones away, a clean stock can always be kept at the cost of very little seed. Pits and frames, as I have before stated, are the best nursing places for summer and autumn use, as there the heat can be maintained by the aid of fermenting materials, and the plants—no unimportant matter in the preparation for winter—can be kept short-jointed and sturdy. Plants put out now will not require much fire-heat for some time to come, but the pipes should be in the house ready for use when nights become damp and cold, from September onwards, when a little gentle warmth, kept in by covering, will make all the difference between success and failure. If the first batch, as is often the case, is to be worked hard, say, till Christmas or January, when Melons again come in, the great care usually devoted to winter Cucumbers proper will not be necessary, as they will have passed away before the trying month of February comes in. Narrow pits in the house, filled with rough compost, longitudinal ridges or hills will therefore answer better than pots, especially if the roots can feel the influence of bottom heat from fermenting materials without getting into it. Light rich turf and old lime rubble will start and grow the plants well, but poor turf may require enriching at the outset. Rotten manure is the usual heal-all, but the less the better for winter use—that is, if stimulants, including soot, bone-dust, and good liquid, can be obtained; otherwise, dry, well-rotted cow manure rubbed to pieces or flaky leaf mould may be used. Hills at this time of year may be made one day and planted the next, and the greater their distance from the top-heat pipes the less the danger of spider when strong fires become necessary. Plants intended for fruiting through the spring I prefer keeping in pots, as the roots are so thoroughly under control, and the bottom heat can be regulated by the addition of fresh fermenting material without disturbing them. The soil for winter plants should be lighter than that recommended for summer culture, and the pots well crocked and placed upon pedestals to prevent them from sinking and strangling the plants.

Summer plants now in full bearing will take copious supplies of diluted liquid and good syringing to keep them clean and in health. Spider and mildew are the most troublesome pests when the plants become aged and enfeebled by heavy cropping; but these can

be kept in check by the use of sulphur, sulphur water, or sulphide of potassium, quarter of an ounce to a gallon of water. The best time to apply this remedy is late in the evening, when the house can be kept close; every part of the foliage above as well as below should be thoroughly bathed with the liquid, and well syringed with pure water early the following morning. If badly affected, the first dressing does not always act upon every part of the oldest leaves; a few of the worst should therefore be cut away the better to expose those retained, when the house being shaded syringing may be repeated every evening, always provided pure water is used early the following morning. Unlike many other insecticides, this preparation does no harm to the roots, although fatal to worms, which sometimes become very troublesome where animal manure is used as a summer mulching.

Melons.

Where late Melons are appreciated, and there is full command of top and bottom heat, strong plants of free early varieties, like Reading Hero, may still be put out in 12-inch pots with every chance of ripening their fruit in October. With hot-water pipes in near proximity to the bottoms of the pots, and a good body of fermenting leaves for giving off genial warmth and moisture, the plants will run quickly up to the setting stage, when it may be necessary to keep the valves constantly open. As soon as the fruit is set and swelling kindly, frequent renovation of the bed to reduce the necessity for constant firing is very important, as heat so obtained keeps the foliage fresh and clean without the aid of direct syringing. Late Melons should not be allowed to make more leaves and laterals than are absolutely necessary to the production and support of the crop; and the higher the fruit is kept, provided it does not protrude above the foliage, the better will be the flavour. Plants upon which the fruit is well advanced will now require plenty of air through the early part of the day, and atmospheric moisture can always be secured by the ordinary practice of damping the paths, walls, and beds without wetting the stems and foliage. At one time I always gave my plants a heavy syringing immediately after the houses were closed for the day, but this practice has been given up, and I now find the foliage keeps fresh and free from spider, and the quality of the fruit is greatly improved by giving the plants a vapour bath only. Animal manure I never use, the only addition to the loam being a little bone dust and old lime rubble, which make the vines short-jointed and fruitful, and diluted liquid is supplied to the roots when the fruit is swelling. To some a compost of this kind may appear expensive, but such is not really the case, as Melons require very little soil provided it is naturally rich and heavy.

Pits and Frames.

The weather, so far, has been fairly favourable to plants in pits, but the time is now at hand when the greatest care will be necessary. A low, damp, fluctuating atmosphere, and the gradual decline of bottom heat when the fruit is swelling and should be ripening, form conditions so thoroughly opposed to success, that no pains should be spared in the management of the lining not only in the spring, but throughout the season. To this end, alternate renovation once a week, even in the hottest weather, will always keep up the supply of heat and ammonia, when fresh air, the best of all preventives of canker, can be freely admitted. Sun being so necessary to flavour, the lights should be kept scrupulously clean, the tops of the mounds on which the plants are growing perfectly dry, not too thickly covered with foliage, and all surplus growths closely stopped to the first bud on the laterals. When watering becomes necessary, early on a fine afternoon when the lights can be thrown off for a short period is the best time to apply it, and then the supply, at a temperature of 90°, should be thorough. It is, of course, necessary to shut up as soon as the bed has been flooded, but in order to let out superabundant moisture, the lights through the night should be slightly tilted at the apex, when an extra mat hung over the back will break cold currents and prevent the top-heat from declining. A word as to ventilation. In the ordinary course we ventilate common pits and frames by tilting the lights at the back and letting out all the heat and moisture, to be replaced by a flood of cold air from the north. The mercury soon answers, and possibly sinks 10° in a few minutes, but what about the poor recently perspiring plants? They feel first and show the effect quickly by drooping and flagging, as it is termed, on a bright sunny morning, when watering or syringing are dangerous operations. Something, however, must be done, so the unscientific person—I will not say gardener—in a clumsy way sets about healing the wound he has so unwittingly made by shutting up and shading. Aided by a sharp north-east wind—no uncommon thing with us in summer—the grower makes rapid progress, and very soon finds his Egyptian subjects infested with vermin and ripening their foliage prematurely. A chink at the highest part of every frame is always necessary for the escape of heated or vitiated air; but the supply should be admitted at the front or south side, and in sufficient quantity to keep the pit or frame constantly full. By adopting this plan draughts will be avoided, as a large volume of heated air will pass through the front ventilators just as fast as the chink at the back allows the vitiated air to escape. When the top ventilation is in excess of the front, cold currents enter at the highest point, beat the vitiated air down, and the fresh air passes over it. The plants in such a medium, it is hardly necessary to say, do not thrive; but by providing a number of front ventilators, the nearer the surface of the bed the better, every leaf is kept in motion, and one of the great causes of canker in Melon stems is swept away and replaced with fresh life-sustaining air.

Orchard Houses.

Early trees that were potted as soon as the fruit was gathered will now be fit for removal to the open air, where they should be plunged or packed up into litter and regularly attended with water. If perfectly clean and free from spider, night dews and summer rains will most likely keep them healthy; but in the event of the weather becoming hot and dry, an occasional dash from the hose will sustain the foliage and feed the newly-formed flower-buds. If any of the later varieties which were in fruit when the first batch was potted have not been transferred to larger pots, no time should be lost in getting this work over. Space under glass being adequate, it is a good plan to return them to their quarters and keep them moist, rather close, and slightly shaded until the lateral leaves, by their crisp appearance, show that new root-action has set in. If the house is wanted for other purposes, they may then be removed to the open air, otherwise another month under glass will do them no harm. Older trees, which it may be desirable to replenish with fresh compost without increasing the size of the pots, will require more careful handling, as it will be necessary to disroot and pick out some of the old soil. The balls should then be soaked in water preparatory to repotting in new compost, which cannot be too dry, as it will be necessary to ram with the potting-stick until it is impossible for water to pass through the new without entering the old. Trees so treated flag a little at first, but shade from bright sun for a few days in a rather close house and frequent syringing will very soon bring them round, when shading must be discontinued and more air gradually admitted. Where early forced Peaches are planted out in raised borders the same rules apply, as trees having so much freedom cannot be kept in order when annual root pruning is neglected. Many plant on the level, but I prefer giving each large tree a raised station on good drainage, and enclosing its roots with a solid turf wall raised a foot or more above the floor-line. The advantages are an abundance of solar heat and air playing about the roots, their capacity to take more diluted liquid when the fruit is swelling, and last, but not least, the saving of time in forking down the old walls and replacing them with fresh turf mixed with old lime rubble. The secret of success consists in the annual performance of root pruning operations and getting them re-established before the leaves fall. Early houses in which the above system of planting-out is practised should be constructed with portable lights for running down in showery weather after the fruit is gathered. Cheap fixed roofs do very well for midseason and late culture, but where the fruit is forced to ripen in June and July there are times when full exposure of the trees is a decided advantage, if not an absolute necessity.

Midseason houses in which the fruit is now ripe or approaching that stage will require all the air that can be admitted, and water in sufficient quantity to keep the soil in a growing state. Mulching having done its work, fresh supplies will hardly be necessary, but a covering of some kind that will prevent the surface roots from drying out will save much trouble in watering, and prove a decided advantage to the trees. Where fine fruit is the first object there is nothing better than fresh stable litter slightly charged with ammonia, but when the orchard house is made an ornamental appendage to the dwelling, disagreeable smells are objectionable and must be avoided. Cocoa-nut fibre and Moss are good non-conductors, and may be used where they can be obtained at a cheap rate. When Peaches and Nectarines approach the ripening stage direct syringing must be discontinued, as some varieties, notably Lord Napier Nectarine, scald and become rusty; atmospheric moisture must be maintained by syringing the stems and walls, and damping the floor two or three times a day when the weather is fine. If Figs are grown in the warmest part of the house, the syringe will play a very important part in keeping down spider until the fruit is well advanced in its last swelling. Mulching and liberal watering until the most forward Figs begin to ripen will also be necessary, when the give-and-take principle must be observed, as fruit in various stages must be kept progressing. Cherries, ordinary Plums, and early Pears should be potted and treated as Peaches until new root action sets in, when they may be removed to the open air to make room for later kinds. The latter, including choice dessert Pears and Coe's Golden Drop Plum, being capable of standing any amount of solar heat with full ventilation, will, of course, remain under glass until the fruit and wood are ripe, when a dry, buoyant atmosphere will greatly enhance the flavour, and protection from birds will become necessary. If Strawberries are fruited on the shelves, the plants intended for another season will now be established in 5-inch to 7-inch pots and standing in an open part of the garden, where, properly attended with water and kept clear of weeds and runners, they will mature their crowns and roots by the end of October. The Strawberry question having been so thoroughly ventilated, readers of The Garden will experience no difficulty in making a selection for early or late forcing. Vicomtesse Héricart de Thury, President, and Crimson Queen are three good sorts, and where British Queen succeeds I would grow a quantity of plants for leading up to the crop from the open air.

Eastnor Castle, Ledbury. W. Coleman.

Kitchen Garden.

Notes on Peas.

Being desirous to test the merits of some of the dwarf-growing Peas side by side, I sowed a collection of eight different sorts on the 23rd of February last, on a border facing the east, under what I considered to be very favourable conditions. The only drawback was the soil being a little too rich; nevertheless, but few of them grew more than their normal height. A careful record was kept of their growth in every stage. M'Lean's Blue Peter has round pale green seeds, and grows 2 feet in height. It was in flower on June 11, and fit to gather on July 7; pods short, and an indifferent bearer. Turner's Emerald—seeds light green, wrinkled; in flower on June 11, and fit to gather on July 12. This sort bears a few long well-filled pods, but is not a desirable variety. Carter's Little Wonder—seeds pale green, large and wrinkled; in flower June 14, and fit to gather on July 17. This produces very long pods, each of which contained as many as nine large Peas; height 3 feet; an indifferent bearer. Bliss's American Wonder—seeds light green, wrinkled: in flower on June 1, and ready to gather on June 28, height 15 inches. This, in every respect, is the best of the collection. It is much the best bearer, and its growth is more regular than that of the above. M'Lean's Little Gem—seeds green, large,

and wrinkled; in flower on June 9, and ready to gather on July 13; a fairly good cropper; height 2 feet. Carter's Tom Thumb—seeds round, small, and light green, pods small and not sufficiently numerous to be profitable; height 2½ feet. Bijou—this has large, wrinkled, pale green seeds. In growth it is fairly vigorous and a moderate cropper; height 2 feet. Carter's Extra Early Premier—seeds green and wrinkled. About four days later than American Wonder. An excellent cropper, and altogether a very desirable Pea; height 2½ feet.

This trial, in my opinion, seems to show that many sorts of dwarf Peas are not wanted. I never looked upon them with any favour, and I shall hereafter do so with less, inasmuch as they are for the most part poor croppers; the fact is they have not bearing surface sufficient to produce a good crop. Out of the light sorts just named, only two are worth growing: these are American Wonder and Carter's Extra Early Premier; the first is decidedly the most prolific. For small gardens dwarf Peas may be useful, but where a regular succession has to be kept up, it is necessary to sow at least once a fortnight, each crop only yielding two gatherings.

Mildew.—Heat and drought are pretty well known to produce mildew in the case of Peas, and according to my experience all Peas are more or less liable to become mildewed. Some may, however, not be so seriously affected as others under the same conditions, and it would be useful to know their names. If I were asked to name two sorts that are not seriously affected by mildew, I should say they were Walker's Perpetual Bearer and Evolution. The last is comparatively a new Pea, and a good one too; it produces very large pods well filled with large Peas. Walker's Perpetual is not unworthy of its name, as it continues longer in bearing than any other sort with which I am acquainted when grown as a mid-season Pea. I have seen both these sorts but little affected, while all others have been white with the fungus. At the same time, I do not believe that any Pea enjoys perfect immunity from mildew in a season of prolonged drought, and the lighter and dryer the soil the more seriously are they affected. This naturally opens up the question of watering Peas, and in reference to this I may also say at once that I am not a believer in its efficacy. I have tried both plans, and have had as good crops without watering as with it; even during the present season I have put this matter thoroughly to the test. I watered and mulched some of our Peas heavily, but those on which we have spent so much additional labour are no better than others which have been neither watered nor mulched.

Selection of Peas.—Singular as it may appear, in point of earliness we have not gained anything during these last thirty years. Sangster's No. 1 has supplanted the old Early May as regards its name, but it is neither earlier nor better than that old sort. William the First has taken the place of Early Warwick as a second early, and I must admit that it is a decided gain as regards flavour. The old Auvergne, which used to be a standard favourite as a mid-season Pea, has not yet been beaten as regards cropping qualities and flavour. Its only fault was that it was small as regards both pod and Peas. Its place has been filled by Telephone and Stratagem, and certainly those who require Peas that will fill the basket as well as the vegetable dish can have them in either of these newer sorts, but they are no advance in flavour, and they certainly lose something in the time during which the respective sorts remain in bearing. It requires three sowings of these new Peas to two of Auvergne to keep up a succession. It is much against large-podded Peas that so few of them are produced, and that they so quickly go out of bearing. According to my experience, half of the space sown with Emperor of the Marrows or the Duchess of Edinburgh will yield as many Peas as either Telephone or Stratagem on double the amount of ground. As exhibition Peas the Duke of Albany and Evolution will, I believe, become popular. The first-named is perhaps the handsomer of the two. Its pods are well inflated, and when taken just at the right stage and opened, they exhibit such a fine display of Peas, that they are sure to arrest attention. Evolution I look upon as the most serviceable for the table, its eating qualities being excellent. In growing any of the new sorts of Peas for the first time it is not good policy to depend on them entirely for any particular crop. Many of them differ in the length of time at which they come into bearing. Soil also influences the crop somewhat; some will do better in one garden than in another. It is therefore well to grow them on a limited scale at first. J. C. C.

WINTER CUCUMBERS.

It seems to be generally admitted that Telegraph is the best variety of Cucumber for winter work, its free-bearing habit and short-jointed growth in the dark days eclipsing all other kinds. The seeds should be sown singly in small pots, about the third or fourth week in August, in fibry loam, lightened and enriched with old mellow manure. Robustness of habit is especially valuable in winter, and therefore the soil should not be too light. Plunge the pots in a frame near the glass where there is a little bottom heat, covering them with a sheet of brown paper till the seeds germinate. Afterwards uncover, and ventilate to ensure sturdiness of habit. More seeds should be planted than the number of plants required, as some may fail to grow, and others that germinate may be weaklings, and none but strong plants should be employed. The house in the meantime should be thoroughly cleansed, the paint washed with soap and water, the walls limewashed, and everything removed from the bed, so that there may be no harbour for woodlice or other insects. Whatever the arrangements may be for supplying bottom heat, it should be equal to a steady temperature of 75°.

Usually the bottom heat is supplied by hot water pipes, and it is an advantage if these are laid in a watertight tank, so that if necessary moisture may be given below the roots. The best arrangement is to lay the pipes in a cemented chamber and fill in with rubble, the rubble rising 6 inches or so above the pipes. On the rubble lay 6 inches of stable manure, or more if space permits. The best soil is a turfy loam not too heavy, and to every bushel of loam I like to add from one to two pounds of Amies' manure. This manure seems to furnish just the kind of stimulant Cucumbers require, and it is especially valuable in top-dressings applied when the plants are bearing freely. It is best not to hurry the plants with a high temperature at first, and they should not be planted too thickly, as overcrowding must weaken their growth. Four feet apart will not be too much to permit the side shoots to be tied out and give room for the foliage to develop properly.

Unless fruits are required early, it is best not to stop the main stems till the top of the house is nearly reached. The side shoots should be stopped one joint beyond the fruit, and this should be done as a system all through the existence of the plants, but leaving the leader unstopped for a considerable time does add immensely to the general strength of the plants, which will be of great service through the winter. The Telegraph is a free bearer, but only a light crop should be taken through the autumn if the plants are to bear well after Christmas. The soil should always be kept moist, as dryness at the roots will cause the foliage to suffer, and injured Cucumber leaves never recover, and it should be a point to retain the main leaves as long as possible. The atmosphere should be kept genial and moist. In most Cucumber houses there are troughs on the pipes, which are kept full of water, with liquid manure given occasionally, and in addition the floor can be damped and the walls syringed. Ventilation should be given in genial weather to keep the atmosphere fresh and pure, but the amount of ventilation must hinge in a great degree upon the construction of the house, and the best Cucumber houses are those which require the least ventilation, as in such houses there is not much fluctuation in the temperature. The night temperature should range from 65° to 70°, with a corresponding advance in the daytime with the sun's heat. It will be necessary to shade in bright weather through the autumn, but the lighter the shade the better, as shading always has a tendency to weaken.

When the plants are bearing freely liquid manure should be given, and there is great value in top-dressings, which should be light and frequently applied. A little fresh compost not only encourages the roots, but helps to keep the atmosphere pure and the foliage clean and healthy and free from insects, mildew, &c. A sharp look out must always be kept for insects destroying them as soon as their presence is first noticed, by a timely application of the usual remedies. All fruits should be cut as soon as they are large enough for use. A large number of fruits hanging at one time is a gratifying sight, but it has to be paid for in the after exhaustion of the plants.

E. Hobday.

Garden Flora.

PLATE 557.

PURPLE BOX-LEAVED MILKWORT.

(POLYGALA CHAMÆBUXUS PURPUREA.*)

The genus Polygala consists of a large number of more or less handsome flowering plants, ranging from the common Milkwort of our heaths and meadows to the bushy shrubs well known at exhibitions, which require the protection of a greenhouse in winter. A goodly number, however, both annual and perennial, natives of North America, are quite hardy in this country; a few of them would find a suitable home on the rockery, and, mixed with other things of an evergreen character, would help to make that part of our gardens attractive in winter as well as in summer. Seldom are our native representatives of this genus seen in gardens, a surprising fact, as few who have seen them growing amongst stubby Grass or peeping from under the cover of a Furze bush will dispute their claim to such a position. The difficulty lies in lifting them properly, an operation in which the roots generally get damaged, and failure is the result. This year we took the precaution to have a large sod of turf of a good depth lifted, and in this way have had a grand display of flowers. P. Chamæbuxus and its varieties, all of which are shrubby in habit, make excellent plants for the rockery; they flourish in almost any position, and, associated with such plants as Ericas, Lelums, Veronicas, &c., make very interesting groups of dwarf evergreen shrubs, which effectually clothe places that would otherwise be naked and unsightly during the winter season. These shrubs in the rockery are also useful as a protection to bulbs, even quite hardy ones, by warding off cutting winds, &c., and preventing the flowers from getting injured by them. Crocuses seem to thrive much better planted on the lee side of these small shrubs than elsewhere. Daffodils are always earlier, and even such tender bulbs as the Calochorti do exceedingly well under such conditions.

P. Chamæbuxus.—This elegant little evergreen shrub produces flowers from May until October, but most plentifully in May and June. It bears so little resemblance to other European species, that old botanists considered that it belonged to a different genus. Many varieties of it have been found growing wild, a few of which are in cultivation. Of these perhaps the best is that represented in the annexed plate. It has large yellow

Drawn at Munstead, Godalming, May 4, 1885.

POLYGALA CHAMÆBUXUS PURPUREA.

and deep magenta-purple flowers, and makes a truly magnificent show during early summer. P. Chamæbuxus and its varieties may be readily cultivated either in borders or on rockwork, but they like a position shaded from the mid-day sun. The soil should be rich sandy loam, mixed with lime rubbish or tufa stones. They may be propagated freely from cuttings, taken off now or a little later and placed in sand under a handlight. P. Chamæbuxus is a native of Austria, Germany, &c., and is said to have been cultivated in the Oxford garden as early as 1658.

P. PAUCIFOLIA.—This is another dwarf North American species. It makes a handsome little plant for the rock garden, growing as it does only from 3 inches to 4 inches in height; the stems, which are leafy—chiefly at the summit—rise from slender prostrate or underground shoots; the flowers are large for the size of the plant, being often about an inch long, rosy purple, rarely pure white. It likes shady places and peaty soil, and may be associated with such plants as Linnæa borealis and Vaccinium Vitis-idæa.

P. VULGARIS.—This is so well known, that we need only direct attention to it as a plant suited for the rockery. P. calcarea and amara, two nearly allied species, also natives, are likewise suitable plants for the same purpose. They are all easily grown on stones, which they over-hang, and on which they produce their flowers freely, some blue, others purple, pink, and white.

D. K.

FRUIT CROPS.

SCOTLAND.

Moredun, Midlothian.—Apples here are a very poor crop, Lord Suffield, Iris'h Codlin, and King of the Pippins being the best. Pears are also a very poor crop, and the same may be said of Plums. Apricots are about one-third of a crop. Peaches outside are poor. Gooseberries are fair average crops; in some places abundant. Black, Red, and White Currants, too, are plentiful, as are also Raspberries. Of Strawberries we have fair average crops, but fully two weeks later than usual. The best for bearing in this locality are James Veitch, Vicomtesse Héricart de Thury, President, Elton Pine, and the old Grove End Scarlet, which we use for preserving. As regards flavour, we consider Black Prince, Keen's Seedling, President, James Veitch, and Elton Pine the best. We have also tried King of the Earlies and The Captain, but must try them another season. The method which we have adopted for years in order to secure good crops is as follows: We trench deeply and manure liberally, incorporating it well with the soil. We prefer horse manure for heavy soils, and cow or pig manure for light ground. Trenching we begin as soon as we can get the previous crop off the ground; we expose as rough a surface as possible to the winter frosts. In March we give a good dusting of soot, fork over the surface, firm it with the feet, and rake smoothly. We then plant single plants in rows 30 inches apart and 18 inches asunder. Digging afterwards amongst the plants we do not recommend, but we keep them clean with the hoe. In the end of the year, *i.e.*, as soon as we have had sufficient frost to render the ground hard enough to carry a barrow, we give the plants a good mulching of rough manure, and of this, by the time they are in bloom, there is little left but the straw, which forms a clean bed for the fruit to rest upon. This system we have adopted for years, and find it to suit admirably. We always destroy the plants after they have borne their third crop.—JAS. SMITH.

Riccarton, Currie.—We have here but poor crops of Peaches, Apricots, Pears, and Apples. Plums, such as Coe's Golden Drop, Jefferson's, and Purple Orleans on a south aspect, are fair crops. Victoria on a west aspect is good, but the trees have suffered considerably from branch-dying. Small fruits are pretty fair on the whole. Strawberries are not quite so good as last year. Late frosts blackened the flowers on several occasions. Garibaldi is decidedly the best variety we have either as a forcer or for outdoor work, taking size, flavour, and colour into account. For flavour Garibaldi and Bothwell Bank are our best, and our best croppers are Garibaldi and James Veitch. Black Prince is our earliest variety, and Elton Pine and Bicton Pine our latest. The best plan by which to secure regular crops of good sized fruit is to plant annually a few rows of each variety in August, and trench down an equal number of the oldest rows. In making young plantations always have the rows to run north and south. Leave 2½ feet between each row and 16 inches plant from plant. Two rows of Onions for spring use may be sown between each row of Strawberries.—GEORGE BROADFOOT.

Tynninghame, East Lothian.—Bush fruits in this neighbourhood are a very good crop. Apples, Pears, and Plums are, as a rule, small crops. Apricots fairly good. Strawberries irregular; in some cases they are quite a failure, in others a crop, though a small one, while with us they are a very heavy crop. In the garden here Apricots are extra plentiful. Peaches the same. Plums a fair crop. Pears a small crop. Good cropping Apples, such as Warner's King, Stirling Castle, Echlinville, Tower of Glamis, Rymer, Lord Suffield, Mère de Ménage, Northern Greening, and Duchess of Oldenburg, as well as some free-bearing dessert kinds, are bearing good crops. Strawberries in this district were much damaged by late frosts, and subsequently a period of protracted drought emphasised the mischief. Our own beds were only slightly damaged by frost, and the drought has not done much harm, thanks to a deeply worked soil. I now grow only four sorts for our out-of-door supply. These are Grove End Scarlet for preserving, Vicomtesse Héricart de Thury, President, and Elton Pine. I have tried and discarded for various reasons Dr. Hogg, British Queen, Loxford Hall Seedling, and Pioneer (these do not ripen thoroughly), also Keen's Seedling, Unser Fritz, Lucas, Samuel Bradley, James Veitch, Prince of Wales, Duke of Edinburgh, Frogmore Prolific, La Grosse Sucrée, Helena Gloede, and several others, the names of which I do not call to mind. Keen's Seedling is largely grown in the locality, but Vicomtesse Héricart de Thury is equally good and a firmer fruit. Our system of culture varies somewhat, but, as a rule, we select strong-rooted runners as early in August as possible, lift them carefully with balls, and transfer them to the ground chosen, and, if possible, on a damp cloudy day. The best ground is that from which a second early crop of Potatoes has been lifted. It requires no preparation, and as we try to have the two crops, immediately preceding the Potatoes, to be Celery, the ground is in capital condition for the Strawberries. The sorts for preserving and some of the Vicomtesse are grown in 4-foot beds, in which they produce large crops for three seasons. President and Elton Pine are set out in single plants, in rows 3 feet apart and 2 feet plant from plant in the row. From three to four seasons is as long as Strawberries do well. We find a sprinkling of manure scattered over the plants in the beds in winter to be a great help in the way of promoting a strong fruitful growth. Between the rows of the young plants we grow Onions and Carrots; an old bed is each year stubbed up, the plants burned on the spot, and a fresh crop set out in their place without any preparation. A mulching of manure is applied to the new plantation.—R. P. BROTHERSTON.

Callendar Park, Stirling.—The soil in this locality varies very much. In some parts it is light, on a gravelly bottom; in others it is stiff, with a clayey bottom. Crops therefore vary accordingly, especially Strawberries. Here the only kinds that succeed well are Garibaldi, Elton Pine, General Macmahon, and Wizard of the North. All these kinds are excellent this season, the best we have had for eight years. Our earliest is Garibaldi. I have tried Black Prince and a host of others, but without success. We plant in rows 2 feet 6 inches wide and allow every other row to fill in, thus forming, the second year, beds which never fail. Our first gathering off a plot 26 yards by 26 yards, consisting of eleven-year-old plants of Garibaldi, was 420 lbs. This was on the 17th of July. On the 21st of the same month we gathered about half that quantity. Last year I dug down Strawberries over twenty years old, from which I have had fair crops, but latterly they showed signs of exhaustion. Our ground before planting is well manured; then nothing in the shape of manure is given, but the spaces between the beds are kept clean by means of the hoe. At Polmont, about 2½ miles from here, Mr. Scott grows largely and successfully for market on the plan just recorded, but he has to change the crop about every five or six years. His best kinds are Brown's Wonder, a grand cropper, but a little acid. Black Prince with him is good in crop and rich in flavour. Wizard of the North bears fair crops, but its flavour is not good. Elton Pine is the best late sort. Duke of Edinburgh bears good crops, but neither this nor the Elton Pine are high in flavour. Garibaldi is good both in crop and flavour. Of Sir Joseph Paxton we have a fair crop and good in flavour. It is the hardiest of all. Admiral Dundas bears good crops and the fruit is very large and fairly well flavoured. Plums in some cases are very heavy crops both on walls and standards; in others there is no crop at all; the best is Victoria. Pears are a fair crop. Apples very scarce; Nelson's Codlin is the best with us. Black Currants in some cases are fair crops, in others poor. Red and White Currants good; and Raspberries and Gooseberries are very good.—THOMAS BOYD.

Whittinghame, Prestonkirk.—Of Apricots we have very few. Peaches are a total failure. Plums and Pears are under the average. Cherries are an average crop, except Morellos, which are under the average. Apples, too, are under the average. Strawberries are under the average. Raspberries and Gooseberries are average crops. Currants are over the average. Nuts a failure. Of Strawberries the kinds grown here and considered to be the best for this district are Keen's Seedling, Elton Pine, Bothwell Bank Seedling, President, Dr. Livingstone, Garibaldi, Rifleman, and Duke of Edinburgh.—JOHN GARRETT.

Dalmeny Park, West Lothian.—Of Apricots we have a few. Peaches and Nectarines here are scarce. Dessert Plums are scarce; culinary ones a fair crop. Apples and Pears are also fair crops. Of bush fruits we have good crops. I only grow two sorts of Strawberries, viz., Keen's Seedling for early use and Elton Pine for late use. I trench the ground for Strawberries in autumn and plant in spring, pinching off all flowers and runners the following summer, and fruiting the plants for two years only.—JOHN MOYES.

Polmaise, near Stirling.—Large old Apple trees have very few fruit on them. On young trees there is a small crop; the best are Lord Suffield, Cardross Green, and Hawthornden. Pears on walls are also a small crop; Beurré Diel, Passe Colmar, Jargonelle, Moortowl Egg, and Beurré d'Aremberg are the best. Morello Cherries on a north-east wall are a very fine crop. Of Apricots we have very few. Plums on walls are fewer than usual and late. The best are Pond's Seedling, Victoria, Jefferson's, Green Gage, and White Magnum Bonum. We have ceased to grow Peaches out of doors, as they never repaid the trouble which their culture involved. Gooseberries are a very heavy crop. Raspberries plentiful, but small. Black, Red, and White Currants all excellent crops. Strawberries a moderate crop, but as a rule they do very well here, our soil being strong. I plant the runners in beds in autumn, on which they stand all winter. I ridge the ground intended to be planted (giving it a good dressing of old hotbed manure) in November, and before it is lightly dug over in spring I give it a good dressing of lime. The plants are put into it in March, in rows 3 feet apart in patches, each consisting of three plants, which are 2 feet asunder. I mulch with leaves in the summer, and they are dug in along with the runners at the

lack end of the year. I try to have the ground in good condition when planted, as I never give any manure afterwards. I take four or five crops off the plants and then destroy them. The varieties which I grow are President, Keen's Seedling, Vicomtesse Héricart de Thury, Frogmore Late Pine, and Elton Pine. As a first-rate Strawberry for table, President is the best, but it is easily damaged by wet. The Vicomtesse is a very fine cropper, and good for preserving. In a dry season it is subject to mildew. Frogmore Late Pine does moderately well; Elton does not succeed here; I am going to discard it. The best late Strawberry I have grown here is Wizard of the North, though a feeble grower.—W. W. Ritchie.

Alloa Park.—Apples here are this year under the average, and so also are Pears, Apricots, and Peaches. Cherries and Plums are very good, and small fruits, such as Gooseberries, Currants, and Strawberries, excellent. The varieties of Strawberries grown here and those that are most prolific are Dr. Hogg, Duke of Edinburgh, Elton Pine, Garibaldi, James Veitch (a grand variety), President, Sir Joseph Paxton, Stirling Castle, and Vicomtesse Héricart de Thury. We renew our Strawberries every third or fourth year: a plantation therefore is renewed every year.—Thos. Ormiston.

Blair Drummond.—Apples, Pears, and all wall fruits here are below the average. Small fruits, such as Gooseberries, Raspberries, and Currants, are abundant. Strawberries also are a heavy crop. For flavour the best here is the Duke of Edinburgh, although not so heavy a cropper as Garibaldi, which comes in a little earlier, but behind it in flavour. Next comes Sir Joseph Paxton, of which we have a remarkable fine crop of beautiful fruit, but rather worse in flavour than the Duke. President is not such a good cropper as Sir Joseph, but equally good in flavour. I have gathered fruit from it weighing 2 ozs. each. Then there is Bothwell Bank Prolific, rather an earlier variety and a fine cropper, but lacking colour and flavour; also Prolific Hautbois, the fruit of which is small and rather peculiar in flavour, but plentiful. Our latest sort is Elton Pine, of which we have a good crop of very fair fruit, and good in flavour if the weather is dry. There is another sort here, viz., Aromatic, which comes in before the Elton, but it is inclined to produce foliage rather than fruit, and its flavour is only second rate. As to culture, after lifting Potatoes we merely dig the ground and let it lie all winter in a rough state; then we rake it early in spring and plant with a trowel 2½ feet apart between the rows and 1 foot between the plants. After the fruit is gathered we cut away all runners from amongst the plants, and hoe and rake. We find digging very objectionable. Mulching is recommended by some, but we find by renewing the quarter every four or five years we get much better fruit than by applying too much manure and keeping the ground hard. Our soil is heavy loam on a sandy subsoil.—John King.

Balcarres, Colinsburgh.—Fruit crops in this district are very varied; they have been much injured by late frosts. Apples are very poor; the best (which bloomed early) are Aitkins' No. 2 and Irish Peach. Pears on east walls are pretty good; on other aspects we have none. Plums, with the exception of Victorias, are a failure. Cherries good, particularly Morellos. Of Apricots and Peaches we have very few. Small fruits are good and excellent in quality. Gooseberries are heavier than we have had them for years. Raspberries and Currants are also very good. Strawberries, too, are plentiful, but rather small. The sorts which I grow and find do the best on our strong soil are Keen's Seedling, Garibaldi, President and Marshal MacMahon; for late crops we grow Victoria and Elton Pine. We grow our Strawberries for the first two years in single rows, and after that allow two rows to form a bed. We find this system the best, as by it we get good and well flavoured fruit for five or six years. This plan has been much practised in this district of late years.—Edward Tate.

Castlemilk, Rutherglen, Lanark. — Our best Strawberries both for flavour and crop, according to my experience of thirty years' duration, are Black Prince, British Queen, and Dr. Hogg. James Veitch and President are excellent, but do not stand damp well. Elton Pine, Garibaldi, and Vicomtesse Héricart de Thury I find best for late crops. As to culture, in loose soil I neither manure nor dig before planting, which is done in autumn. I merely clear away our early Peas or Turnips, hoe and rake the ground, put in the plants, and I have never failed in having a fair crop. In some years it has been no uncommon thing for sixteen berries to weigh a pound. Here I have to dig, the ground being stiff, but I do not manure nor dig afterwards. I never grow the same plants more than three years on the same ground, and the result is large fruit and fine in flavour, and the plants do not make much foliage—a great advantage, as much foliage is detrimental both as regards fruit and flavour. Other crops in this district are fairly good. Early Cherries are poor, but late ones are abundant. Apples and Pears are a thin crop. Gooseberries with me are a heavy crop, but in some of the more exposed places they are nearly a failure. The same remarks apply to Black and Red Currants. Wall Plums, especially Victoria, are a good crop in most places. —Alex. Brewster.

Terregles, Dumfries.—Apples, with the exception of a few sorts, are a very thin crop in this district. Pears are also very thin. Plums on wall trees are a good average crop; standards not so good. Cherries are a small crop with the exception of Morellos, which are good. Currants, Gooseberries, and Raspberries are abundant. The Strawberry crop is the worst that has been known in this district for a number of years. We had a grand show of blossom, but the drought which we experienced in June prevented the fruit from swelling. In a neighbouring garden, in which the soil is heavy and the beds well mulched, there is the heaviest crop I have seen for years. The sorts that have proved the best with us for size, flavour, and good bearing are Garibaldi, Sir Joseph Paxton, and President; the best late kind is Elton Pine. In order to secure good and regular crops the beds should be renewed every three years and the plants given plenty of room. I plant in rows 2 feet 6 inches apart, leaving from 18 inches to 20 inches between the plants. I mulch the beds in winter or early spring with fresh stable litter, allowing it to remain on all the summer in order to keep the roots moist and the fruit clean. —Alex. Chalmers.

Castlecraig, Dolphinton, Peebles. — Our altitude is 850 feet above sea level; consequently everything is very late; only this morning (July 28) the thermometer registered 33°, and 36° at 6 a.m. Of Apricots and Peaches we have none grown outside. Of Apples we have almost none; Pears the same. Of Plums the Victoria is a fair crop; others a failure. Cherries rather under the average. Raspberries abundant. Gooseberries are above the average. Red and White Currants a heavy crop; Black Currants a medium one. Strawberries are an average crop. Keen's Seedling and President are the best flavoured. These, Black Prince and Garibaldi do best and crop the heaviest; Black Prince for first early, Keen's Seedling and Garibaldi for second early, President for main crop, and Elton Pine for late work. Sir J. Paxton and Marshal MacMahon have been on trial; many varieties have been tried here and discarded. We plant one-third every spring, and destroy a third every autumn; no digging between the rows is allowed, only cleaning and top dressing in autumn. Autumn planting does not answer here.—William Milne.

Galloway House, Wigtonshire.—Fruit crops in this district are below the average, especially where much exposed to east winds. Apples of the following, viz., Keswick Codlin, Cellini, Hawthornden, Galloway Pippin, Warner's King, Yorkshire Beauty and Blenheim Orange are good crops. Pears are about half a crop; the best are Jargonelle, Marie Louise, Beurre Diel, Swan's Egg, and Louise Bonne of Jersey. Of Cherries we have a very good crop. Apricots are a fair crop—better than for some years past. Peaches and Nectarines are very scarce, much of the wood being destroyed in winter, owing to unripeness. Plums are a heavy crop throughout; Victoria, Lawson's and Green Gages have required thinning. Currants, Raspberries, and Gooseberries are all good crops and the fruit very fine. Strawberries are below the average; early kinds were good, but the late sorts (Frogmore and Elton Pine) have failed to swell off their fruit. For early use we grow Black Prince on south borders. For main crops on open quarters Keen's Seedling, President, Vicomtesse Héricart de Thury and Sir Joseph Paxton have proved to be the best. Frogmore and Elton Pine we grow for late use. Bothwell Bank has been grown here for three seasons; it ripens about four days later than President, and in flavour, colour, and firmness of fruit it is inferior to that variety. To get fine fruit and regular crops, the plantations must be renewed every three or four years. We plant in well manured and deeply trenched soil, 2½ feet apart between the rows, and 2 feet plant from plant. —James Day.

Milne Graden, Coldstream.—Apples here are almost a total failure, owing, I believe, to the prevalence of wet and cold at flowering time preventing a free set of the fruit. Pears, too, are considerably short of a full crop. Amongst Plums, Gages are rather thin; Victorias and Magnum Bonums good crops. Peaches, where protected, are a full crop, and the trees healthy and free from aphides and curl. Apricots are a very light crop here generally. Gooseberries, Red and Black Currants and Raspberries are full crops. Of Cherries we have none. American Brambles promise well. Strawberries are a full crop in quantity on such kinds as James Veitch, President and Vicomtesse Héricart de Thury, but the fruit is inferior in size, owing to the drought which has prevailed here recently. Sir J. Paxton, Excelsior and Duke of Edinburgh have been very disappointing this year; they have grown most luxuriantly, and produced large healthy foliage, but scarcely any flowers. The plants, I may say, were completely denuded of leaves by the frost of the late severe winter, which I think must have damaged the crowns to such an extent as to make them abortive as regards fruit. British Queen is one of the best flavoured of Strawberries where it succeeds, as it does in a neighbouring market garden here, on a chalky soil. James Veitch is the heaviest bearer we have here, and seems to be less affected by drought than most of the other varieties. Vicomtesse H. de Thury is one of the earliest and best all-around Strawberries that can be grown, and one that is not so fastidious as to soil as many others. Wizard of the North is one of the best late sorts, some years yielding a supply of fruit well through September. Of foreign varieties, Triomphe de Paris is certainly an acquisition, and of recent introduction. It is a compact growing variety, and produces finely coloured fruit freely and well out from the foliage; the fruit is round, medium sized, and of good flavour. The best way in which to secure a continuous yearly supply of fine Strawberries is to make a new plantation every spring on ground that has been previously trenched, well manured, and trodden hard, planting in rows 2 feet apart, and leaving 16 inches between the plants. Mulch well in autumn, and stir the surface with the hoe in spring, instead of digging between the rows, as is usually done; keep the ground clean and the plants isolated, or free from one another, and, if other conditions are favourable, good crops will be the result.—James Graham.

Wishaw, Lanarkshire.—Apples and Plums here are under the average, but in other gardens on the Clyde they are full average crops. Bush fruits are average crops. Strawberries are above the average, especially the earlier varieties. Our best flavoured and main cropper in this district is Vicomtesse Héricart de Thury; the earlier varieties are Black Prince and Grove End Scarlet. For late use we grow Elton Pine and President. The

best way in which to secure a good regular crop is to manure heavily and turn the ground up to the winter frost before planting, our soil being very damp and heavy.—John Munro.

Blackadder, Chirnside, Berwickshire.—All small fruits hereabouts are good, especially Strawberries. The leading sorts for flavour are Dr. Hogg and British Queen. For early use we grow Keen's Seedling and Vicomtesse Héricart de Thury, and for late use Elton Pine, President, Sir C. Napier, and Eleanor. In order to secure good and regular crops, make young plantations on heavily manured soil. The Apple crop here is very poor. We had a fine show of blossom, but most of it dropped. Pears are a fair crop. Plums and Cherries very good. Of Apricots we have none.—F. Hacker.

Torwoodlee, Galashiels.—Of Pears here we have almost none, and Apples are not much better. Plums and Cherries are fair crops. Black Currants poor; Red a good crop, but the fruit is small. Gooseberries pretty good. Raspberries look well. Strawberries are very poor. The best early sorts are Dr. Hogg, President, and Keen's Seedling, but the colour of the latter is rather dark. Our late sorts are Sir Joseph Paxton and Elton Pine, also James Veitch, but the last is not very productive.—Thos. Shannan.

Munches, Dalbeattie, Kirkcudbrightshire.—Pears here are thin, and Apples a poor crop, with the exception of Lord Suffield. Cherries are a fine crop. Plums an average crop. Gooseberries average. Raspberries under the average. Black and Red Currants fine crops. Strawberries a fair crop. The kinds that do best here are Black Prince for early use, and the old Grove End Scarlet; the latter bears heavy crops, which we use for preserving. Garibaldi does well here, also Vicomtesse Héricart de Thury and President. All are on a clay soil, and they hardly ever fail to bear heavy crops.—John Jeffrey.

Kilkerran, Ayrshire.—Gooseberries, Currants, and Raspberries here are good crops. Apples a failure, except a few young trees, consisting of such varieties as Lord Suffield, Echlinville, Hawthornden, Small's Admirable, Ringer, and Pigsnout, which are bearing a few. Pears on standards are an entire failure, and almost the same on walls. Plums on walls are about half a crop, on standards about a third of a crop, and so late that they will not ripen. Of Peaches and Apricots we have none. Strawberries in this neighbourhood are very poor—with me not more than half the usual crop. The winter did not leave a leaf on them, and the spring and summer were dry and cold. The varieties which I find do best are, for early gathering, Black Prince, an abundant bearer and of first-rate quality; Garibaldi, also an abundant bearer, but only of second quality; for midseason we have Barnes' Seedling, President, Bothwell Bank Prolific, and Sir Charles Napier. Barnes' Seedling is very little known. It is a large cone-shaped fruit, of a pale red colour, and an enormous cropper, but only second-rate in quality. Bothwell Bank I consider the best both as regards cropping and flavour. For late use we have Wizard of the North, which is an abundant bearer, and Elton Pine, which does not bear very freely, but is of good quality. The mode of culture which I consider best for securing a good crop of large well-flavoured fruit is to trench the ground three spits deep, enriching between each spit with a layer of well rotted manure, and as soon as strong runners can be got in August to plant them in lines 3 feet apart, and 2½ feet asunder in the line, in clumps of three plants in a triangle 3 inches apart. This allows plenty of air and light to get to the fruit, and also leaves plenty of space for cleaning among plants and for gathering the fruit. Varieties such as Black Prince I plant in lines 2 feet apart and 15 inches asunder in the line. I keep down weeds with the hoe until the beginning of November, when I give a good mulching of rotten manure. This is allowed to lie on the ground all the year round, and is renewed every November. I never disturb the ground, except with the hoe, until the plantations show signs of exhaustion, which is after a lapse of three or four years; then they are trenched down. I consider digging between the rows to be a bad practice. In light soils I should make the ground firm before planting. If planted in August, as they should be, I allow them to bear fruit the first year; but if through want of ground or other causes they are not planted till March, they should not be allowed to bear fruit that season. To keep the fruit clean I use rough litter from the stables. I never dig among Raspberries either, but keep the ground covered with manure and keep weeds down with the hoe. Anyone who sees the difference which this treatment makes in the size of both canes and crops would never afterwards dig among them.—Geo. Gallaher.

Culzean, Ayrshire.—Fruit crops hereabouts are very bad, especially Apples and Pears, which are very scarce. Plums are about half a crop and the fruit very much rusted, owing to the cold weather which we had in June. Bush fruits are a medium crop. Black Currants a heavy crop. Strawberries about half a crop. Garibaldi and Duke of Edinburgh are our best sorts as regards bearing. King of the Earlies and The Captain, two new varieties, promise well for the future.—David Murray.

Castle Toward, Renfrew.—Here Strawberries, Gooseberries, Red Currants, and Plums are extra good crops this season. These fruits are now made a speciality of in this district, and many hundreds of acres are planted with them. The work of gathering the crops has commenced, and many tons of fruit have been already despatched by rail to Glasgow. Apples and Pears will compare well with crops of former years in low-lying orchards, but in the high levels the fruit trees got such a shaking from severe winds which we had in June, that a large crop cannot be looked for; such as there is, however, looks well, and is better than that of last year. I generally grow Vicomtesse Héricart de Thury Strawberry, Myatt's Seedling, Trollope's Victoria, and Keen's Seedling. The ground here is rather stiff for early crops, but we generally have fine late ones. The east winds in April and May keep every kind of crop back here.—Harry McLeod.

Dupplin Castle, Perth.—Apples hereabouts are a thin crop. Of Apricots we have scarcely any. Cherries are a thin crop, except Morellos, which are heavy. Pears are also scarce; Moorfowl Egg is carrying a good crop. Plums are thin also, except Victoria and Jefferson's, which are bearing average crops on young trees that were watered during the dry weather of last summer and autumn. Strawberries are the lightest crop I have ever known here, and the fruit is poor in quality, having suffered very much from drought. Elton Pine is the only sort bearing anything like an average crop. Raspberries are a heavy crop and good in quality. Gooseberries and Currants, especially Red ones, are bearing exceedingly heavy crops. Nuts are a fair crop, but so late that I fear they will not ripen.—John Browning.

Drummond Castle, Perth.—Of Peaches and Apricots we have none here this season. Apples, consisting of Stirling Castle and Lord Suffield, are bearing a sprinkling; others, none. Of Plums, with the exception of the Victoria, which is a fair crop, we have but few. Cherries, consisting of May Duke and Morello, are good crops, but late, owing to the dry weather which we have had for the last six weeks. Raspberries, Gooseberries, Currants, Black, White, and Red, are good crops, but want rain. Of Strawberries, the varieties that I grow, and which are mostly grown in this locality, are Garibaldi and Elton Pine, which usually produce good crops when not left too long in one place.—John Robb.

Abercairny, Crieff.—The fruit crop here is not so good as that of last season. Apples and Pears are under the average, and the same may be said of wall fruits, such as Apricots, Peaches, Plums, and Cherries. Standard Plums, however, are a good average crop. Bush fruits are up to the average, but deficient in size of berry. Strawberries are a good crop, and though somewhat smaller in berry than usual, the quality is all that can be desired. Garibaldi, for early and main crop either for in or outdoor, and Elton Pine for late use are the two standard varieties with us, as both do well in this district. In making new plantations my system is to lay down the ground in good condition, to trench and manure pretty heavily, and especially for Elton Pine. We plant 3 feet apart each way, and keep the plants singly in the rows. In autumn we clean the ground and mulch early in spring, and the return is seldom or never deficient.—James Brown.

Marchmont, Dunse.—Apples here are scarce and small in size. Pears very scarce. Apricots, where protected, good. Plums, about half a crop. Gooseberries in some gardens are a heavy crop in others a failure, the buds having been destroyed in spring by birds. Currants are a light crop and small. Strawberries are not half a crop and they are not ripening well. The sorts grown here are Black Prince, Doctor Hogg, Duke of Edinburgh, Keen's Seedling, President, and Sir Harry. They are grown in rows 3 feet apart and 18 inches asunder in the row. I renew them every four years. I trench the ground deeply, and put in a heavy dressing of farmyard manure in the bottom of the trench.—Peter Loney.

Scone Palace.—Owing to cold weather in the end of April and beginning of May, Apples, Pears, and Plums set badly, and, with one or two exceptions, are poor crops. Strawberries are a good crop, but owing to the long continued drought which we have had they are small in size. Other kinds of small fruits are abundant and very fine. The varieties of Strawberries that succeed best here are Garibaldi, Keen's Seedling, Sir Joseph Paxton, Duke of Edinburgh, Sir Charles Napier, Auguste Nicaise, and Elton Pine. The kinds grown for early crops are Garibaldi and Black Prince, and for later supplies Elton Pine. The soil here is a heavy retentive loam on a clayey subsoil, and produces excellent crops of Strawberries; if the quarters are annually top-dressed with rich manure, they continue to bear heavy crops for five or six years.—A. M'Kinnon.

Fingask Castle, Perthshire.—Apples hereabouts are a very thin crop. Apricots light. Pears the same. Plums almost a failure. Cherries very thin, except Morellos. Peaches outside a failure. Gooseberries abundant. Currants, Red, White, and Black, and Raspberries excellent crops. Of Strawberries we grow Grove End Scarlet for preserving. Oscar, a large fruit and good in flavour, does well here. Sir Harry is good, both as regards crop and quality. Dr. Hogg is a fine hardy fruit, and one which travels well. On a dry bank it has not done well this season, nor has Sir Joseph Paxton. These two have a peculiar musky flavour. Comte de Paris is a fine early Strawberry and good in flavour. This and Keen's Seedling are on a dry bank, and have suffered from drought. Elton Pine is our best late kind. White Bath Strawberry I have grown over fifty years; its fruit is large and white, but when quite ripe it is tinged with red. It makes a useful variety for table where several dishes are required. It does best away from other sorts; if mixed it gets overcrowded and killed.—Peter Loney.

Dunkeld, Perthshire.—The Strawberry crop here is in every way excellent. It came forward rather quickly, owing to the dry weather which prevailed here up to this date (July 23). Our best kinds both for crop and quality are Duke of Edinburgh, Elton Pine, Duke of Athole, President, and Keen's Seedling. Vicomtesse Héricart de Thury is early and fine in quality. Duke of Edinburgh is a second early, and in such a season as this extra fine in quality and very large. Duke of Athole is grand as regards quality and excellent for dessert, but it suffered in spring from the severity of the weather. Elton Pine, when true to name, is in every way without doubt the best late Strawberry in cultivation. Of Plums on walls we have an extra fine crop; on bush

trees a fairly good crop. Apples are a very poor crop, and Pears, too, are a very inferior crop. Of Peaches on walls we have very few. Apricots are also very poor crop. Cherries are fine in quality, but not a heavy crop. Gooseberries are a fairly good crop, but greatly damaged by gales which we had here about three weeks ago. Currants are not a heavy crop.—P. W. Fairgrieve.

Pitfour Castle.—Of Pears and Plums we have none here. Apples, with the exception of Lord Suffield, are about as bad. Of Apricots and Cherries we have fair crops. Currants, Gooseberries and Raspberries are abundant and very fine. Strawberries may be called the crop of the season. The sorts grown here are Black Prince, Vicomtesse Héricart de Thury, President, Sir J. Paxton, and Elton. I also think well of King of the Earlies and The Captain. My system of culture is as follows: I heavily manure and double dig the ground for them in autumn or winter, and defer planting till early in April. Early sorts are allowed 2½ feet between the rows, and the others 3 feet. There being no fruit the first season, the ground between the rows can be cropped with Lettuces, Spinach, &c. If, therefore, all has gone well there need be little fear of gathering a good crop next season. We usually have a period of dry weather in June during the flowering time, and therefore, when the fruit is fairly set, an abundant supply of water must be given. After the crop is gathered, I lose no time in clearing off the runners, decayed foliage, &c. I hold this part of the system to be of the utmost importance, the whole strength of the plant being then available for maturing the crowns for another season. Light hoeings are given as required, but no digging or forking. Before hard frosts set in a good dressing of stable manure is laid between the rows, and, thus treated, they furnish profitable returns for four or five years, Sir J. Paxton excepted, three years being its profitable limit here.—Alex. Forbes.

Skibo Castle, Sutherland.—Strawberries on two-year-old plantations are good crops here, but under the average on older plantations. Sir Harry, an old standard in this district, is our earliest. From this we gathered fruit this year on the 10th July, three days before Garibaldi, and five before President. Garibaldi, President, Elton Pine, and Myatt's Seedling come in in succession in the order named. Raspberries are a good crop. Gooseberries are extra heavy, and Red and Black Currants good. Cherries on walls have been good. Plums average crops. Pears and Apricots under the average. Apples, both on standards and bushes, are a very clean, good crop on young trees, but scarcely any on old ones.—John Urquhart.

Cullen House, Banff.—Apples and Pears here are almost a total failure, a circumstance to be expected after the abundant crop of last year and the very untoward autumn that we had for ripening the wood and maturing the fruit buds. Small fruits are very good, especially Black Currants. Gooseberries are a fair average crop. Plums of some sorts, such as Jefferson's, Victoria, Washington, and Golden Drop, are extra good; other kinds are only partial crops. Apricots, Peaches, and Nectarines are also only partial on open walls. Cherries the same. Strawberries promised to be good, but the weather was against them at the time of setting. Our earliest and best kinds are Black Prince, Garibaldi, and Beehive. These do well and bear good crops. Our soil is a cold, stiff, retentive loam, which suits Strawberries well. We do not dig amongst them in winter, but clean off the runners and then give them a good mulching with half-rotted manure, which is left on the ground all the following season, and which saves strawing in order to keep the fruit clean. We grow all our Strawberries on the single-plant principle, planted 18 inches apart in the rows and 3 feet between the rows. Of late Strawberries we grow the following, viz.: President, Keen's Seedling, Myatt's Eliza, Dr. Hogg, Duke of Edinburgh, and some others, all of which do equally well as the early sorts.—George Berry.

Cawdor Castle, Nairn.—Apricots, Peaches, Cherries, and Pears are all very poor crops, and Apples in all situations are the same. Bush fruits, viz., Gooseberries, Currants, and Raspberries, are all good. Strawberries are fairly good, but the fruit, especially that on old plants, is small. The sorts which I grow are Garibaldi for our earliest crop, President and Duke of Edinburgh for succession, and Elton Pine for late crops. The latter keeps bearing until October. Duke of Edinburgh is the most vigorous Strawberry I have grown. It is a good bearer, the colour is good, and it keeps bearing for a long time. The flavour is not first-rate, but it is nevertheless a useful variety. I trench the ground for Strawberries the year before I plant them, and give as much manure as I can afford; before planting I also dig in a good coating of manure, firm the ground, and never dig between the lines until they are trenched down; after bearing four or five crops, I find that fresh soil is always best.—James Maitland.

Haddo House, Aberdeenshire.—The fruit crop in this district is in most cases under the average. Apples and Pears are almost a complete failure; numbers of trees had no blossom on them, and the fruit set very thinly upon those which had. Plums, consisting of Victoria, Jefferson's, Coe's Golden Drop, and Orleans, are good crops; others sorts are thin. Cherries of all sorts are about half a crop. Among small fruits Raspberries are a large crop; Black and Red Currants and Gooseberries generally are rather poor crops; early Strawberries are a large crop, late sorts under the average. For this district I find the best early sorts to be Keen's Seedling and Rivers' Eliza for flavour and bearing; to succeed them Marshal McMahon is the best I have tried. For a late sort that known in this neighbourhood as Myatt's Seedling is the most suitable. A new variety, the Aberdeen Favourite, sent out by a local grower three years ago, is well spoken of, but it does not succeed here. In order to secure regular and good crops we plant a certain quantity every spring on well-manured ground, allow no fruit the first year to grow on them, and give a top-dressing of well-rotted manure and bone meal, lightly pointing them in between the rows in spring. We in general fruit them for four years, when they are trenched down and the ground cropped with different sorts of vegetables for three years at least before planting it again with Strawberries.—John Forrest.

Redcastle, Muir of Ord.—Owing to frosts in May, June, and July we have no crop of Apples or Pears here this year. Currants, Black and Red, are very poor. Gooseberries indifferent, Warringtons excepted. Raspberries are a very good crop. Of Plums we have none, except Victorias, which are a fair crop. Strawberries are very poor and not ripening well. We only grow four kinds, viz., Garibaldi, Sir Joseph Paxton, Elton Pine, and Frogmore Late Pine. The best flavoured is the Frogmore Late Pine, but it is a total failure this year. The best crops we have are those on Sir J. Paxton and Elton Pine, but both are a long way behind what they were last year.—Thos. Fraser.

Kinfauns Castle, Perth.—Of Strawberries we have not half a crop; indeed, some sorts did not flower at all, but in numbers of places in the neighbourhood there are excellent crops where they have fairly light soil. Our ground is very heavy and retentive. The kinds that do best with us are Garibaldi, President, Duke of Edinburgh, and Elton Pine; the last does best in our heavy soil. The Captain has not done very well with me, but it may do all that is claimed for it in more suitable quarters. King of the Earlies I have not fruited yet. In making new plantations we take the runners off now, and plant, not too closely, in nursery beds until spring, when the ground is thoroughly trenched and manured, and planted as soon as workable. We choose ground on which Strawberries have not grown for a number of years, and I think it is very advisable to have the plants from another locality, just as we change our Potato seed. By planting out the early forced plants we sometimes get a good late dish or two, but with us they do not pay for the trouble. If Strawberry beds are dug at all, it ought to be done early in the autumn, but I prefer to mulch them well with good rich compost. Apples with us are greatly under the average, and also Pears. Of Cherries we have average crops. Morellos indeed are very abundant. Plums are under the average. Peaches average. Apricots under the average. Gooseberries average. Currants of all sorts and Raspberries very heavy crops. The following Apples are fairly well cropped, viz., Stirling Castle, King of the Pippins, Lord Suffield, Tower of Glamis, and Keswick Codlin; these are the only sorts we have bearing anything like a crop. Jargonelle Pears on walls are an average crop.—D. Macdonald.

Jardine Hall, Lockerbie.—Fruit on the whole is much better here than last year. Apples and Pears are fair crops. Plums good. Cherries fair. No Apricots, Peaches, or Nectarines grown out of doors. Currants, Gooseberries, and Raspberries extra heavy crops, and fine in quality. Strawberries a fair crop, but would no doubt have been better if rain had come sooner. The best varieties grown here are Sir Joseph Paxton and Duke of Edinburgh, but as I have only been a short time here I cannot say much as to other kinds in this district. As regards culture, I consider that it is much better to spread manure between the rows and allow the rain to wash it in than to dig it in. It should be put on at the latest in November. It is also a good plan to spread fresh stable litter between the rows in spring or early summer; it assists the plants, and the straw remains to keep the fruit clean. There is a plan practised in this district which I have not seen elsewhere. When a plantation shows signs of exhaustion, instead of trenching it in, the old plants are lifted with good balls, and planted again in freshly prepared soil; they do very well, and I have seen very good crops this season gathered from plants thus treated. They should be moved as soon as the fruit is gathered, so as to allow the roots to get a good hold of the fresh soil before winter sets in.—Alexander Henderson.

Dunrobin Castle, Sutherlandshire.—Apples are very scarce here this year, and Pears are a very thin crop. Cherries average, or rather under the average. Black and Red Currants are average crops. Gooseberries average. Plums, especially on young trees, over the average. Strawberries of most kinds are average crops. A good patch of Garibaldi in the second year has come almost entirely blind, or where flowers have appeared they have not set. As this is the second or third season in which this failure has occurred, I shall discard it as worthless. Duke of Edinburgh on the same ground, under the same conditions and planted at same time, is bearing an excellent crop of large, finely coloured fruit. It is the largest Strawberry we have here. An enthusiastic amateur in the neighbourhood has a few rows of it bearing the finest and heaviest crop of fruit I have seen this season. Elton Pine is our mainstay for midseason and late work. Sir Harry, Marguerite, President, Oscar, and some of the newer sorts have only given medium results. The best way in which to secure good and regular crops is to grow the kinds which suit the soil and climate best. Young plantations should be made before old ones fail. In some gardens I have known plantations to last in excellent bearing for eight or ten years; in others from two to four. A dressing of red marly loam or meadow soil produces good results in old gardens.—D. Melville.

Glamis Castle, Forfarshire.—Fruit crops hereabouts are under the average, except small fruits, including Raspberries, Gooseberries, and all kinds of Currants, which are good. After trying most of the popular kinds of Strawberries, we find some of the old varieties to answer best. Keen's Seedling, Vicomtesse Héricart de Thury, Elton Pine, Grove End Scarlet for preserving are good sorts. Sir Joseph Paxton bears heavily, but

does not suit wet weather. We prepare the beds and plant out as soon as the runners are well rooted, *i.e.*, any time between the middle of August and the middle of September, thus giving them an opportunity to get well established before winter sets in. We give a heavy mulching of decayed manure to save them from frost and as a fertiliser. Our summer this year has been exceedingly cold and dry throughout, which accounts for the all but general failure.

Potatoes are a large crop, and what we have been using are excellent in quality. We see no signs of disease as yet, a circumstance doubtless attributable to the dryness of the season.—Geo. Johnston.

IRELAND.

Chief Secretary's Lodge, Dublin.—The Apple crop here is very light except in the case of a few varieties, such as Lord Suffield, Echlinville Seedling, Cellini, and Warner's King. Pears generally are a good average crop. Morello Cherries are a heavy crop, but of sweet ones we have very few. Apricots are light, and also Peaches, a circumstance not to be wondered at, considering that we had 7° of frost when they were in flower and unprotected. Plums are a very fine crop, Victoria, Coe's Golden Drop, Reine Claude de Bavay, Jefferson's, and Transparent Gage being all heavily cropped. Small bush fruits we have in abundance. Strawberries have not been so fine for the past five years as they are this season. The sorts which we grow are President, Sir J. Paxton, Oxonian, Vicomtesse Héricart de Thury, and Sir Harry. Of these the two first are the best flavoured. To secure good and regular crops it is essential to renew the plantations about every fifth year. We give a good dressing of well decomposed manure every autumn, and we find it a good plan in the spring, instead of forking in, to rake off any unsightly rubbish that remains, as in digging the most careful hand is sure to disturb some of the roots, a thing which Strawberries dislike. To preserve the fruit from the ravages of slugs, the best thing we find is tan spread between the rows, and if this is applied a month or so previous to the fruit ripening, there will be no unpleasant smell. Slugs have a particular dislike to it, and it does not adhere to the fruit in the same way as short Grass cut from the lawn does. Robt. McKenna.

Straffan House, Kildare.—Fruit crops in this neighbourhood are very much under the average. Apples, as a rule, are a total failure. Pears are fairly good. Plums thin. Apricots and Nuts none. Small fruits of all kinds very heavy crops and excellent in quality. Raspberries have suffered a little from drought. Strawberries were a heavy crop, but owing to the intense heat which prevailed when they were ripening they were quickly over. Our main crop kinds are Vicomtesse Héricart de Thury, President, Sir J. Paxton, and Loxford Hall Seedling, and if I were confined to two sorts it would be the Vicomtesse and Loxford Hall; the latter supplies a long-needed want, being both late and of good flavour. For all purposes I think the Vicomtesse the most useful Strawberry grown. We get fine crops of Strawberries by planting out all our forced plants and taking two crops from them. These never fail. If short of forced plants the best way is to layer runners early in 4-inch or 5-inch pots, and plant them out in August in well prepared ground. By this means a good crop is secured the first year. We never dig amongst our plants from the time of planting until destroyed, as forking among them with us means the loss of a crop. We mulch heavily with good manure in the end of March or early in April. The following are the names of Apples, Pears, and Plums that are bearing fairly well with us. Of Apples we have average crops on Lord Suffield, Yorkshire Greening, Cellini, Striped Beaufin, Tower of Glamis, Waltham Abbey Seedling, Echlinville, Blenheim Pippin, Fearn's Pippin, Holland Pippin, Kerry Pippin, Golden Pearmain, and Tibbet's Pearmain. The last is a grand kitchen Apple, and one which seems to be but little known. Of Pears we have good crops on Thompson's, Marie Louise, Louise Bonne of Jersey, Winter Nelis, Passe Colmar, Flemish Beauty, Beurré Rance, Knight's Monarch, and Glou Morceau. Of Plums our best crops are on Rivers' Green Gage, Washington, Victoria, Magnum Bonum (yellow), Prince of Wales, Orleans, Kirke's, and Transparent Gage.—F. Bedford.

Kilruddery, Co. Wicklow.—Apricots where protected are a good crop; Apples and Pears under the average, the bloom having been destroyed. Plums are a fair crop; Damsons abundant—the best crop that has been for years, and the same may be said of Cherries. Of Peaches and Nectarines we have none outside. Figs are a good crop, but will not ripen. Currants, Gooseberries, and Raspberries are an abundant crop. Of Strawberries we have a good average crop. There was plenty of bloom, but the fruit suffered from drought when swelling. The sorts grown here and which I find do the best are President, Bothwell Bank Prolific, and Vicomtesse Héricart de Thury, a good variety for preserving and early. The two first named are the best flavoured and the finest fruit for dessert.—W. Cooper.

Kilkea, Kildare.—Our Apple, Pear, Cherry, Raspberry, and Currant crops are very good this year, especially the two latter, which are exceptionally fine, both as regards quality and quantity. Plums, Peaches, Gooseberries, and Strawberries are below the average with us. Strawberries especially are very late, although they promised well during the flowering period, but the late spring frosts which we had at that time considerably damaged the bloom; in fact, from various inquiries which I have made I find the lateness and scarcity of this crop to be a general cause of complaint in this neighbourhood.—Isaac Milsom.

Charleville Forest, Tullamore.—Apples on old trees in orchards are almost a failure. Young trees in the kitchen garden quarters, both pyramids and bushes, are fairly well cropped. Ribston Pippins, some of which we have planted on a south wall and trained in the form of a single stem up to coping and around Apricot trees, bear fine fruit every year, though some of them canker at times. Blenheim Pippins are bearing a good crop; also Echlinville. All Apples bloomed well, but failed to set. Pears are a good average crop. Marie Louise, Louise Bonne of Jersey, Bon Chrétien, and Jargonelle are clean and healthy, and are bearing good crops on walls in various aspects. On pyramids in garden quarters such kinds as Brown Beurré, Urbaniste, Chaumontel, Bon Chrétien, Knight's Monarch, and other good sorts are bearing fairly good crops. Plums are a heavy crop; Green Gage, Jefferson's, Victoria, Magnum Bonum, and others are all well cropped and the trees are healthy. Damsons, too, are good. We cannot get Peaches to live more than three years on open walls. We have tried them several times in new soil under deep and shallow planting and in poor soil, but they will not succeed; they blister till every leaf is a wretched sight; under glass they do well. The same remarks are applicable to Nectarines, which, however, live longer on open walls than Peaches. Apricots are not an average crop, though there are some on all the trees—about eighteen of Moor Park—but not nearly as many as they should carry. The Orange variety is bearing a good crop. The Moor Park lose branches at times, an evil to which the Orange is not so liable. Cherries are an extra heavy crop, especially May Duke and Archduke, both of which do well here on west walls, and also as standards and pyramids. Bigarreaus and White Hearts have done better this year than I have seen them for years. They have made fine healthy wood, and free from that terrible enemy, the black fly. We have the same varieties on a north wall, on which they also do well. Filbert and Cob Nuts are good crops. Black Currants are a heavy crop and large in size. Red and White Currants, too, are equally heavy.

Potatoes promise well. Our early Ashleafs have been good, and also Myatt's. Champions are our winter crop, and they look well. We are finding an odd tuber diseased in our second early lot. We grow about a dozen sorts, round and long. Magnum Bonums are not cared for here, nor is the St. Patrick variety. The Grampian, a second early, is well suited for this soil. The American sorts are not approved of here, being generally soft.—J. Roberts.

Quartertown Park, Co. Cork.—The drought early in the summer was very severe, and caused a great many Apples to fall off, but there is yet a good crop. Pears, Plums, and Cherries are very scarce. Currants and Gooseberries plentiful, also Raspberries and Strawberries. The following are the sorts I find to be best with us, viz., British Queen, Carolina Superba, Dr. Hogg, Keen's Seedling, and, last, Elton, which I am now gathering.—B. Perryman.

Blarney Castle, Cork.—I have four varieties of Strawberries in the garden here, viz., Frogmore, President, Sir C. Napier, and Whittaker's Seedling; all have done remarkably well with me. I prefer Sir C. Napier to the others for a general crop; it has given me every satisfaction for the last five years. I have forced President for these last three years, and it has done well. As regards Strawberries in light ground, owing to the dry season many became blind. Our outdoor Peaches have not done very well this season, and Apples will not be a heavy crop; high winds and rain injured them very much. As for Grapes, we have had a very heavy crop.—T. J. Marney.

Fota Island, Cork.—Fruit crops in this district are very precarious; in some gardens there is a full crop of some kinds; in others none. Apples are a very light crop, but the trees are healthy. Pears are a moderate crop. Gooseberries in some gardens are a very full crop; in others light. Cherries are under the average and not very large, but good in flavour. Peaches and Nectarines are full crops in places; in others there are none. Nuts are a light crop. Black and Red Currants full crops and very fine. Raspberries good in some gardens. Strawberries in some places have been a good crop; in others there are hardly any. In this garden the crop is the lightest we have had for years. Keen's Seedling we still cling to for forcing; it is a certain cropper and fairly good in flavour. It is good for a general early crop out of doors. Marshal MacMahon is, however, our greatest favourite; it is compact in growth and the leaf-stalks are short; therefore many more can be grown upon the same area than most other kinds; it is a wonderful cropper. To show how we value it here, we have layered 1100 of it, and only about 500 each of other kinds. Sir Joseph Paxton comes next in favour, but owing to plants of it growing to a large size it wants much room. Its fruit is large, good in colour and firm, and it is a heavy cropper. President is also a favourite; it is firm and excellent in flavour, it has a good constitution, and bears well. Garibaldi, perhaps, stands next as a heavy cropper. We find the above the most reliable for general work together with any good late kind to prolong the season a little.—W. Osborne.

Glasslough, Co. Monaghan.—Apples here are below the average on pruned trees, and far below the average in orchards. Pears are a very light crop both on walls and standards. Hardy stewing kinds with me are the most prolific, namely, Catillac and St. Germain. Plums are almost a failure; the best are Rivers' Early Favourite, Jefferson's, and Green Gages. Morello Cherries are not good this season, though usually very fine. Dukes are very good, but rather small. Gooseberries good, but not equal to other seasons' crops. Red and White Currants not up to the average in quality. Raspberries the same. Black Currants are a very heavy crop; and of Strawberries the best kinds proved here during the last seven years are Keen's Seedling, Prince of Wales, Sir Charles Napier, Loxford Hall, and Old Scarlet Pine. Medium and late-season sorts do best here, as the garden lies open to the full east. The best way in which to secure good crops in the cold

north of Ireland, I find, is to make fresh plantations every three or four years. Select good quarters for them, and manure well and trench deeply; also raise or procure strong early runners, and plant early so as to get them established before the autumn rains and winter sets in. President grows well in this district. La Constante quite failed with me after repeated trials.—W. Swanborough.

Carton, Maynooth.—Strawberries showed an extraordinary quantity of fine bloom, but, with the exception of a two-year-old plot, they have not given the results anticipated, a circumstance which I attribute to the long spell of hot, dry weather which we have had. The two-year-old plot in question, consisting of Black Prince, Bothwell Bank Prolific, James Veitch, President, and Vicomtesse Héricart de Thury, has been very fine. James Veitch enjoyed the tropical heat, and gave us magnificent dessert fruit, especially the Vicomtesse. President, too, produced large fruit, but of bad colour—more brown than red. Black Prince gave us fruit a week in advance of the others. Gooseberries, Currants, and Raspberries are plentiful and good. Of Apples, Eehlinville and Keswick Codlin are bearing in profusion; others a light crop. Pears on walls are an average crop; also Plums. Apricots light. Cherries, early kinds fairly good; Morellos abundant.—E. Knowldin.

Baronscourt, Newtown Stewart.—The Apple crop here is very light; the trees had plenty of bloom on them, but it set badly. Pears are much better than last year; indeed, in this country they do very badly as a rule; this is the best year I have seen for eight years. Plums are a very heavy crop, especially the Victorias. Strawberries are a grand crop, and the flower-stems are far longer than ever I can remember to have seen them. Our best cropper is Vicomtesse Héricart de Thury, next President, and our best flavoured variety is Dr. Hogg; altogether, our soil is too light for very large fruit, but the quantity produced is enormous. There are no Peaches, Nectarines, or Apricots grown in this neighbourhood out of doors. We have very fine crops of Pears grown in a lean-to house with a movable roof. The roof is taken off when all danger from frost is past, and put on in the autumn when it is useful for sheltering Chrysanthemums.—A. Dickson.

Markree Gardens, Collooney, Co. Sligo.—Apples here are a good average crop. Pears on walls average. Of Plums we have very few, and these only Victoria. Of Apricots and Peaches we have none out of doors. Gooseberries, Red Currants, and Raspberries are very abundant. Black Currants are a quarter of a crop on account of birds. Strawberries are also, owing to frost, about a quarter of a crop. Keen's Seedling (our earliest variety) suffered most from the frost, but this is the first season in which it has failed. Helena Gloede (our latest variety) has stood well, and we hope to continue gathering from it for some time yet. This is a first-class Strawberry and a strong grower and free fruiter. The only other variety I grow is Vicomtesse Héricart de Thury; this does fairly well with me, but not as well as I have seen do in the midland counties of England. Those three varieties I find can be most relied on in this district. My system of culture is to plant on well-trenched and heavily-manured ground towards the end of July or as soon as runners are ready; sometimes we layer in pots and plant later, which is certainly the best way if time can be afforded for it. All we do afterwards is to keep the plantation clean and free from runners and weeds, and give a good annual dressing of manure, working some short portions in about the collars of the plants.—J. McPhail.

Castlewellan, Co. Down.—In this district the fruit crop is very unsatisfactory. Of Apples and Pears we have scarcely any; even such reliable sorts of Apples as Lord Suffield, Cellini, Keswick Codlin, Blenheim Orange, and Warner's King are very light crops. The trees flowered badly, and while they were in bloom we experienced a severe snowstorm. Knight's Monarch is the only Pear carrying an average crop, other varieties having very few fruits. Plums and Cherries are not half a crop. Strawberries, Raspberries, Gooseberries, and Black and Red Currants are carrying full crops of very fine fruit.—T. Ryan.

Glenart Castle, Arklow.—Of Apricots we have none, and of Peaches and Nectarines (outdoors) very few. Plums on walls are fair crops. Pears and Apples light. Cherries good, especially Morellos. Small fruits very good. Strawberries excellent; the sorts grown here are President, Sir Joseph Paxton, James Veitch, and Frogmore Late Pine. The two first and last are the best flavoured, but James Veitch is very large and a continuous cropper. These varieties ripen in the order named. I prepare my ground for Strawberries by digging two spits deep, giving plenty of manure, and then using plants that had been fruited in pots, planting them 3 feet by 2 feet apart. I mulch in spring with littery manure.—R. Willmet.

Birr Castle, Parsonstown, King's County.—Apples are almost a failure in this locality, with the exception of a few hardy kinds, and I see that they are daily dropping off the trees. Pears are only a middling crop and late, and small Plums and Cherries are both good. Nuts are a fair average crop. Peaches and Nectarines will not do here in the open air. Bush fruits are abundant. Strawberries are the worst crop that I have known for many years, and very small and poor. The plants showed an abundance of blossom, but failed to set or swell, the weather being unfavourable in May and the early part of June. The kinds which I find to succeed best are President, Vicomtesse Héricart de Thury, Black Prince, and Keen's Seedling. Oxonian also does remarkably well: it is a hardy, robust variety and a sure bearer, but the fruit is very soft and poor in colour and flavour. I have tried several of the British Queen class, but they cannot be relied upon for a crop. Frogmore Late Pine does fairly well as a late kind.—T. J. Hart.

Kylemore Castle, Co. Galway.—The fruit crop in the gardens here and in this district is on the whole very good. Apples on well-known free-bearing varieties are a heavy crop, and the fruit clean and well shaped. Pears a thin crop. Apricots, Peaches, Nectarines, and Figs are never very profitable crops out of doors in this dull, wet climate, but we have fine crops of them under glass. There is a great quantity of Plums, but the fruit is small in size compared with that of past years. Cherries, Raspberries, Gooseberries, and Currants are heavy crops, and the fruit in every respect good. Strawberries are an average crop; we find the best for general use to be Keen's Seedling, Duke of Edinburgh, Sir Joseph Paxton, Vicomtesse Héricart de Thury, and British Queen. James Veitch bears very heavy crops, but is deficient in flavour in our wet climate.

Potatoes generally are looking very well, and as yet no traces of disease have made their appearance; field crops are very vigorous, and promise to yield well this year.—John M'Kinnon.

Elm Park, Limerick.—We have a fair crop of fruit this season, but not equal to that of last year, especially Gooseberries and Red Currants. Plums and Cherries are good crops. Peaches and Apricots fair crops. Pears good. Of Apples in orchards there are no more than half a crop. Strawberries are a good crop, but late, and not so large in size as last year. The varieties which I grow for our main crop are President, the best for size, flavour, and productiveness, Eleanor, and Frogmore Late Pine: these three are the best for a general crop. We plant in rich well prepared ground 2½ feet apart each way, and lay on a heavy dressing of manure in spring, treatment by means of which we get very heavy crops of fine fruit. By keeping the runners cleared off in autumn, a plantation will continue in bearing for three years. —Thos. Conway.

Shanes Castle, Antrim.—Fruit crops in this neighbourhood are, as a rule, very light this season, though in a few localities small fruits are abundant, particularly Gooseberries. Strawberries are a miserable failure; we have about an acre of them, and from the whole have only gathered some 125 quarts, being about a quarter of the usual crop. The kinds grown here are Keen's Seedling, Vicomtesse Héricart de Thury, President, Duke of Athole, Trollope's Victoria, and Elton Pine, all of which do well in general. This season Duke of Athole has produced the best crop, but it is only fit for market, being deficient both in colour and flavour, and I intend substituting for it James Veitch. Apples on espaliers in the kitchen garden are carrying good crops, particularly King of the Pippins; on standard trees there are very few; indeed one could count more trees than Apples. Of Apricots we have none. Figs are a good crop, but late, and unless favoured with a warm autumn they will not come to much. Peaches are fairly good on young trees on a north wall. Cherries are a good crop, particularly May Duke and Morellos. Of Filberts and Walnuts we have none.—Charles Warwick.

Bellarena, Londonderry.—The Apple crop here and in this neighbourhood is very poor. The Pear crop middling. Cherries on walls good. Plums very good. Currants good. Gooseberries, Raspberries, and Strawberries all good. The only variety we find to yield a satisfactory crop, after trying many, is President; British Queen, Dr. Hogg, and Mr. Radclyffe are too tender for this part of Ireland.—W. Hubbard.

The Park, North Wexford.—Apples hereabouts are a complete failure; when in bloom we had a gale that not only destroyed the Apple crop, but scarcely left a leaf on the Beech trees. The following varieties of Apples, even in the worst of seasons, always bear a heavy crop here, viz.: Devonshire Quarrenden, Lord Suffield, and Cellini. Pears are a very thin crop, especially on walls. Cherries are carrying very fair crops this season. Plums are heavily laden with us; they set almost as thickly as Gooseberries, but we can only grow them on walls; standards do not succeed. Peaches out of doors set very well, but the trees suffered very much owing to the backwardness of the season, and it is questionable if they will finish well. Bush fruits are all heavily laden, Gooseberries especially so. Strawberries I find to vary according to soil and situation; here British Queen is far beyond any other both as regards quantity and quality. A point in which it differs from nearly every other is that the longer it has been planted the more prolific it becomes. Here it has been on the same ground for five years, and this season the crop has been something enormous. In one garden near here it has been planted thirteen years, and still it bears very heavy crops. The soil is rich sandy loam resting on pure sand. Ours is a loamy soil resting on marl. Before we plant we trench about 24 inches deep, putting a heavy layer of manure at the bottom. We then point in a little hotbed manure on the surface, and put out our plants as soon as we can procure them in lines 3 feet apart and 2 feet from plant to plant. As soon as the crop is gathered one man goes before with a knife and trims off all the foliage which is lying down around the plant, just leaving those leaves which are standing upright. The ground is then hoed over with a Dutch hoe, so as to clear off all runners and weeds. We then get manure from the early-made hotbeds, spread it between the rows, not forgetting to give a good coat of it, and that is the entire treatment which our plants receive until they come into good bearing, which is not for two years. We cut off all runners. Afterwards the following varieties bear so heavily that we have no trouble with runners, viz., British Queen, Black Prince, and Elton Pine. We have grown a very large number of varieties, but those are the only ones worth growing here. Strange to say, none do worse with us than President and Garibaldi.—T. Scott.

Tynan Abbey, Armagh.—Many are disappointed with their fruit crops this year. We had a grand display of bloom on Apples and Pears, but if we were to examine the trees to-day we

would not find more than a dozen of fruit on a large tree. Plums are the same, and all owing to the cold frosty nights which we had in May and June. I have had a very good crop of May Duke Cherries. I have many other sorts, but none to compare with May Duke. As to Strawberries, I do not go in for many sorts, as some do not turn out productive in our light soil. I have British Queen, Trollope's Victoria, President, and the Wizard of the North; they come in in succession as I have named them, and the flavour is good, but Trollope's Victoria produces fruit so very large that it is not so productive as British Queen or President. The Wizard of the North I would highly recommend to all who wish for a good sure cropper. It is late, has a sightly, firm berry, and is good in flavour. I commenced to gather its fruit in the beginning of July, and it continued in bearing till the end of August, and if the weather keeps favourable, I can have fruit from it in September. I find three and four-year-old plants to be most productive. By manuring well and pointing it lightly into the bed, I seldom fail to get good crops. Gooseberries and Currants are abundant, but, owing to the cold, sunless weather which we have had, they are flavourless.—W. H. Baker.

Belvedere House, Mullingar.—Apricots here are under the average, but they are not much grown. Plums are also under the average. Cherries average. Apples and Pears under the average. Small fruits abundant and good. Strawberries an average crop. The chief varieties grown in this neighbourhood are President, Sir Joseph Paxton, and Keen's Seedling. I have found it a good plan in making a new plantation to plant in firm ground, viz., the Onion quarter, that had been trenched deeply and well manured the previous autumn. I have the young plants ready, and plant as soon as that crop can be removed.—James Bayliss.

Bantry House, Bantry.—The Apple, Pear, and Plum crops here this year are very light. We had a very severe storm about the second week of May which literally blew the blossom off the trees in heaps, and what was left blackened and fell off. There are hardly any Apples in this neighbourhood. Bush fruits are, however, very good, Gooseberries, Currants, and Raspberries being unusually heavy. Strawberries were a fair crop, but late. Vicomtesse Héricart de Thury is the best cropper with us, but we do not grow many kinds. —Robert Brennan.

Castle Upton, Antrim.—Fruit crops here are variable, but on the whole under the average. I attribute partial failure to the drought of last year. Trees on well-drained ground have suffered most; we watered as much as we could find time to do last year, but could not give enough, the result being a want of plumping up of embryo buds, too plainly indicated by the wholesale dropping of the young fruits. Codlin Apples are bearing a fair crop, Pippin or dessert sorts fewer; that always sure cropper, King of the Pippins, has failed this season for the first time for many years—not only one tree, or in one position, but both young and old trees on east and west walls, and in the form of bushes in the open. With the exception of Hessle as a bush, which is carrying a full crop, Pear trees are only producing a sprinkling of fruit. Plums are better, but by no means a full crop. Gages are bearing much the best; the Victoria so well known to be a sure fruiter is only bearing a very few this year. Cherries on walls were partial crops; on two walls (both south) we had a good crop on one, on the other a poor crop; nearly all dropped; of Morellos we have half a crop. Bush fruits, with the exception of Raspberries, are fairly good; the latter from some cause unknown to me failed to grow well either as regards cane for the ensuing, or fruit for this year, although treated with a little extra care. Black Currants with us are half a crop, but very fine. A few miles from here, I understand there are extra heavy crops; other sorts of Currants, too, are very good. Gooseberries—everybody's fruit—are best cropped of all. Peaches, Nectarines, or Apricots do not succeed here; our position lies low, and the soil, naturally heavy, rests on a great depth of limestone. We are fairly protected with woods at a respectful distance; our great enemy is damp, on account of our low position, and frost nips with greater intensity; we had 5° on last Wednesday (28th July).—G. Kevan.

Bangor Castle, Belfast.—I cannot give a very flattering report of our fruit crop in this part of the country this year. No doubt our small fruits, such as Gooseberries, Currants, Raspberries, and Cherries, are quite up to the average; but Apples, Pears, and Plums are but a light crop, and at least a month late. The only Strawberries we grow are Comte de Paris, President, Elton Pine, and Duke of Edinburgh. I have tried many other kinds, but found none so serviceable, nor any that suited our climate better. In preparing the ground for beds, I trench three spades deep and manure with good cattleshed manure, mixed well with each spadeful, and before planting work in a little short manure on the surface. After planting, we never disturb the plants by digging about them. In November all the runners are cut off, and afterwards a good heavy dressing of strong manure is given, and this remains on the top of the ground till the following fruit season, when it serves for a protection to the fruits, as it keeps them from coming in contact with the earth. This treatment is continued each November, and under it I have had good berries every year for five or six years in succession from the same bed.—Robt. Fisher.

Shelton Abbey, Arklow.—Apples here are a very light crop; on large trees we have scarcely any, if I except Royal Russet, which is bearing well. Low cordons are also all bearing good crops, but bush trees are not so regular. One of the latter, Domino, is a most abundant and regular bearer, the branches every year bending to the ground under the weight of the fruit. As an early kitchen Apple I know of none that can compare with it as a profitable market fruit. Pears are a very thin crop; on walls we have few, with a few exceptions. Our best cropping ones this year are Pitmaston Duchess, Easter Beurré, Doyenné du Comice, Williams' Bon Chrétien, Bergamotte d'Esperen, and Beurré Diel. On pyramids we have scarcely any, though all were covered with bloom. Peaches and Nectarines we do not grow out of doors. Of Figs, Brown Turkey we have fine crops. Of Apricots we have but very few. Cherries are a fair average crop, but Plums are much under the average; the best, as usual, is the Victoria. Nuts are a failure this year. All small fruits are good crops, though the last fruits of Strawberries suffered somewhat from drought. The sorts grown here are Vicomtesse Héricart de Thury, President, James Veitch, Sir Joseph Paxton, and Frogmore Late Pine. For the main crop I rely upon President, which I consider much the best.—C. Tyler.

Castle Forbes, Newtown Forbes, Longford.—Apples in this neighbourhood are about half a crop. Plums a very heavy crop. Pears a good crop; standards better than last season. Peaches, indoor, good; none grown out of doors about here. Bush fruits very good. Gooseberries and Black Currants very fine, and so are Blackberries. Strawberries have been good, but the cold rains for the past two weeks have cut their season short. I generally have a heavy crop. I can gather basketfuls of berries each 1 oz. weight. My mode of culture is somewhat novel; after the ground has been well dug and manured, I open a trench as if for Celery. I then take freshly dug sods from an old clean pasture and place them along in a row in the trench, then close in the soil on them 4 inches or 5 inches deep, making it firm and smooth; then plant at 2 feet 3 inches apart every way. They get no more digging of any kind for five or six years, when they are destroyed. Cut straw is laid between the rows in May, first well shaking it, or you will have a crop of Oats. The varieties which I grow are President, a very fine cropper; Garibaldi, good for preserving; Sir J. Paxton, an excellent kind, the fruit of which is firm and large, but not so good in flavour as President. Keen's Seedling I grow for a first crop, and Princess Helena for late use: the last is a fine large-fruited variety, but unless the weather is fine it damps off; Doctor Hogg I find to be too delicate for us, but still it bears some fine berries. Our soil is a stiff, cold, heavy clay, resting on a hard, red subsoil.—J. Rafferty.

Ballywalter Park, Down.—The Strawberry is rather capricious; the variety that does best in our garden may prove quite a failure in another. A few years ago I grew several new and little-known sorts, and though some were good, all points considered, none seemed likely to supersede old and well-tried kinds. Marshal McMahon is one that deserves to be better known than it appears to be; it is of dwarf, but robust habit, produces good crops of fair sized fruit, and to my taste has a very pleasant flavour. Varieties that I noted for flavour were Doctor Hogg, Unser Fritz, Marguerite, and Mr. Radcliffe. I have never since seen British Queen do so well as it did about twenty years ago on heavy soil in the north-west of Middlesex, though a few years later it began to fail in the same gardens; that clay will not always ensure success I have since proved. Where it does well, I like Keen's Seedling for an early variety, either for forcing or for outdoors, but in some places, though it grows luxuriantly, it produces only a few small fruit; in that case I would substitute Vicomtesse Héricart de Thury with President for a main crop, and Elton Pine for a late sort; not, however, to the exclusion of all others; but as three varieties that may generally be relied on to produce a good supply of fruit for all purposes. I never allow the ground occupied by Strawberry plants to be dug, even lightly. After the crop is gathered, all weeds, runners, and the oldest leaves are removed, and a good dressing of rotten manure is put on, or, failing this, a sprinkling of soot or artificial manure; this I believe to be the best time to feed the plants, *i.e.*, when they are forming the crowns that are to produce next year's crop. In March the ground is covered with fresh stable litter, which serves as a mulching, helps to keep down weeds, and by the time the fruit begins to ripen it is washed and bleached, and is the best material that can be used to keep the fruit clean. Strong-growing varieties are often planted too closely; the rows should be 3 feet apart. Of course, where the soil will only sustain the plants one or two years, this would be waste of space, but on strong soils, with good treatment, the same plants will continue to produce good crops for several years; and if not allowed sufficient space the rows meet, and in wet seasons much of the fruit rots, while in fine summers it is not well coloured. For forcing my plants are prepared as follows: After the summer cleaning, a batch of late runners is produced, and as soon as these begin to emit roots they are taken off and planted about 3 inches apart in beds of fine soil. In May the following year they are lifted and potted in 6-inch pots and treated in the usual manner. By this plan the best results are obtained with the least amount of labour, as we save all the labour of layering and attending to the layered runners at a very busy season.—W. Crane.

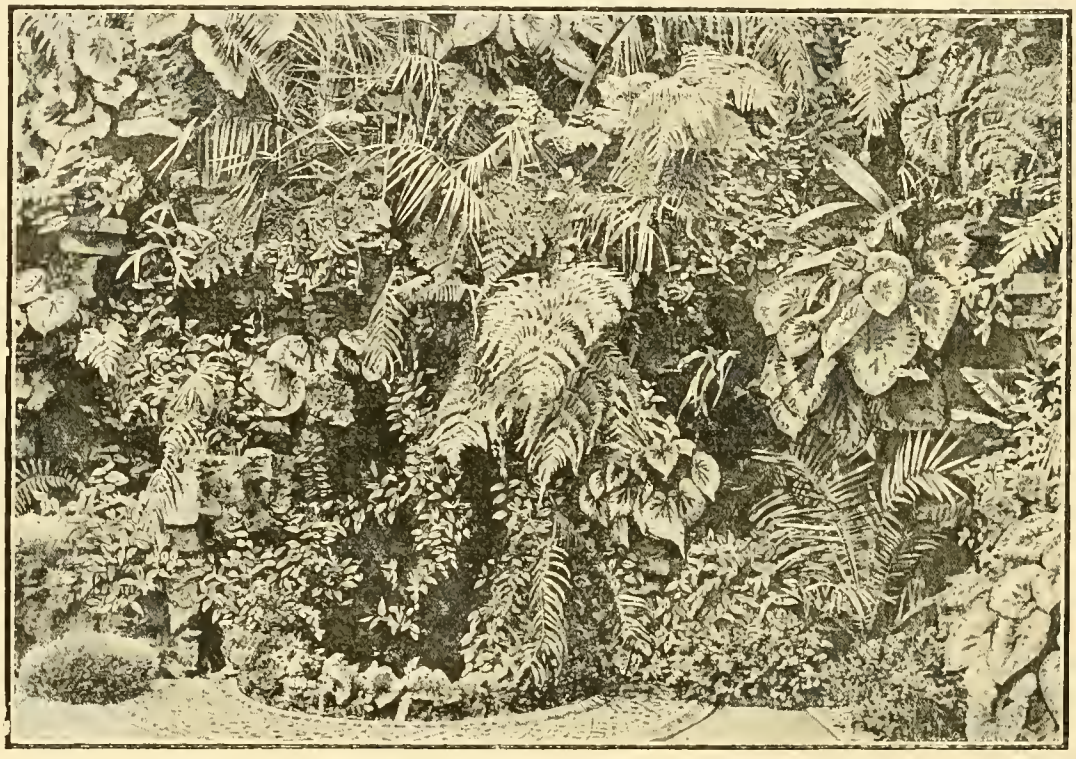
Woodstock, Kilkenny.—Apples, Pears, and Plums hereabouts are very thin crops. Amongst Apples, Lord Suffield, Stirling Castle, Small's Admirable, and Echlinville are the only sorts bearing an average crop. Of Pears, Louise Bonne of Jersey, Marie Louise, Williams' Bon Chrétien, Jargonelle, and Beurré d'Amanlis are carrying average crops on walls, but almost none on standards. Victoria Plums are a fair crop; all others very much under the average. Cherries, Gooseberries, Currants, and all small fruits are abundant and good in quality. The Strawberry crop was also very good, but of short duration, owing to the lateness of the season and the excessive heat which we experienced during the latter part of June and beginning of July. The sorts which we find to do best on our light soil are Vicomtesse

Héricart de Thury, President, and Loxford Hall Seedling.—William Gray.

Dromoland, Clare.—Apples here are an average crop. Currants I have never seen so fine as this year. Pears and Plums are good average crops. Raspberries a very heavy crop and fruit good. Gooseberries are a very light crop. Of Peaches and Apricots outside we have almost none. I am generally very successful with Strawberries, but this year they were not so good as usual, owing to dry weather setting in just as they were in flower and continuing until the crop was ripe. The soil here is heavy loam on limestone rock. I mulch with manure in spring, and dig it in August after the crop is gathered. For preserving we prefer Black Prince to any other. President and Sir J. Paxton are very fine here. Marshal MacMahon is a fine Strawberry; it produces but few runners, but it does not stand drought.—W. Wilson.

Doneraile, Cork.—Wall fruits of all kinds are scarce here, owing to the very late frosts which we had in May. We had 14° in the second week of that month. Apples are very scarce, but small fruits are plentiful and good. Strawberries were very good, and a very fair crop. Marshal McMahon is the kind most cultivated hereabouts. It is a good cropper, and very good as regards flavour and appearance. I cannot say much for other kinds.—W. H. Swanborough.

Castle Coole, Enniskillen.—For these four years past we have had Strawberries in abundance. Our mode of treatment is as follows: As soon as the fruit is gathered, we cut away all runners and all the bottom foliage. This admits plenty of sun and air to mature the crowns. We then just prick over the surface with a fork about an inch deep, and apply a good top-dressing of short stable manure, mixed with bog mould, just as it comes from the horse-boxes. In spring we run a hoe through them, and the bog mould, being still on the top, makes a good protection for the fruit instead of straw or any other material. Our soil is stiff, so the bog mould keeps it open. The best sorts for this district, both for flavour and good bearing, are the following, viz., Marguerite, Vicomtesse Héricart de Thury, Keen's Seedling, James Veitch, President Delacour, Helena Gloede, Loxford Hall Seedling, and Elton Pine. Of Plums we have good average crops. Peaches, Nectarines, and Apricots under the average. Pears and Apples the same. All small fruits are average crops.—George Cliffe.



Fernery at Canon Bridges' garden Beddington, Surrey.

WALES.

Cardiff Castle, Cardiff.—Apples in this district are only a medium crop. The trees are clean and healthy, and what fruit we have is swelling freely. The following varieties are bearing good crops, viz., Lord Suffield, Lord Derby, Echlinville Seedling, Cellini, Keswick Codlin, Wellington, Hawthornden, Cox's Orange Pippin, Blenheim Orange, Gloucester, Golden Pearmain, and Irish Peach. Pears are a heavy crop, both on walls, pyramids, and standards. Indeed, we have not had so good a crop for these last thirteen years. Most of the pyramidal trees have to be propped up to keep the branches from being broken by the weight of fruit. The following, amongst others, are loaded both on walls and pyramids, viz., Jargonelle, Duchesse d'Angoulême, Pitmaston Duchess, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Clairgeau, Beurré Magnifica, Beurré Bosc, Glou Morceau, Easter Beurré, Ne Plus Meuris, Bergamotte d'Esperen, Winter Nelis, Marie Louise, Knight's Monarch, General Todleben, and Beurré Diel. Peaches are an average crop. Plums and Cherries medium. Grapes on the castle walls here and in the vineyard at Castle Coch are good. Strawberries are a poor crop. They promised well, but the continued dry weather injured the plants, and the fruits dried up before ripening. Raspberries and Black Currants are plentiful. Gooseberries and Red and White Currants are a failure.—A. Pettigrew.

Margam Park, South Wales.—Apples with us are an average crop: Keswick Codlin, Lord Suffield, Hawthornden, King of the Pippins, Winter Quoining, and Stirling Castle are the most prolific. Pears are not so good as last year, but may be called an average crop. Marie Louise, Brockworth Park, Beurré Clairgeau, Jargonelle, Louise Bonne of Jersey, Beurré d'Amanlis, Doyenné d'Ete, and Winter Nelis are the leading kinds this season. Plums, especially Kirke's and Victoria, are heavy crops. Cherries are abundant, May Duke and Morello being the best. Apricots are thin. Currants, Gooseberries, and Raspberries have been more abundant than they have been for two or three years. Some of the newer Black Currants and Raspberries are great improvements on the old sorts. Peaches and Nectarines are very plentiful. All fruit trees are unusually free in growth and clear of insects; we did not experience the cold east winds this year which generally blight the foliage about the time when the fruit is forming. On the whole, fruit crops may be said to be up to the average in this district.—J. Muir.

Cyfarthfa Castle, Merthyr Tydvil.—On open walls we seldom get a crop of fruit here. Plums and Pears even in a good season do not ripen to perfection. We have only Plums, Cherries, and Pears on walls. Plums are very scarce, Cherries dropped in stoning, and Pears are by no means plentiful. Strawberries are over the average. The following do best here, viz., Keen's Seedling, James Veitch, President, and Vicomtesse Héricart de Thury. I find the best plan in order to get good fruit and crops is to plant out forced plants in good rich ground as early as possible after the fruit is gathered.—G. B. Jones.

Powis Castle, Welshpool.—Apricots and Plums here are light crops. May Duke Cherries are very good crops; Morellos scarce. Peaches and Nectarines very poor, but the trees are clean. Apples and Pears are under the average. Bush fruits plentiful and good and very clean. Strawberries are a grand crop and good in flavour. We only grow two sorts, Vicomtesse Héricart de Thury and James Veitch. The first we use for early work, and James Veitch for the last crop. We plant a fresh piece with Strawberries every year, and after the third season dig them up. Strawberries like a change into good holding soil. We plant 3 feet apart, and never disturb the roots afterwards. We mulch with good rotten stable manure about November, and over that in spring, just before the plants come into bloom, we put a little clean straw.—William Lee.

Wynnstay, Denbighshire.—The Apple crop here promised at one time to be a heavy one, but it has been since greatly thinned. Nevertheless, we shall have nearly an average crop. Pears are somewhat thin on standards, but fairly good on walls; they also suffered from cold and wet. Apricots are very middling, very late and medium in size. Peaches are fair, but Nectarines very thin. Figs are a good crop, but unless the autumn is very favourable few will ripen. Red and Black Currants are heavy crops. Gooseberries are a fair crop. Raspberries are a good crop. Sweet Cherries are fairly good as to quantity, but dry and cracked. Morellos are a good crop, and should we have more moisture soon will be of fairly good quality. Plums are a heavy crop on standards, but thin on walls. Damsons are a good crop. Quinces are a failure, although at one time most promising. Walnuts almost a failure, the catkins being all killed before the female flowers were open, and the same remark applies to other Nuts. Strawberry crops, generally speaking, are fairly good. Old beds were all but killed off,

Beds of a few years' standing are bearing good crops. Last year's plantations are very middling as to crop and very late. All varieties on this cold substratum of sandstone over the coal beds deteriorate very much in quality, size, and flavour, although they crop plentifully for many years, except Keen's Seedling, President, Wizard of the North, and La Grosse Sucrée, which grow rank and stop bearing. Sir Harry bears until it dies out. Carolina Superba and British Queen are only satisfactory for about two seasons the second or third year after planting. Vicomtesse Héricart de Thury does not last long in the soil. Dr. Hogg is inferior. Elton Pine is one of our most constant varieties. For our cold soil and for a permanent bed nothing is better than a good dressing of crushed bones and stable manure slightly forked in The surface we mulch with litter in early spring to prevent the ground from cracking and caking. I have grown some of the varieties named on calcareous soil at Llangedwyn for twenty years, and they have not shown the slightest deterioration, especially Keen's Seedling, British Queen, and an old but excellent variety called Grove End Scarlet. This is beautifully red in colour, pleasantly acid, and delicate in flavour. It is also more self-protecting from birds than any other sort. It has very little care. Let all who like a faultless pot of Strawberry jam try this variety.—P. Middleton.

Penllergare, Swansea.—Of Pears, Apples, and Plums we have here very few. Peaches and Nectarines are bearing good crops, and the trees are perfectly healthy and free from all blight. Cherries are good. Gooseberries abundant and very fine. Of Raspberries we have plenty, also of Black, Red, and White Currants. Strawberries are excellent, and the fruit very fine. We grow many varieties, but the sorts that do best here are President, Black Prince, and a late variety which we call Nimrod; of new varieties we have The Captain and King of the Earlies, which I think will be satisfactory. My practice is to plant Strawberries about the end of July in ground well manured and trenched. In the case of established beds, after the fruit is gathered I cut away all runners and clean the beds; in the autumn I give them a good dressing of rotten manure and slightly fork it in. The following spring the dead leaves are cut off with a knife, and through the summer the beds are kept free from weeds. By simply attending to their wants in that way the plants keep in a bearing state for six or seven years.—Charles Warmington.

Dynevor Castle, Carmarthen.—All fruit crops are late with us this year. Apples are about half a crop; the trees looked promising when coming into flower, but the blossoms failed to set. Our best crops are on dwarf trees. Pears are abundant both on standards and dwarfs in most gardens. Plums are a light crop. Peaches and Nectarines are good. Gooseberries in some places are abundant; in others scarce. Currants—Black and Red—and Raspberries good. Strawberries were late, and owing to the setting in of dry, hot weather at the end of June and beginning of July they were a very light crop. I find such old sorts as Alice Maud, Myatt's Eleanor, Sir J. Paxton to suit us best. For late crops Elton is still one of the best. The newer kinds tried here are James Veitch, Dr. Hogg, Aromatic, President, Sabreur; these do well in this damp climate.

Potatoes are looking well and promise to be a heavy crop; as yet they show no signs of disease.—J. Ticehurst.

Penrhos, Holyhead.—The best kinds of Strawberries which we have here both for flavour and bearing are Pauline, Vicomtesse H. de Thury, Keen's Seedling, President, and Frogmore Late Pine. Of these the crop is excellent in spite of the dry season and a shallow soil, in some cases not more than 18 inches above the rock. I attribute our success to early mulching with good stable manure before they came into bloom, which prevents them ever becoming dry at the roots. Our method of culture is to plant a fresh piece every year on well-manured ground, and to trench them down after the fourth year. Our best early kind is Pauline, and the best late Frogmore Late Pine. Apples are a very thin crop, except Lord Suffield and Keswick Codlin, which are bearing fairly good crops. Pears on such kinds as Jargonelle, Louise Bonne of Jersey, Marie Louise, Beurré Bosc, and Duchesse d'Angoulême are fairly good. All late-keeping kinds are very thin. Plums are a good crop, especially the Victoria. Green Gage and Coe's Golden Drop are partial crops; other sorts quite a failure. Peaches and Nectarines are fine even crops right through, but all are under glass. Apricots are not grown here. May Duke Cherries are a very fair crop, as are also Bigarreaus and Morellos. Currants, Raspberries, and Gooseberries are abundant.—F. W. Everett.

Plas Gwyn, Pentraeth, Anglesea.—The Strawberry crop here has been excellent; I grow Sir Charles Napier and Keen's Seedling. The former is very fine, good in flavour, a moderate cropper, and rather earlier than Keen's, which here crops heavily. Raspberries have done very well, but other bush fruits are very poor.—J. Williams.

GUERNSEY.

Somerset Terrace.—We grow very few Strawberries here. The sorts which we do grow are Sir Harry, British Queen, and Frogmore Late Pine. The crop generally in the island has been light under the average. The fruits set thinly, no doubt owing to the wet cold weather which we had when the plants were in bloom. Gooseberries in some places are thin; in others heavy; on the whole they are about an average crop. Raspberries and Currants are heavy crops. Of Apricots scarcely any are grown in this island. Plums, too, are not much grown here. Peaches and Nectarines we grow chiefly under glass. The only sort grown here outside is the Diamond Peach, which bears good crops every year. It is protected by a glass coping in spring, which we take away when the fruit is safe from frost. In the houses we grow very good crops of fine fruit, both of Peaches and Nectarines, chiefly in pots; in fact, we get the best fruit from trees in pots. The sorts are, of Peaches, Dr. Hogg, Dagmar, Falcon, Princess of Wales, Nectarine Peach, and Lady Palmerston. Of Nectarines we grow Lord Napier, Stanwick Elruge, Pine-apple, Rivers' Orange, and Victoria. Pears with us, such as Doyenné du Comice, Chaumontel, Beurré Superfin, Pitmaston Duchess, Winter Nelis, and Josephine de Malines, are good crops. Other sorts are rather thin. Both Apples and Pears, I should say, are about average crops.

Potatoes have been very good, but late. The disease has made its appearance since the late rains set in, and I am afraid it will be injurious to the late sorts. We had a very dull, cold month of February, followed by a late cold spring, which affected our crops generally, and our season this year is quite three weeks later than usual.—E. Peters.

CONSERVATORY AT BEDDINGTON.

A good example of a tastefully planted conservatory exists in Canon Bridges' garden at Beddington, and one that is worthy of imitation. The conservatory adjoins the mansion—in fact, is a kind of wide corridor, with the walls adorned in the manner shown in the illustration, which has been reproduced from a photograph. The centre of the house is paved and unobstructed by borders, and the planting is confined to the margin. The back wall is faced with rocks so placed as to allow of a good amount of soil for the plants to grow in the crevices and on the ledges. There is a great variety of plants, but the most conspicuous are the fine-leaved Begonias of the Rex type, which grow in the most luxuriant way, forming large masses of rich leaf-colouring. Greenhouse Ferns and a host of trailing plants thrive equally well, while the pool below, which is supplied artificially by a miniature waterfall, affords a place for water-loving plants. As a relief to the foliage there are groups of bright flowering plants, which are changed according to the season. The old-fashioned plan of pots and stages in conservatories is fast becoming a thing of the past, and nothing can more effectually further their entire banishment than contrasting them with such beautiful arrangements as that just described.

Societies.

ROYAL HORTICULTURAL.

August 10.

The show on Tuesday was chiefly remarkable for the large display of florists' flowers, such as Gladioli, Hollyhocks, China Asters, Begonias, Zinnias, and Roses, which together made a bright exhibition. A large number of the exhibits were certificated, but were chiefly florists' flowers. First-class certificates were awarded to the following:—

Fuchsia triphylla.—A beautiful species and quite different from all others in cultivation. It is dwarf and bushy, with the leaves generally arranged in threes on the branches; hence the specific name. The flowers are about an inch long, bright scarlet, produced plentifully in loose clusters terminating almost every shoot. It is a beautiful plant, and one we hope will be distributed widely. Mr. Barron showed a capital plant of it from the society's garden at Chiswick.

Miltonia spectabilis bicolor.—An extremely pretty variety, differing from the original chiefly in the colour of the flowers, the lips of which are half pure white, the rest bright carmine-magenta, while the sepals also are white. Shown by Mr. W. Bull.

Chrysanthemum Mrs. Burrell.—A new early flowering variety, probably the finest that has been raised. It is somewhat similar to the sort Madame Desgrange, now so popular, but its flowers are much larger and more freely produced. The colour is yellow in the centre, fading to a straw colour towards the tips of the florets. It will without doubt prove a valuable plant. Exhibited by Mr. G. Miles, Victoria Nursery, Dyke Road, Brighton.

Begonia Imperial.—A tuberous variety having very large semi-double flowers, Rose-in-hose as it were. The petals are thick and rounded, and of a brilliant carmine-crimson flushed with a purplish hue. Shown by Mr. R. Owen, Maidenhead Nurseries.

Dianthus chinensis Black Prince.—A variety of Indian Pink with flowers of a very deep crimson—in fact, almost black. The plant is dwarf and floriferous. Shown by the raisers, MM. Andrieux-Vilmorin, of Paris.

Aster, dark rose scarlet.—A China Aster with medium sized blooms of a deep reddish crimson. The plant is dwarf, compact, and flowers profusely. From M. Ernest Benary, Erfurt.

Picotee Duchess.—A beautiful sort, flowers large, petals broad, pure white, heavily edged with deep rose. Shown by the raiser, Mr. C. Turner, Slough.

Gladioli Lord Salisbury, colour brilliant carmine flaked and blotched with crimson. Sir M. Hicks-Beach, rose-pink, flaked with carmine. Clarence, deep purplish crimson, flaked with a plum-purple or almost a black tint. Sir Cunliffe Owen, pale salmon flushed with sulphur-yellow, lower petal wholly pale yellow. All these were shown by Messrs. Kelway, of Langport, and, as may be imagined, were perfect in every point, the spikes being massive, the flowers large and faultless in substance and form.

Hollyhock Rivival.—Flower large and full, and of a buff yellow colour. Shown by Mr. A. Chater, Cambridge.

Hollyhocks Shirley Hibberd and Prince of Wales.—The first a rich rosy crimson colour, the second a deep rosy salmon. Both large and full flowers. Shown by the raiser, Mr. Blundell, West Dulwich.

Picotees Annie Douglas and Almira.—Both yellow ground sorts, with large, full, and perfectly shaped flowers. The former is flaked with pink, the

latter flaked and edged with a rosy salmon. Both shown by Mr. Douglas, Great Gearies, Ilford.

Hollyhocks Crimson Queen and Primrose Gem.—Both with large flowers perfect in form, the former of a deep red-crimson, the latter a pale yellow. Shown by Messrs. Webb and Brand, Saffron Walden.

Zinnias, dwarf striped.—A new strain having flowers variously coloured, some half one colour half another, others striped, flaked, and spotted. Such strange diversity of colour is quite novel among Zinnias, and the strain, which was exhibited by MM. Vilmorin, of Paris, will without doubt be appreciated here.

Dahlia Squire Gammie.—A large-flowered, single variety, deep crimson, flushed with a darker colour towards the centre. From Mr. T. S. Ware.

Adiantum cuneatum Phillipsi.—A form of the common Maiden hair Fern, having more delicately-cut fronds. A very graceful plant. Exhibited by the raiser, Mr. Phillips.

Among other plants exhibited were the following. From Mr. Bull came a fine basketful of plants of the brilliantly flowered new Balsam, Impatiens Hawkeri, which was again shown in good condition; also good plants of Cienkowskia Kirki and of the rare Cattleya Schofieldiana. This has flowers some 5 inches across the sepals, deep olive-green, heavily spotted with brown, the lip magenta streaked with white. Mr. R. J. Measures showed a variety of Cypripedium Lawrenceanum with the dorsal sepal heavily flushed with plum-purple, and a Trichopilia, named luteo-purpurea, evidently an intermediate between T. coccinea and T. tortilis. He also showed a plant with four flowers of the true Cattleya velutina, a small-flowered species having greenish yellow sepals and a rosy-tinted lip with a golden yellow blotch. Messrs. Low, of Clapton, sent some admirably flowered plants of the brilliant, but now rarely seen, Beaufortia splendens, an Australian shrub having its scarlet flowers arranged in a bottle-brush-like manner. Messrs. Krelage, of Haarlam, sent some new seedling varieties of hybrid Gladioli of the Lemoinei race; and Mr. Barron showed, from Chiswick, a Carnation with bright crimson flowers, called Chiswick Red. Messrs. Carter, High Holborn, showed samples of their Camellia-flowered double Balsams and single Petunias of various colours, and curiously marbled and striped. A large number of Hollyhock seedlings was shown chiefly by Messrs. Webb and Brand, of Saffron Walden; Mr. Chater, of Cambridge; and Mr. Blundell, all of whom seen to have succeeded in raising some first-rate seedling sorts, which would compare with those seen years ago, when the late Mr. Chater was the leading Hollyhock grower.

The most brilliant display was made by Messrs. Kelway, who had no fewer than 200 spikes of Gladioli, the cream of the immense collection they grow in their nursery at Langport. The collection contained spikes of the finest old sorts, besides numerous new seedlings, four of which were certificated. The best of the others were those named Lord Halsbury, Lady Salisbury, Abantes Demerata, Duke of Grafton, vivid scarlet, Lord Randolph Churchill, and Countess Onslow. A silver-gilt medal was deservedly awarded to Messrs. Kelway. Messrs. W. Paul and Sons, Waltham Cross, also took a silver gilt medal for a large display of cut Roses, numbers of which were shown in large masses of one kind, the following sorts shown in this way being very conspicuous: Etendard de Jeanne d'Arc, Mme. de Watteville (both superb new kinds), Perle d'Or, Homère, and Niphetos. Messrs. Paul, of Cheshunt, likewise had a very fine display of Roses, as fine as were shown in July, a large number of the leading kinds being included in it. Besides this there was a very fine collection of hardy flowers in the Cheshunt exhibit, consisting of a selection of the finest August flowering plants, such as Helianthus multiflorus maximus, Harpalium rigidum, Coreopsis grandiflora, Campanulas, herbaceous Phloxes in every variety, Pentstemons, Lilies, &c. For this fine group and the Roses Messrs. Paul took a silver-gilt medal. Messrs. Vilmorin, of Paris, showed an extensive collection of various kinds of flowers, chief among which were Camellia-flowered Balsams, large, very double, and diverse in colour; Zinnias, the dwarf pompon sorts, which grow only about 6 inches high, besides the singular striped strain which was certificated. They also showed a beautiful strain of single fringed Petunias, double-flowered Gaillardias of various shades of pellow and red, and Liliputian China Asters, which grow but 6 inches to 9 inches high. A silver medal was awarded to Messrs. Vilmorin, and likewise to Mr. Ware, Tottenham, for a large gathering of hardy flowers, consisting for the most part of Lilies, Iceland Poppies, August flowering Composites, and a huge sheaf of that beautiful Cape plant, Sparaxis pulcherrima, so seldom seen grown and flowered so finely as Mr. Ware showed it. Mr. R. J. Measures, of Cambridge Lodge, Camberwell, took a silver medal for a prettily arranged group of flowering Orchids, consisting of several plants of the comparatively small number of kinds that flower at this season, among which the following were noteworthy: Cattleya Regnelli, Barlingtonia candida gigantea, with much larger flowers than usual, Oncidium prætextum, Dendrochilum filiforme, Angræcum articulatum, Aerides virens superbum, and a very fine specimen of Aerides odoratum, carrying no fewer than two dozen spikes, and particularly remarkable on account of its having been grown without fire-heat in summer, and in a house with 50° night temperature during winter. The New Plant and Bulb Company, Colchester, took a bronze medal for a gathering of Lilium auratum flowers in variety and for spikes of hybrid Gladioli. Messrs. Cannell, of Swanley, exhibited their beautiful new bedding Lobelia, Fascination or Blue King, a very dwarf variety, producing an abundance of deep blue flowers with white centres. They also had plants of a handsome Fuchsia, named Rose of Castile Improved, besides a gathering of single and double Begonia, the latter, all named sorts, being extremely fine, one, named Goliath, being about the largest bloom we have seen.

There was also on this occasion a competitive show of various classes of plants, including Fuchsias, China Asters, Begonias, and Gloxinias. None of the classes were numerously represented, and by far the most remarkable was a magnificent group of tuberous Begonias, exhibited in the open class by Messrs. Laing, of Forest Hill. This group consisted of about 150 plants, the majority being very large, with flowered specimens of the finest sorts in cultivation, besides a host of new seedlings flowering for the first time this season. The class for nine Begonias, from amateurs, was far better represented than in former years, and it seems as if amateurs have overcome the difficulties of growing specimen Begonias. A very fine group was shown for the first prize by Mr. Newell, Fairlawn, Wimbledon Common, and the second and third groups were very creditable. Some of the specimen Fuchsias were good, but the Gloxinias were comparatively poor; as were also the China Asters, which would have been beaten at many a small country show.

Special prizes were offered by Messrs. Webb, of Wordsley, Stourbridge, for the best collections of vegetables of not less than eight kinds. There were three competitors, but Mr. Waite, of Glenhurst, Esher, who won the first prize, quite out-distanced his rivals, both in the extent and quality of his collection, which consisted of some two dozen dishes. The best of these were Pen-y-byd and Moore's Cream Marrows, Telephone and Stratagem Peas, Carter's Perfection Tomato, Sutton's King Cauliflower, Leviathan Bean, New Intermediate Carrot, Snowdrop Potato, and Anglo White Spanish Onions. Some excellent dishes were shown in the other two collections. Prizes were offered for fruits of Webb's new Melon Beauty of Wordsley, a handsome green-fleshed netted variety, but only one brace of fruits was shown, and these were over-ripe, so no award was made.

Fruit.—A cultural commendation was accorded to Mr. Condle, Springfield, Ulverstone, for a dish of Royal George Peach from a four-year-old tree, and a dish of Noblesse Peach from a tree twenty-four years old. In both cases the fruits were very fine. Messrs. Bunyard, Old Nurseries, Maidstone, exhibited fruits of three early Apples, viz., the Gladstone, a small high-coloured fruit, said to be the earliest and best Apple; Red Juneating, also a first-rate sort; and the new early American Apple called Tetrofsky, a small pale-coloured fruit, said to be of excellent flavour.

A list of awards is given in our advertising columns.

A FEW GOOD OLD PLANTS.

The following old-fashioned greenhouse plants are at the present time so conspicuous that a word of praise of them may not be out of place. The great merit belonging to these old favourites is, that they are easy to manage, and never fail to yield a good display of bloom at their appointed season, and the appliances necessary to insure their perfect development are of the simplest kind; anyone with a greenhouse, or even glass-covered pit, may have them in the highest perfection. Agapanthus umbellatus is now in fine condition; its strong spikes, crowned with lovely blue flowers, make a grand show either in the conservatory or verandah, and as a vase plant few excel it. Good strong pots that will resist the pressure of its powerful roots are indispensable, and I find a good sound loam to be the best soil for it. If potted well at first, it will last without interference for years if well supplied with water and a little liquid manure from May until October. Hæmanthus coccineus forms a good companion to the preceding, and the same cultural treatment suits it exactly. Its brilliant heads of scarlet flowers with yellow stamens are very effective. Eucomis punctata succeeds well associated with the above, but flowers a little later. Its mottled stems and foliage are very pretty, and the large spikes of flowers, although not brilliantly coloured, emit an agreeable perfume, and last in good condition for a great length of time. Altogether it is a desirable plant for a cool greenhouse. Crassula coccinea is another brilliant old favourite, able to hold its own with any of the new comers. Cuttings of it strike freely at this time of year. Oleanders, with their lovely heads of double pink blossoms, are just now most conspicuous. They frequently drop their buds—a circumstance mainly owing to lack of food, or being allowed to get dry at the root. A good stiff loam and plenty of water during the growing season seldom fail to cause them to yield abundance of bloom. Funkia Sieboldi, with its beautiful foliage and pure white fragrant flowers, is another of the easiest of plants to grow, and one that gives unfailing satisfaction. Hydrangeas, both pink and blue, are grand old plants. The blue is obtained by mixing with the soil iron filings or watering with alum water. Then there is the newer white-flowered variety, called Thomas Hogg. This is very floriferous, and most useful in many ways. And last, but not least, we have the feathery-flowered H. paniculata, that, if cut down like a Pelargonium, makes a beautiful bushy plant. The Lance-leaved Lilies, too, make grand greenhouse plants. The best time to repot them is in the autumn, just after the stems die down. Shake them out, arrange the bulbs in equal sizes, and use a compost consisting of turfy loam, rotten manure, and sharp sand. Put about five bulbs in a 10 inch pot, and only fill the pots three parts full at the first, so as to allow for top-dressing when the stem-roots appear. Be careful not to over-water and look out sharply for fly. A plant with twenty or thirty expanded blooms on it is a grand sight. J. G.

Hants.

Adiantum pedatum (*E. F.*).—This is certainly a hardy Fern, and may be exhibited as such.

Names of plants.—*J. H.*—Souvenir de la Malmaison.——*G. G.*—1, Allium se escens; 2, Milla grandiflora; 4, Buphthalmum salicifolium; 5, Inula ensifolia; 6, Allium roseum.——*Norman* (*Regmerston Rectory, Attleborough*).—Alchemilla fissa; Ajuga genevensis.——*A. C. B.*—Campanula Tommasini, a good species.——*Blechnum.* Your Fern is Asplenium Fernandezianum It is not hardy, but succeeds well in a warm greenhouse.——*E. F.*—Tradescantia virginica.——*D. L.*—Adamia versicolor.——*C. F. F.*—Wayfaring tree, Viburnum Lantana.——*F. Z.*—1, Spiræa callosa; 2, Acer Negundo variegatum; 3, Hyssopus officinalis; 4, Stachys lanata.——*A. Howes.*—1, species of Rudbeckia, cannot name without leaves; 2, Rubus odoratus; 3, Staphylea pinnata; 5, Liquidambar styraciflua.——*J. S.* (*Sheffield*).—Astrantia major.——*E. C.* (*Boyton*).—Zephyranthes carinata.——*J. R.*—Common Dodder, Cuscuta Epithymum.——*W. R.*—1, Anticlea glauca; 2, Aristolochia Sipho; 3, Campanula lactiflora; 4, Aster lævis; 5, Tradescantia virginica.

WOODS & FORESTS.

PINES FOR PROFITABLE PLANTING.*

When "J. F." is challenged to defend his assertion that the Corsican and Austrian Pines "will not compare in a single useful quality with the Scotch Pine," in the face of examples I offer to show him growing under both favourable and unfavourable conditions, such as he specifies, not to speak of the favourable testimony of all save himself who know the tree, he replies by launching into a defence of the Scotch Pine, and ignores the information I offer him. He assiduously endeavours to make the question of value of the Corsican Pine a matter of my experience alone, shutting his eyes resolutely the while to what evidence I can furnish. There are none so blind as those who won't see, and "J. F.'s" condemnation of the tree in question, I have good reason to know, does not exert much influence with planters, with whom the Corsican and Austrian Pines are now most popular. He appears to have failed to grow the Corsican Pine, and concludes everyone else must have done the same; but he is wrong, and the sooner he relearns his lesson the better. That the Corsican, Austrian, and Scotch Pines will always grow alike under all conditions I have not asserted, but what I have already stated is true, and can be proved, and if "J. F." will go where I can send him, he will be compelled to acknowledge as much. The latest testimony to the qualities of the Corsican Pine is from a paper read before the Scottish Arboricultural Society, and copied last week into the *Timber Trades Journal*, from which I clip the following paragraph relating to the tree's behaviour on the Welsh coast at Penrhyn Castle, where it has been so extensively planted. Referring to the quality of the Corsican Fir timber, the writer says:—

"Regarding the quality of home-grown wood of Pinus Laricio, it would, as I have before stated, be premature to speak with any amount of certainty, as few trees have attained a size at which the wood could be considered mature. We have, however, cut up several of the largest trees here, and used the timber for various purposes on the estate with very satisfactory results. When sawn into boards, the wood resembles somewhat the red deal of commerce; it is, however, more brittle, extremely resinous, tough, weighty, and the concentric rings firmly packed. It works smoothly and easily, and is likewise susceptible of a fine polish. A series of experiments with the timber are at present being carried out on this estate, such as for fencing posts, gates, boxes, &c.; but sufficient time has not yet elapsed since the commencement of these experiments for us to form a correct idea of the real value of the wood as grown in this country; so far, however, the results are in every way satisfactory."

In regard to positions in which the same tree thrives, he adds:—

"For planting in exposed situations, or within the influence of the sea, this Pine is excelled by none with which I am acquainted. Along the outskirts of several plantations that are fully exposed to the south-west, from which point our west winds blow, the Corsican is far superior to the Scots Fir, and about equal in value with the Austrian Pine as a screen or shelter tree. Where the Scots Fir becomes weather-beaten, and, as it were, shrinking or bending from the blast, the Laricio stands boldly out, seeming as if to defy both wind and storm, and rearing its head far above any of the surrounding trees. This is very noticeable in several clumps and strips of trees planted nearly half a century ago in the park here for shelter and effect. Again, near the seacoast this Pine grows with a vigour excelled by few, and seems quite at home even within the direct influence of the salt spray; and for this reason, as well as its ornamental appearance, has been extensively used in the formation of our seaside plantations. On the mountain side between Llandegai and Aber, at altitudes ranging from 300 ft. to 500 ft. above sea-level, where, upwards of thirty years ago, several extensive plantations were formed, Pinus Laricio, although used in very limited numbers, may be seen above any of the other trees planted at the same time, and boldly facing the south-western blasts, which at times sweep along the hill-sides with terrific fury."

So much for the seacoast. I have at times furnished similar testimony as regards the behaviour of the tree compared with the Scotch Fir on the most exposed inland situations in the north of England, where no other Conifer except the Austrian will thrive, and where some will not even live. Let "J. F." furnish like testimony to the contrary or disprove the facts furnished, or, on the other hand, let him be silent until he has learned more about the subject. Yorkshireman.

* The above was written before the remarks of the editor in last week's Garden appeared.

PLANTING RECORDS FOR FORESTERS.

The value of keeping a record of all plantings carried out by the forester on an estate is not, I am sure, fully recognised. To young foresters especially such a record would be a great guide to future plantings. Information which can be gleaned from books or journals must necessarily be of a general character, and cannot be made to apply with any degree of certainty to individual places. Records of successes or failures kept in a special "tree book" upon an estate would, however, be of the greatest possible worth. Failures upon particular spots, if recorded at the time they occur, would be as instructive as any portion of the work, as, lacking the knowledge of such attempts, the existing generation may repeat the mistakes of the preceding one. It is most likely, indeed, that the accounts of failures would be of more value than the accounts of successes, as these would generally be left to speak for themselves, whilst the traces of the failures would have disappeared if there was no record left behind. There is no doubt that there are very many foresters now living who possess a large fund of information of this kind with regard to the localities in which they have spent many years, but which, in the absence of a "tree" or "planting book," will be lost to posterity. There are places, I know, where the plan is being carried out, and a century hence the experience of the present generation will be referred to and become a guide for their operations. As such things as these are very often overlooked from the fact of their being merely every-day occurrences, the suggestion may direct attention to it. There are very few proprietors, one would suppose, who would not be willing to provide a special book for such a purpose; and there are very few foresters who would not gladly record their experiences for the benefit of their successors.

Y.

Sowing Grass in woods. Where it is intended to lay down with Grass any land cleared of trees, this should now receive a thorough cultivation and cleaning, and afterwards be dressed with lime. Towards the end of August roll down the land and make the surface as firm as possible, sow a proper mixture of about 40 lb. of seeds per acre, and lightly brush them in, taking care that none of them are too deeply buried.—W.

Insects and Conifers.—During August a sharp look-out should be kept on Coniters for insects and their larvæ. This is about the time when they begin their work of destruction, and, what is most provoking, the leading shoots are most liable to be attacked, thus destroying the season's growth, and throwing the symmetry of the tree out of balance for perhaps two or three years; some trees, indeed, never regain a proper leader.—W.

Fencing against cattle.—Gates, stiles, and all kinds of fences bounding plantations ought to be made perfectly secure against cattle. Those fences adjoining grazing lands should have special attention during hot weather, for cattle when driven by insects quickly find out weak places in hedges, and when one breaks through the whole herd or flock will surely follow, and, of course, can in a very short time do an immense amount of injury to young trees or underwood; and, besides, when once cattle get into a habit of trespassing into covers it is no easy matter to fence them out.—W.

MACHINERY AND HOME-GROWN TIMBER.

The final report of the Royal Commission on Trade Depression, to which attention is just now being directed, seems to emphasise the views of those who hold that one of the best ways to improve the position of the British timber market is to cheapen the manufacture on the spot. There are many points in the report—of which, however, I have only seen a summary—which bear considerably, though indirectly, upon the question as it affects us. One important deduction certainly is—though it has been known before—that there is no lack of consumption. The trouble is that, either by more enterprise, cheaper labour, or some similar cause, the home grower is driven out of his own market. There are very many other things of which this is true besides timber, but this is the one with which we are now concerned. The fact seems to be accepted in a general sort of way, and yet no effort is made to meet it.

As has been over and over again urged, there is one condition which, try as he may, the foreign producer cannot remove and that is distance and freight. To lessen this inconvenience to his competitor, the home producer cannot go a better way to work than continue many points of the present system. To gain anything from the advantage of production contiguous to the market, there must be a departure from the beaten track, and this can be done in more than one direction. A larger use of the home-grown produce, instead of purchasing foreign, is one, and perhaps the first; a curtailment of the amount of labour in carting about the raw material unnecessarily is another. To anyone who has had the slightest experience of the way in which the English trade is usually carried on it is painfully clear that a vast quantity of effort is continually wasted in hauling new timber from one point of the compass to another to be manufactured. It is, indeed, often carried on to such an extent, that it is a standing cause for wonder how the buyer is able to pay the producer anything at all for his timber. It may be argued that this is a thing which concerns the merchant alone, but with this position I cannot agree, as it is perfectly obvious that the price paid for the new produce will be in proportion to the price obtainable for the furnished product and the intermediate expenses. These expenses can and will be materially reduced by the application of suitable machinery to manufacture the material where it grows. That this is not more generally done at present is not perhaps altogether the fault of the merchant. It must be admitted that from some points of view a portable saw-mill and the area surrounding it are not altogether the tidiest spots it is possible to conceive, yet there is often a kind of false delicacy about landowners, especially if the fall of timber is at all within reach of the house, about permitting the cutting up of wood upon their place. When this is the case, the buyer is often driven to cart the unsawn wood for several miles to a fixed mill at a comparatively heavy outlay, and perhaps in the operation pass a station from which the sawn product could have been despatched if it had been manufactured on the spot. This is a thing of very frequent occurrence, and, as a consequence, the seller does not get so much for his timber, by the extra cost of cartage, which is a serious difference, and is money thrown away. The matter is one which, of course, everyone who has timber to sell must decide for himself, but to the ordinary observer there seems no

reason why there should be more objection to a portable saw-mill than to an ordinary threshing-machine. The assumption is that it shows financial weakness to be cutting up the timber upon a place—at any rate it is difficult to suppose any other reason—but such an idea should have no weight, as it would be just as reasonable to argue upon the same lines that a crop of corn should not be threshed because there would be an appearance of wanting to realise it. This may be to some extent a side issue, but it is one which is certainly part of the question.

By encouraging the manufacture of the wood upon the spot where it grows, the producer would, where he possesses no machinery of his own, reap another indirect advantage, viz., that of an opportunity of getting what timber he might want for his own uses cut up by skilled hands. These points may individually appear to be of small importance, but collectively they have considerable bearing on the issue. There is all the difference in the way in which a tide sets, and so it is with the production and disposal of home-grown timber. If the tendency is an earnest endeavour to improve an indifferent position, the attempt cannot be entirely unsuccessful, but if we are to drift listlessly on, matters, instead of becoming better, must gradually become more and more unsatisfactory as we are further and further pressed by the ubiquitous foreigner. J. N. B.

UNTHINNED PLANTATIONS.

My conviction is that if we could only come at the facts that could be recorded, the question of most practices connected with forestry could soon be settled. There is no dearth of experience or of facts, but a dearth of testimony. English foresters seem extremely reluctant about telling anything. This was my feeling the other day when travelling by rail through certain well-wooded estates which it appeared to me could furnish excellent information on several disputed points if only those in charge would kindly tell us their experience, for it is presumed that some foresters and planters read The Garden and Woods and Forests. When passing a station, about half way between York and Scarborough, where a considerable quantity of timber was piled, I was struck by some examples of Larch poles in a lot. I should say they averaged 80 feet in length, 6 inches quarter girth, more or less, and were as straight and even as any Norway poles I ever saw. They had clearly been grown in a crowded plantation of no great age, a fact which caused me to take note of the extensive woods near the railway in the neighbourhood as we went along. A fellow traveller said the woods belonged to the Castle Howard estate near Malton, a favourite resort of the tourist. They consisted principally of Larch, Spruce, Ash, and Oak, all apparently in excellent condition; but what took my attention most, both going and returning, was what one would call the crowded condition of the plantations, the length and straightness of the trunks, and the thoroughly healthy condition of the tops. All the plantations seemed to be crowded, and in one case a small wood of Larch and Spruce did not appear to have ever been thinned at all. So dense were the trees, that one traveller remarked, "Why, it is almost dark under those trees!" The plantations were close to the railway, and could easily be seen. I wonder if those who have the charge of these plantations could kindly supplement this note with some further information on the subject. Yorkshireman.

QUESTION.

Age at which Lime trees flower.—At what age does the Lime tree usually first flower? It is a matter which I have never specially noticed, and this season I have no young Limes of known age within reach. Would any reader who has young Limes in flower be good enough to state their age? —Tilia.

THE WILLOW AS A TIMBER TREE.

The Willow has never received fair treatment as a forest tree, simply because it will bear more ill-usage than any other tree. Few people have ever seen a Willow plantation in its prime, say after having been forty years planted and properly cared for; those who have seen such a plantation will not readily forget its beauty any more than the owner can forget its profit. The Willow, when in perfection, is "a thing of beauty;" and those who have possessed well-grown specimens of it have seldom cared to have them cut down until decay had set in, and the Willow soon decays after reaching maturity. To speak in trading phraseology, it is a tree which brings a quick return for invested capital.

Lowe, in his survey of the county of Nottingham, states that so very valuable are Willows as plantation trees, that at eight years' growth they yield in poles a net profit of £214 per acre, and in two years more he states that they would probably have yielded £300 per acre. In page 1520 of Loudon's "Arboretum Britannicum" it is stated that a cutting planted by Mr. Brown, of Hetherset, Norfolk, became in ten years a tree of 35 feet in height and 5 feet in girth; and in the same work a tree is mentioned at Audley End, Essex, of twenty years' growth, which was 53 feet high and 7 feet 6 inches in girth. I myself saw six trees felled in 1869, near Southwell, Notts, which, after thirty-eight years' growth, unitedly yielded 232 feet of measureable timber, which sold on the spot for 1s. 2d. per foot; and the six trees did not occupy more than 18 square yards of land.

To grow Willow trees in perfection they must be planted closely, say 3 feet apart each way, or 4840 to the acre would not be too close for the first eight or nine years, when they might be thinned out to half that number. The thinnings would find a ready sale for general farm purposes. At the end of sixteen or twenty years they might be reduced to 1210 trees, or 6 feet apart each way, which would generally afford ample space for their full development. The time to fell such a plantation must depend very much upon circumstances. No unvarying rule can be laid down, but it is better to cut too early than to allow them to stand too long; for, as before stated, when the Willow has reached its best it speedily decays. Its duration may be said to range from thirty to fifty years; but whenever dead branches begin to show themselves there should be no delay in cutting down. In felling Willows do not think of leaving a few selected trees in the hope of obtaining larger timber, for after having been so crowded and then suddenly exposed they would almost invariably perish. If heavier timber is desired, plant more openly at the first.

I will now endeavour to arrive at an approximate value of an acre of such timber at its prime, say after having been planted forty years. There is plenty of evidence to show that it is not an uncommon thing for a Willow tree at thirty years of age to yield 45 feet of measureable timber or at the rate of 1½ cubic feet per annum. The experiments of the Duke of Bedford and others prove this to be the case. I will not, however, reckon upon such great results, and will further assume that 110 trees out of our 1210 are worthless, being a much greater margin than would be probable, and that in forty years we only produced one-third of the above, or half a foot instead of 1½ feet per annum. We shall then have 1100 trees, containing an average of 20 cubic feet each, or 22,000 feet, worth, at the lowest computation, 1s. per foot, or £1100, the produce of an acre of such wood in forty years, leaving the two thinnings to cover the cost of labour, which would be more than sufficient for that purpose. This is no fanciful calculation, but one fully borne out by the experiments of men whose words cannot be doubted. It cannot, however, be too often repeated that the Willow will not arrive at perfection in swampy, undrained land. Willows grow freely on the slopes or tops of exposed hills; indeed, there are few situations in which they will not grow, but in no place so badly as in water-logged land. For timber trees the Salix fragilis, or some of its kindred varieties, of which there are not fewer than twenty or thirty under cultivation, should only be employed, some of the lately introduced varieties being not only vigorous growers, but extremely beautiful. It must also be borne in mind that all Willows grow more vigorously from cuttings than from rooted plants, and therefore rooted plants only should be employed when immediate effect is desired.

It may be asked, to what use is Willow timber put when grown, and where would a market be found for it? There is no wood in greater demand than sound Willow; it is light, smooth, soft, tough, will take a good polish, and does not easily burn. It will bear more pounding and hard knocks without splinter or injury than any known wood, and hence it is used for cricket-bats, and, whenever it can be obtained, for the floats of paddle steamers, "strouds" of water-wheels, brake-blocks for luggage and coal trucks, the sides and bottoms of carts and barrows, where wear and tear are greatest. To the wood turner it is almost invaluable, and were it grown as timber and obtainable, it would be used for very many purposes to which foreign timber is now applied, and that, too, with considerable advantage both to producer and consumer.

Withy.

PLANTING TREES ON POOR SOILS.

It has now become the rule to advocate planting trees on all waste ground worthless for any other purpose. There are grave doubts whether such advice as this is not dangerous. It must be admitted that trees of large size and of the best quality often grow in places the most unlikely, and on soils which would have been of very little use for agriculture, but it is an utter fallacy to argue from this that trees will be sure to grow well in such places, or that there is a reasonable prospect of their doing so. There apparently is a general belief that there are few trees which will thrive in boggy and undrained soils, and that subsoils which have run together so as to form a pan are equally unsuited. At this point information ceases. It must not, however, be blamed to this circumstance entirely that there are so many plantations in existence which are doing badly. The fact rather is, that the planter generally has to do his best with very unpromising sites, and, what is more, is often restricted in his choice of trees. It often happens that there is no choice of site, as surrounding conditions control it. In such instances, if the work is given to an experienced planter, as much latitude as possible should be allowed in the selection of trees. In other cases there may be the opportunity of choosing between various positions. When this is so it may not be the best policy to relegate the plantation to the worst soil in order to save the other sites for another use. Indeed, when there is a disinclination to surrender land which has a certain known value, it is quite an open question whether it would not be advisable to abandon the project of planting altogether rather than be driven upon what would be likely to turn out an unsuitable soil. D. J. Yeo.

Abies Alcoquiana.—This proves to be one of the most beautiful of coniferous trees. The purple buds on the new growth look like blossoms. It is hardy as a rock, and seems so far free from insect troubles. In Japan it forms a noble tree from 90 feet to 100 feet in height.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

GOOD STRAWBERRIES.

Vicomtesse Hericart de Thury.

THE most remarkable thing in your fruit reports this year is the generally favourable estimate given of the popular variety generally known under the name of Vicomtesse Héricart de Thury, for I believe it is grown under at least one or two other names. I know of no Strawberry that has been generally grown and known these last twenty-five or thirty years that has ever been so popular. The Strawberry is one of those plants that is much affected by the soil in which it grows—of which more hereafter—but all soils seem to suit the Vicomtesse equally well. Heavy or light, clayey or sandy, deep or shallow, it never refuses to grow and bear more or less abundantly. It is not of a very gross habit, but it possesses a wonderful vitality, and to that more than anything else I think its fertility is due. It forces wonderfully well—never misses a crop—and if the forced plants are shorn over in June and planted out they will bear a fine crop all through the autumn and prodigiously the next two years following. The fruit, too, is of fair size and good flavour. Speaking of soils, both my neighbours here and myself find that some varieties do not bear freely, or at all, that are most prolific elsewhere. What the cause may be I cannot say, for the texture of the soil is not apparently different from that in which the same varieties do remarkably well elsewhere. At one time there was no more popular variety for growing and forcing than Keen's Seedling. In the Lothians of Scotland it used to be matchless—never failing even under indifferent culture—but in this part of Yorkshire plants procured from Scotch stock and from other sources grew amazingly, ripened well, but would not fruit, and after repeated trials had to be discarded, and I do not think a single plant of it has been grown here or in any of the large gardens in the neighbourhood for that reason for many years. Pot plants of Keen's that I grew myself in Scotland and brought here with me in the pots forced remarkably well and bore fine crops, but plants propagated from these and other fertile stocks, after having been a year in the soil here, failed both in pots and planted out. A good many years ago I stated these facts in a contemporary, and was taken to task by the late Mr. Cramb, of Tortworth, for my statements. A particular friend of his being my neighbour, however, in a well-known place, Mr. Cramb came to see him once, and came over here, and we showed him such incontestable evidence of the fact in more gardens than one, that he afterwards wrote to the same paper acknowledging the correctness of my observations. This peculiar effect of the soil on varieties of Strawberries has always been a puzzle to me, for the same thing is observed in other sorts, only not so much as in Keen's Seedling. Black Prince, on the other hand, a sort which at one time I did not admire and did not grow, does just as well as Vicomtesse Héricart de Thury, and is a fail-me-never in pots. The mildew which frightens gardeners from growing it in many places gives us no trouble, as it yields to one syringing with sulphur-water, applied just when the fruit is set or setting. This year we have gathered the twenty-second annual forced crop of it without a break or failure in all these years, the plants having all been propagated in direct succession from the first stock. Under good culture the fruit from pot plants is nearly as large as Keen's and always plentiful.

As a dessert variety for general use and late forcing, I have never yet tasted a Strawberry to equal the British Queen when well grown and fairly well ripened, for it seldom gets red quite to the point. In the light rich loams of the Lothians it used to do very well outdoors and beat all others for late forcing, the crops always being good and constant. The only fault it had was its liability to red spider, which ruined the foliage if not checked in time, but otherwise it was all that could be desired. Here, like the Keen's Seedling, it does not grow at all well.—J. S. W.

Strawberries at Bristol.

At the excellent exhibition held in the Zoological Gardens, Clifton, on July 14, Strawberries were extensively shown. In many instances President and Sir Joseph Paxton are almost the only kinds staged, but varieties were more numerous at Bristol; indeed, the two kinds named were not conspicuous. There were many dishes of British Queen, Loxford Hall Seedling, Countess, and Souvenir de Kieff. These varieties won the first prize in the class for four dishes. Loxford Hall Seedling is of the same type as the British Queen, but, as seen here, was densely furnished with small seeds; Countess was of good size, highly coloured, but not first-rate in flavour; Souvenir de Kieff was extremely large and deeply coloured. In appearance this was the finest of the four sorts named, but in flavour the worst. In the single dishes, as in the preceding class, competition was keen, and a fine lot of fruit was staged. Here Sir J. Paxton was first, Goliath second, and Countess third. Goliath is a very large, thick fruit, highly coloured and showy, but if ever Strawberries come to be judged by flavour it will never be heard of. British Queen was shown in several instances, but the fruits were so poor in form, that they could not be placed in the prize list. James Veitch was well shown, but poor in colour; indeed, I very rarely see this variety of the same colour throughout.—J. MUIR, *Maryam.*

Strawberries of fifty years ago.

On looking over the recently published reports of this year's fruit crops in THE GARDEN, I have been struck with the fact that the Keen's Seedling Strawberry, which was the leading sort both for forcing and general crops say fifty years ago, still holds its own in many establishments; but where is the little Roseberry that used to come in as a first crop some few days before the Keen's, and which was also grown specially for preserving on account of its rich colour (for it was well coloured throughout)? It was conical in shape and small in size, but most prolific. Again, where is the Hautbois (a species, I believe, of alpine Strawberry), the musky flavour of which was so distinct from that of other kinds? Is its absence owing to the fact not being generally known that plants of this kind bear fruitful and sterile blossoms—in other words, have the male and female organs on separate plants? As the male plants are the strongest, unless they are thinned out they overrun the weaker, and thus the cultivator becomes disappointed at not reaping a crop of fruit. Some thirty years ago I procured this variety from Mr. Myatt, of Deptford.—H. HOWLETT.

Newly-rooted Strawberries.

No new Strawberry plants can be secured until the runners are formed in June or July. In some seasons runners are emitted much earlier than others, but, as a rule, they are of a good size and well rooted by the first week in August. Those who force Strawberries in pots always try to have runners rooted as soon as possible, and quantities of them are layered in small pots or in pieces of turf. In each of these cases the runners should be allowed to root well in the new soil before any attempt is made to cut them away and set them agoing on their own account. When severed from the old plants too soon some of the most tender young rootlets are apt to be checked or perish, and the young plants do not grow away so freely and luxuriantly as they do when the pots or turves are a mass of roots. Indeed, the main secret in succeeding with pot Strawberries during the early stage of their growth is, as I have said, to see that the runners are thoroughly well rooted before they are taken from the old plants. I do not approve of potting them on the day on which they are cut off, as, no matter how well they may be rooted, they generally flag a little for a few days after being separated, and this is quite enough for the young plants to bear without being submitted to the additional trial of being re-potted. As soon as the young plants in pots are cut off they should be placed in a somewhat shady spot, and here they should remain for a week or so until they have overcome the slight check arising from separation from the old plant. As soon as they are off, and until they are repotted, they should be liberally watered with liquid manure; and as this will induce a great many young rootlets to break out, they will be in excellent order to place in larger sized pots. In potting these on small squares of turf care should be taken to see that the turves are not broken or the roots disturbed, and as soon as potted they should be heavily watered and shaded from bright sunshine until they have begun to root into the new soil and are able to bear exposure without flagging. Last year, and for some years past, we have rooted quantities of our pot Strawberries in turves, and by the autumn when fully grown, or in spring when in fruit, they could not be picked out from these which had been rooted in pots. I am therefore inclined to think that the one system of layering is as good as the other. There are, however, very many growers who do not force Strawberries, or have any means of layering them for any purpose. Growers of this class generally allow their runners to root into the soil between the rows, and as soon as they are sufficiently rooted lift them and form new plantations with them. This is a good way in which to secure young plants, especially if the runners are well attended to. Runners intended for planting should never be shaded overhead with superfluous foliage. Only the strongest and best rooted should be selected, and in digging them up a ball of soil should always be secured with the roots. Many are in the habit of lifting them from the old beds and planting them direct in the new quarters, but much better results may be obtained by lifting them from the old plantation and planting them in a nursery bed for a few weeks; then they can be transferred to their permanent quarters. This nursery bed should be very rich, in order to induce the formation of abundance of roots as well as harden the plants, and as they will lift with excellent balls of soil they may be transplanted a second time if need be without ever feeling the change. During the time when they are in the nursery bed they should be watered frequently with liquid manure should the weather be dry, and if planted there now they will be ready for the main plantation early in September, which is a very good time to plant Strawberries.—J. MUIR, *Maryam, Port Talbot.*

Cold district Strawberries.

When I came to this place, which is high, cold, and bleak, seven years ago, I got 600 Strawberry plants for pot culture, all good tried kinds, with the exception of Duc de Malakoff. After fruiting them I planted them out of doors, but the very first winter satisfied me as to which varieties I should grow. All the long foot-stalked kinds were good for nothing: Keen's Seedling even did not answer: Duc de Malakoff and Black Prince were the only two which I selected for further trial. I have tried some other varieties since, but without success. Malakoff is a good setter; its fruit is not large, but it colours well. I am not fond of pale fruit for table. I have grown 500 plants of it in pots each year since, and afterwards planted them out of doors as early in the year as I could. I plant out every year a certain portion and annually destroy a similar piece. Duc de Malakoff is certainly the best all-round Strawberry for a cold district, and anyone who gives it a fair trial will, I think, be satisfied with it. Every year I have to buy fresh plants for

pots; runners cannot be got early enough to ensure a crop in pots. If planted in September they would be nearly all lost by the spring time. This year our crops outside have been but moderately good; the foliage suffered severely early in the year, and about a month ago it was again injured.—Aaron Bird, *High Crompton, Shaw, Lancashire.*

Two good Strawberries.

Allow me to say a word or two in favour of two varieties of Strawberry. One, King of the Earlies, raised by Mr. Laxton, is pretty widely known. It is an excellent fruit and quite deserves its name. It is good in shape and flavour, and a fruit that tends to prolong the Strawberry season at one end is nearly as serviceable as one that would lengthen it at the other. I should also imagine that it would be good for forcing. The other is a variety I came across at Helston. There was a very fine dish of Strawberries exhibited at the Rose show, and which was afterwards brought to the luncheon given by Mr. Gall to the judges and exhibitors. It was eagerly partaken of and pronounced by all, amongst whom was Mr. Laxton, to be excellent. It proved to be a seedling, the result of a cross between Dr. Hogg and President, partaking of the good qualities of both parents. It is stated that it is very vigorous in growth, hardy in constitution, and forces well. It has, therefore, been called All Round. Whether it deserves all that has been said of it, I know not, but its parentage would justify me in believing that it does. All I can speak of it is what I know of the fruit; it is handsome in appearance, firm in texture, and excellent in flavour.—Delta.

OVER-CROPPED VINES.

Few readers of The Garden would have far to go to find a house of over-cropped Grape Vines, and it is surprising what an extraordinary weight of well-finished fruit experienced cultivators may cut from a house of Vines; but if the inexperienced attempt to do the same, they are very liable to fail the first season as far as the quality of the crops is concerned, while the chances are the following season there will be a great falling off in both the number and size of the bunches produced. When the Vines are well "built up"—that is to say, have not been overworked in their young days, and have a well-formed border, plenty of moisture at the roots at all times, besides liquid manure and surface dressings of manure, special or otherwise—they will do almost anything in reason. We can point to two good examples of superior culture, viz, Longleat and Cardiff Castle. In the former case the Vines are wonderfully strong, and as they are well fed at the roots they are quite capable of perfecting extra heavy crops; indeed, if not heavily weighted, they would become too gross. At the present time they are bearing grand crops, the Muscat of Alexandria being exceptionally fine. In some parts of the large house devoted to that invaluable Grape, nearly every lateral on a rod is carrying a heavy bunch varying from 2 lbs. to 6 lbs. in weight, the berries being very large. We are not at all sure that Mr. Pratt is not working them too hard, but then, as before stated, they were cropped very lightly in their younger days, and with such stems and roots may now, when about fifteen years old, stand the strain. The Black Hamburghs are also heavily cropped; but as these are finishing grandly, the berries being large, and little or no shanking being apparent, it cannot be said they are overdone. In the late house, which is devoted entirely to black sorts, Alicante promises to be as fine as ever, and that in spite of heavy crops both last season and this. Lady Downes have hitherto been somewhat unsatisfactory, and they are now being more heavily cropped to correct grossness. Instead of one bunch to nearly every lateral, two are left, and such a crop ought to check superfluous vigour. Great judgment has to be exercised in cropping Mrs. Pince, or it is certain to fail in colour, and unless we are much deceived the Longleat examples are likely to be some of the best ever seen of it. At Cardiff Castle the Vines are much younger, or probably about five years old, but when we saw them last season we were obliged to confess they were carrying the best and most even crops we had ever seen. The sorts grown principally are Black Hamburgh and Foster's Seedling for early use, and Alicante for the late supplies, and these are grown on the single rod system; whereas those at Longleat are on the extension, four Vines filling each large division. At Cardiff each rod is about 16 feet in length, and when we saw them they were carrying about twenty-five large bunches, or say not less than 50 lb. weight of fruit. We ventured to prophesy evil concerning them, but as it happens, instead of the crops being inferior this season, they are really better than usual in every respect. In this case also the borders are inside, and there is no stint of water and plenty of the best of manures.

Over-cropped Vines, however, are much more plentiful than they ought to be, and very few ought to attempt to follow the examples just alluded to, for the simple reason that it frequently ends in disastrous failure. No general rules can be laid down, so much depending upon circumstances. When the roots are confined to the inside of the house and are neglected, not receiving half enough water and manure, one or at the most two heavy crops in succession are enough to completely ruin the Vines. Large borders are not required, especially in ordinary lean-to houses, but these should not be trampled down, and generally neglected, as is too often the case when amateurs do their own work. It is not yet too late to partially remedy a defect in the treatment of such borders. First, the surface should be forked over, then a liberal supply of soft water be given, followed, if possible, by a good lot of diluted farmyard liquid manure. Then if a mulching of short manure, faced over with the strawy portion of it, is given, this will encourage the roots and preserve the moisture. It must not be thought that no further attention is necessary; on the contrary, the border should be examined at least once a week, and whenever approaching dryness ought to receive more water, or water and liquid manure. In the autumn an attempt should be made in many instances to formalise a border, and for our part we always prefer a boundary wall, especially when the house is also utilised for plant growing. We have seen capital crops of Grapes annually produced on Vines rooting in a narrow border, or about 4 ft. wide; but, it should be added, they were as carefully attended to as pot plants. When the roots are anywhere and nowhere—that is to say, nobody knows exactly where they are—they get very little in the shape of food other than they can forage, and that is not much, unless they happen to come across a drain from a cesspool. Many, perhaps much the largest majority of Vines, are rooting in outside borders, and more often than not the principal portion of the roots have left the border formed for them, and have rambled yards away, neither walls nor gravel walks serving to confine them. When this is the case the Vines do not often suffer from want of water, but more frequently they are too deeply rooted, and very few subsoils are suitable for them. They make but little fibre, and Vines with fibreless roots are liable to form soft growth, and are much addicted to shanking, anything like a heavy crop being out of the question. If we left a great number of bunches, half of the berries would shank; and the greatest judgment is required to be exercised in the matter of thinning both the berries and bunches. The remedy is either lifting and shortening the roots, relaying them in a formalised border, or a new border and new Vines, the latter being the most expensive, though preferred by many. At the same time it is surprising what good Grapes may be grown on Vines with their roots principally in a bad medium. The greatest judgment is required in the matter of cropping, the Vines being capable of perfecting a certain number of bunches, and no more, as all extra assistance is denied them; whereas those with over-cropped Vines with roots under control can give extra manurial help to them. Badly-rooted Vines also do not force safely, and they must be brought on very slowly, especially at the colouring period, or those that should be black will be nearer red in colour, and the so-called white Grapes will be green.

As we have previously hinted, the number of bunches to be left on each rod or Vine must, or should, depend upon the health and vigour of each In very many instances the sole end and aim would appear to be the securing of as many bunches as possible, and if two show on each lateral so much the better, the consequence being none really presentable. One Vine in a small mixed plant-house and vinery in the nearest garden to us was last season allowed to perfect as many bunches as it would, or about 150 in all; whereas fifty bunches would have been ample, as well as of greater value in the end. This was at the rectory, while the doctor's Vines were treated still worse, as these, besides being allowed to bear as many bunches as they would were also denuded of much of their foliage in order to encourage them to ripen their crops. When we saw them, there were nearly as many bunches as leaves. Both growers were warned that they were ruining their Vines, but nothing we could say induced those in charge to cut off many bunches, and this season they are not there to remove. These are two examples out of the many that could be given. In some instances the gardeners are to blame, and in many more the employers are responsible, or ought to be held responsible, for the results of this reprehensible over-cropping. If Grape growers looked farther ahead than they usually do, we should hear of fewer premature breakdowns, and, instead of the Vines being worn out when about ten years old, they would then be at their best. There is yet time to lighten the extra heavy crops on many overworked Vines, and the knife should be set to work at once. The Vines being in fairly good health, with well-developed foliage, and supposing they are properly assisted at the roots, a bunch may be left on every second lateral at the most; but if weakly and the foliage small, the number of bunches may with advantage be still further reduced. It sometimes happens that the true character of the crop is not apparent till the berries have coloured somewhat, and even at that advanced stage, much good may be done by the timely removal of a few bunches. This may seem a wasteful proceeding, but we have known instances where the removal of a few bunches has completely saved the remainder of the crop, rendering what would have been poorly coloured equal to taking prizes at the Crystal Palace and other shows. After all, any cut away need not be wasted, as green or partially ripened Grapes can be made into most excellent wine, and those removed before being far advanced after the thinning of the berries are much liked in tarts. In the case of young Vines, those perhaps producing large bunches, one bunch to every third lateral is ample, and these will finish well without impairing the health of the Vines. Exception may be made in favour of those producing small bunches, notably Lady Downes, and these may be left rather more thickly, while the luxuriant and rather shy-bearing Gros Maroc may usually be allowed to perfect as many bunches as are developed. Golden Queen is also a very vigorous variety, and on this we leave more bunches, or one to every second lateral. It is not, however, those in charge of such Grapes as these that are the greatest blunderers as regards over-cropping, but rather the proprietors of small gardens with only one or two vineries. Let us, therefore, hope that some at least will profit by the warning we have attempted to convey.—W. I. M., in *Field.*

SHORT NOTES.—FRUIT.

Arrested growth in Pears.—Can you tell me the cause of a large Marie Louise Pear having a good number of fruit like the enclosed upon it? It is an old tree on a south wall; it has always borne well hitherto, and has a fair crop of good fruit on it this year also.—Subscriber.

*** We cannot explain the cause of the local arrest of growth in certain fruits of your Marie Louise. Possibly it is owing to the age of the tree, or the small fruits were possibly affected by the continued hot weather in early summer, the more vigorous fruits escaping. The arrest has not been caused by attacks of fungi or insects.—G. W. S.

QUESTIONS.

5513.—**Coltsfoot.**—Can anyone tell me how I can destroy or prevent the growth of this weed?—T M.

5514.—**Soil for Primroses.**—Will any reader of The Garden kindly say what is the most suitable soil in which to plant Primroses in order to maintain their lovely primrose colour?—Derby.

NOTES OF THE WEEK.

Edelweiss.—I send you a flower-head of Edelweiss cut from a plant two years old, being raised from seed in July, 1884. Last year it produced one flower-head, and this year four similar to the one sent, but all have lost their colour very much owing to the late heavy rains that we have had.—Wm. Duncan, *Hampsfield, Grange-over Sands.*

. A very fine head quite 5 inches across, borne on a stem 9 inches high. It is as fine a specimen as we have seen cultivated.—Ed.

Out-of-door Begonias.—I send you a few blooms of tuberous Begonias gathered from plants growing out of doors, the seed of which was sown in January of this year. The flowers, I think, show what capital plants these Begonias are when properly managed. No weather affects them adversely, either extreme of wet or dry.—E. Molyneux, *Seamore Park, Bishop's Waltham.*

Very fine blooms some 4 inches across, of good shape, and brilliant in colour.—Ed.

August-blooming Orchids.—Seeing in The Garden (p. 138) a list of August-blooming Orchids, and a request therein contained to add to it, perhaps you will allow me to do so. Such lists may be useful to beginners, and therefore worth recording. The kinds which we have now in bloom are Lælia Schilleriana, Epidendrum prismatocarpum, Oncidium Jonesianum, Miltonia virginalis and Morrelliana, Odontoglossum odoratum and Lindleyanum, Mesospinidium vulcanicum, and Thunia alba.—De B. Crawshay.

Begonias at Reading.—Thousands of Begonias of various sizes from seed sown so recently as February last may now be seen at Messrs. Sutton's. Many are in 7-inch pots, dwarf, compact, and sturdy, and blooming in profusion. The crimsons are gloriously brilliant. The soft rose hues are delicate in the extreme, and the apricots, the creams, and the pure whites are all grand in their way. Some, too, have white centres with heavily shaded edges: indeed, there seems to be no limit to the range of colours which exist amongst these Begonias. In short, sights so beautiful should not be allowed to pass without being seen.—A. D.

Fruits in Western New York.—The following note in reference to this subject we extract from a private letter from Mr. Barry, of the nurseries at Rochester, New York: "We flatter ourselves that we have here, in Western New York, the finest Apple district in America, some of our counties producing from £100,000 to £200,000 worth a year; but this year, owing to a severe attack of aphis on the foliage, the crop is a failure. Pears are looking well. Peaches fair. We have already gathered and sold Waterloo, Alexander, Saunders, Dyer's June, Rivers', Louise, &c. Our Rivers' Peach was superb, but it does not sell well in our markets, owing to its pale colour."

Victoria regia.—The queen of Water Lilies is now in the height of her beauty, large cupped leaves like table-tops, and magnificent pure white, deliciously scented blossoms being developed rapidly at this season. The Kew specimen has been flowering for about a month, and should bright weather set in, there will be almost another three months of bloom. Most of us are too familiar with this prodigious plant to care much about it, and if familiarity has not bred contempt, it has perhaps brought its companion, indifference, to half close our eyes to the charms of this giant Water Lily. But there are thousands to whom Victoria regia comes as a great and wonderful delight, for we have heard something of their astonishment as they walked into the Victoria house at Kew, and beheld for the first time the plant which previously had probably been heard of only as a myth, or a figure in an "Arabian Nights'" story. The regularity with which the flowers expand, the transformation that takes place after the first day from pure white to rose-red, or white with broad streaks of that colour, the powerful Pine apple-like odour which seems to come in clouds from a newly opened flower, these are a few of the points of interest that belong to Her Majesty's Lily. Perhaps the most astounding point of all is that of the age of the plant, it seeming incredible to non-professional people that so gigantic a plant should have grown from a seed sown about three months ago.

Anemopægma racemosum.—Attention has already been called to the beauty of this stove climbing plant under its more common name of Bignonia Chamberlayni, a representation of the flowers having been given in The Garden of last year (Vol. XXVIII., p. 431); it may now be seen finely in bloom in the Palm house at Kew, where a large specimen is trained against the roof in a sunny position, and bears dozens of many-flowered pendent racemes. Grown in this way the beauty of the flowers is displayed much better than when the plant is trained on a balloon trellis or against an upright pillar, as the flowers hang naturally downwards, just as Lapagerias do. Being a robust grower and soon covering a large space, this plant is not easily kept in health in a small house, but where there is plenty of roof-space it is one of the most useful and easiest to manage. A barrowful or two of rich loamy soil about its roots, plenty of water at all seasons except midwinter, and pruning only immediately after the flowers fade are the chief requirements of this handsome Brazilian climber. The flowers are tubular, 2 inches long, and have spreading segments coloured primrose-yellow. As many as 16 flowers are produced in a single raceme, the racemes being axillary and borne abundantly on the ripened shoots.

Dichorisandra thyrsiflora is an old, and therefore neglected, stove plant, but yet a long way superior to many newer and more favoured kinds. To grow it well, the treatment must be as generous as for Cannas, viz., large pots, a rich loamy soil—rich, that is, in good manure—and liberal supplies of water daily. It forms large fleshy tubers like those of the Yam, and pushes up numerous thick succulent stems, clothed with large, lanceolate-shining green leaves, and at the top an erect spike or thyrse of purple-blue flowers, strong stems producing spikes 9 inches long and about 3 inches through. These flowers last for several months, and in large stoves or warm conservatories they have a most beautiful effect, as may be seen in the Palm house at Kew, where over a dozen large pot specimens are distributed about the house. The stems all perish in the autumn, so that during winter the roots may be turned out of the pots and stored under a stage till spring, when they should be shaken out of the old soil, repotted, and placed in a warm moist house to grow. Any number of plants may be obtained by simply dividing the plants in spring. We commend this truly beautiful plant to all gardens in which its requirements can be met.

Ornamental Gourds as stove climbers.—Almost the whole of the roof space in the Water Lily house at Kew is devoted to a select collection of these plants, and they are just now bearing numerous fruits, some of enormous size and quaintness of form, others brilliantly and fantastically coloured, whilst others are remarkable in the structure revealed, as in the case of the Luffas, by the decay of the rind or shell, or as in the Momordicas, by the bursting and twisting back of the divisions of the fruit. It would be difficult to find any collection of plants more attractive to the thousands who daily visit Kew than these Gourds are, and after seeing them there one wonders how such striking and often highly ornamental plants are passed over by growers of stove plants. Most of them grow and fruit as freely as Cucumbers under precisely the same conditions in which Cucumbers delight, and they may be raised from seeds in spring and grown into fruiting plants in a very short time. The Water Lily house at Kew is rendered specially attractive by these plants, and by the Allamandas, Hedychiums, Cannas, and last, but not least, the beautiful Water Lilies, all of which are now flowering freely. In our opinion the appearance of this house just now is better than anything we have seen at Kew for a long time.

The Exacums at Kew are still beautiful, notwithstanding that it is over three months since we noted their being in flower. Of course, E. macranthum is so far the best of the kinds seen in cultivation, though we learn that there are several others which are even better than this, and of which Kew possesses young plants. Now that we have secured a place for this plant in gardens, it ought not to be allowed to disappear again, for we have no stove plant that could fill its place; indeed, the only rival we can think of is Lisianthus Russellianus, which, however, is almost hopeless as a garden plant on account of its wretched constitution. E. affine, the pretty little species from Socotra, if not the equal of the Ceylon Gentian, as E. macranthum is called, is still a worthy little annual, but one wants to see a group of it before one can properly appreciate its beauty. If some of the nurserymen into whose hands E. macranthum has fallen can only succeed in making it produce seeds, then the difficulty of preserving it is solved, but even if they fail to do this cuttings put in at the proper time always answer the same purpose at Kew, and in Ceylon and India the plant is as common as Chicory is with us, so that seeds ought to be easily procured from thence.

Aristolochia elegans.—The plate of this plant recently published in The Garden was made from specimens imported by Mr. Bull from Rio, and, curiously enough, about the same time as Mr. Bull obtained his plants it was also sent to Kew by a Brazilian botanist, who claimed to have introduced it from the interior into Rio, where it at once became a popular garden plant. So beautiful and easily grown a climber, and one which has the pleasing characteristic of not possessing a disgusting odour so general in plants of this genus, is almost certain to take a foremost place among garden plants here. It is easily grown too, wanting only warm greenhouse treatment, plenty of moisture, a light rich soil, and a balloon trellis to grow upon, or it may be trained along wires in small houses. The shell-like form and rich markings of the flowers are exceptionally choice. Melastoma, or black-mouthed, was the name proposed for it by its discoverer, and the black velvety centre of the flower is surrounded by a delicate reticulation of the same colour on a yellowish ground. One of the Kew plants is now in bloom, and is apparently a larger flowered form than that possessed by Mr. Bull.

Clematis coccinea.—We have seen varieties of this plant which were so poor both in colour and size of flower, as to injure the reputation of what is in its best form one of the most distinct and beautiful of all hardy climbers. One of the very best varieties both in respect of colour and growth is now in flower against a sunny wall at Kew. Possibly the favourable position in which it is growing has something to do with the excellence of the flowers—full sunshine all day, its roots in a rich, well-drained border, and its shoots clinging to a few Pea sticks (nailed against the wall this plant is robbed of half its charms) being no doubt what this Clematis likes. The leaves are perfect, a good healthy dark green, and the flowers over 1 inch long and coloured a rich blood-red, the yellow edges of the four slightly recurved segments showing like what we call the facings in a soldier's uniform. A dozen strong roots of this Clematis planted in a warm sunny border, and the shoots allowed to twine about a few stout Pea sticks, would form a beautiful specimen; and if one were fortunate enough to obtain a dozen or so of so fine a variety as this one at Kew, the picture they would represent when in full flower would be exceptionally attractive. We suspect that this graceful and pretty climber has lost caste in some good gardens through being represented by inferior varieties.

Dipladenia Harrisi — From Mr. Latham, curator of the Botanic Gardens, Birmingham, we have received a beautiful flowering branch of this rare Dipladenia, rare, we imagine, because of its seldom flowering under cultivation, although we have met with the plant growing along rafters or up pillars in stoves, its large, bright green leaves being in themselves attractive. Mr. Latham has, however, succeeded in flowering his plant, and so strikingly handsome and distinct are the flowers he sends us, that if this species could be bloomed as freely as the other garden kinds, it would surely take a prominent position among stove climbers. D. Harrisi was introduced by Messrs. Veitch, and flowered by them in September, 1854. Purdie, the collector, who found it in Trinidad, says: "This fine plant is not surpassed by any one of its congeners, whether we consider the size, and beauty, and fragrance of its flowers of metallic lustre, or its entire habit." We have better Dipladenias now, perhaps, than Purdie knew, but, without making comparisons, D. Harrisi claims attention as a rich yellow-flowered species, the blooms being like those of Allamanda Hendersoni in size and form, and, in addition to their yellow colour, they are blotched and striped with red. They are produced

on the ends of the shoots in crowded axillary racemes, the shoots being vigorous, smooth, and twining, and the foliage 1 foot or more long, by about 5 inches wide. It requires a stove temperature, but we should be glad to get details as to treatment from Mr. Latham. It may be added that although known generally as a Dipladenia, this species belongs really to the genus Odontadenia, of which eighteen kinds are known, all showy flowered, and all natives of South America and the West Indies. The difference between these two genera resides in the curiously toothed stigmatic cup of the Odontadenia.

Ferns.

FERNS AND THEIR VARIETIES.

Having paid a good deal of attention to Ferns—British and exotic—for many years, perhaps I may be allowed to say a word in connection with the controversy now going on in The Garden relating to them. Before Moore published his "Nature-printed Ferns," folio and 8vo, now about thirty years ago, few varieties of Ferns were known to exist. The publication of these works created an interest in them, and led many to devote their leisure to searching for and cultivating them. A little later Lowe's well known "British Ferns and their Varieties" appeared, and more recently still the valuable series of folio nature-printed plates, with descriptive notes, by Colonel Jones, of Clifton, an enthusiastic and accurate observer. The names of Fern admirers published in these works show the amount of interest taken in the subject. Without these publications the vast majority of collectors would have remained unknown to each other. The intercourse thereby created of course tended much to increase the taste for these plants. For many years past I have been collecting all the works on Ferns that I could hear of, but I can find no reference to any similar work, or even pamphlet, in any foreign country whatever. If such exist I shall be glad to hear of them. Professional collectors, too, were stimulated by the high prices occasionally given for new sorts. I was informed that as much as £80 was paid for a single plant (the whole stock) of a crested variety of Polystichum when the rage for Ferns was at its height.

Were the subject taken up in any other country, I do not see why similar results should not be obtained. A Wollaston, a Jones, a Lowe, or a Barnes would, I am sure, be equally successful in the discovery of varieties abroad as they have been in this country. The finding of varieties worth cultivating is not so easy a matter as "G." seems to imagine. He says "enormous quantities can be gathered wild any day in a good Fern locality." One of our best Fern hunters in England told me that if he found three good sorts in a day's hunt, he considered himself fortunate. No doubt many varieties have been found wild from first to last, but that is the result of many years' work by a large number of collectors. Many of the hardy varieties in cultivation have had a garden origin, as "G." says, but varieties of tender Ferns have also been garden-bred, though necessarily to a much more limited extent. The varieties of Adiantum cuneatum and Capillus-veneris may be quoted as examples of tendency to sport.

Several years ago, when on a visit to Pau and Biarritz, I found, under unfavourable circumstances, as many varieties as I ever found in the same space of time in this country. From New Zealand a living plant of crested Lomaria alpina was sent me some time ago, and my correspondent there speaks of other varieties of Ferns which he possesses. This was in reply to my inquiry as to varieties, he previously having paid them no attention. I have also crested Woodwardia from the Azores, a curious form of Polypodium vulgare from British Columbia, several varieties from the Cape of Good Hope, besides a stray one occasionally from other quarters. "G." draws his inferences from herbarium specimens only; Mr. Syme, on the other hand, from actual observation in their native habitats. To "G.'s" theory of "climatic change" going on in this country, and thus accounting for abnormalities, I attach no importance. The Nephrolepis exaltata referred to be Mr. Syme is probably the same as I received a fragment of, some years ago, from a private garden in the Azores, as it was said to be originally from Jamaica. Being a lovely variety, I tried in vain to get a living plant; and it would be a boon to cultivators could it be procured from Jamaica.

The conclusion at which I arrive as to the paucity of exotic varieties in our herbaria is simply from the want of interest taken in them abroad; Mr. Syme's experience goes to prove this. Perhaps other collectors who have had the opportunity and an eye to varieties will give us the result of their observations. P. Neill Fraser.

Murrayfield, Edinburgh.

TASSELLED AND CRESTED FERNS.

In reply to "G." (p. 140), allow me to say that I never doubted the existence under cultivation in Britain of many more abnormal forms of British than of foreign Ferns. I merely doubted, and still doubt, the correctness of the statement that British Ferns in habitat are more prone to vary than exotic species. I have already named and partly described several abnormal forms, of a well established character, of exotic species which "G." has not yet seen. By thus particularly naming these, and by general references to numerous other forms of a less fixed and, consequently, of a less interesting character which I had seen abroad, I had hoped to show, first, that at least so many existed outside of Britain and altogether unknown to "G.," and, secondly, to account in some measure for the almost complete absence of specimens of such and similar abnormities from the State and other large herbaria in Britain accessible to "G." I have to mention in this connection one or two other Fern abnormities of decided character which it was my fortune to discover in a small tropical area, but before doing so I must ask "G." to consider that the forms specially and generally referred to in my last paper, with one or two exceptions, were discovered and brought to light, so to speak, by one collector. It cannot for a second be credited that I am the only Fern gatherer among thousands in the wide tropical world who has discovered abnormities of the kind referred to. I would suggest that "G." should enquire of such collectors as Nock, of Ceylon, and Jenman, of Demerara, who have made excellent use of their eyes, if they in their extensive Fern hunting in the Tropics have not come across many Fern abnormities. Their herbaria may not contain any, and if so, I prefer to believe that it is because, like me, they have not considered such to be of much botanical interest. In this we may be greatly to blame, and to make amends, personally, I am prepared to introduce and furnish "G." with living plants of all the varieties I have named, and others not yet mentioned, on condition that he agrees to meet the cost. "G." says "Mr. Syme states that many Indian Ferns vary as much as our common Hart's-tongue," but that is not strictly correct; I never made such a statement. The only crested, simple-fronded exotic Ferns known to "G." are Microsorium irioides, Asplenium palmatum, and Niphobolus Lingua. I should have mentioned in my last paper that I discovered in Jamaica a large growth of Acrostichum latifolium, every frond of which was broadly crested. I detached about a dozen pieces, which I afterwards established in pots, and, if my memory serves me rightly, one or two were subsequently despatched to Kew, where they may now be. Some were distributed among cultivators in Jamaica, and the balance I left in the botanic garden there. I also found on a tree in the mountains there several plants of A. squamosum, with the majority of their fronds shortly forked. Forked fronds of other species of Acrostichum and of Tænitis and Antrophyum, also of several of the simple-leaved species of Polypodium, were frequently met with. To me this forking of simple-leaved Ferns seemed in a sense much more natural than the sporting in the same way on the part of highly decompound species. It may be remarked that some of the species of Stag's-horn and Filmy Ferns represent as regards their fronds initial development from the simple to the compound, and may be compared morphologically with the less normal crested and simply forked variations above referred to, as well as with similar familiar forms of our Hart's-tongue.

I am asked to supply a list of the forked, tasselled, and crested forms of exotic Ferns with which I am acquainted. This, I regret to say, I am not at present prepared to do, my more immediate purpose and desire being to furnish a list of such forms as are altogether unknown to "G." This list comprises one more form which I had overlooked. It was a most regularly-tasselled plant of either Nephrolepis acuta or N. exaltata. Taking this list for what it represents, I may be allowed to suggest that were the hundreds of enthusiastic Fern collectors in the tropical field to supply "G." with lists of the Fern abnormities which they have seen, the sum total would perhaps greatly change and widen his views.

A not less interesting list would be one enumerating all the forked, tasselled, and crested forms of British species known to have been found in habitat only, in contradistinction to those raised under cultivation. Possessed of such a list, others besides "G." might be prompted to speculate, and even generalise, on the causes which lead up to abnormal variation in Ferns, as well as on the disproportionate amount of such variation, if, as has been stated by "G.," it exists in the case of British as against exotic species. Geo. Syme.

VIEW IN THE PALM HOUSE AT LEHENHOF.

This is a view of Mr. Otto Forster's very interesting garden at Lehenhof, alluded to in M. Max Leichtlin's note in The Garden (p. 116). We have not seen the place ourselves, but from the views sent by Mr. Forster we cannot help being interested in it, and in the natural and artistic disposition of its contents.

Bracken, or Brake Fern.—Abundant as is this Fern on heath and moor, yet its beauty is so great and its habit of growth so distinct, that it may often find a genial welcome in the garden. Now and then a house is built on a breezy hill, and if the Brake is allowed to live on here and there, among the Gorse and Heather, the result gained is often better than that obtained by the "choke-muddle" planting of the kind but too usual around a new house. Besides, while it is easy to leave a good breadth or two of Bracken where it exists naturally, it is not so easy to introduce it where it does not already exist, or to replace it where it has once become destroyed. The best plan of introducing Brake Fern to the garden is to dig up whole sods of loam or peat wherever this Fern grows, and to bury them and the rhizomes they contain like a floor wherever you want the Fern to grow. Any other plan of transplanting is sure to be more or less of a failure. Travellers are often surprised to meet with this native Fern abroad nearly everywhere, for it is distributed widely in both hemispheres. It forms a favourite cover for the tiger in the Malayan Peninsula, for the bear of the north of Europe and Asia, and for the pheasants of Northern India and China, just as it does for the dappled deer in our own parks at home. I saw it luxuriant on the tops of mountains in Johore, while lower down, some species of Gleichenia, closely resembling it in habit, seemed to supply its place. A peat-bed of Brake Fern, Heaths, and Lilies intervening is a pretty sight just now.—F. W. B.

Indoor Garden.

PLANTS FOR WINTER FLOWERING.

Those desirous of having a good supply of flowers during the dark days of winter must now endeavour to have their stock of plants for that purpose in as forward a condition as possible, as upon making the most of the hours of sunshine depends the amount of success that will attend their efforts when artificial heat has to be resorted to. There is no lack of plants that either flower naturally during winter, or that may be induced to do so by careful management. Amongst the most reliable we have yet tried may be mentioned the following, viz.: Abutilons—these are most floriferous in character; in fact, they will flower without intermission the year round; but those for winter we divest of all blooms about this date, give a shift into a size larger pot, or some top-dressing, and then they start away with renewed vigour. We find none to equal Boule de Neige, but in order to give a little variety in the way of colour, we grow Thompsoni and a few other mixed coloured ones. Bouvardias are indispensable; we grow cuttings of them on during the summer, and after the bloom is cut off they are dried off like Fuchsias, and in spring are introduced into gentle heat, and as soon as fairly started the old soil is shaken away from them. They are then repotted and replaced in warmth until well rooted, when they are transferred to cold frames and finally fully exposed. These make finer bushes than plants grown on from cuttings in one year. They do well in a temperature of about 55°, which is a safe medium for the majority of winter-flowering plants. Arum Lilies for winter or spring are planted out now in a partially shaded position; next month they are lifted and the most forward amongst them are placed in heat to get the flower-spathes expanded by Christmas. Tree Carnations are amongst the best winter flowers for button-hole bouquets that can be grown. Spring-struck plants are now in 5-inch pots, standing on a coal-ash bed fully exposed to sunshine. Thus treated they produce a long succession of flowers. A good sound loam and a little leaf-soil and sharp sand suit them as far as soil is concerned. Chrysanthemums are every year becoming more popular; for the mid-winter supply the latest flowering sorts should be grown, such as Ethel, Meg Merrilies, &c. They must be kept out of doors as long as the weather will permit, and, when placed under glass, a cool orchard house is the best place for them. Eupatoriums are of the easiest culture, and flower most profusely in a heat of 50°. We have some planted out and others in 6-inch and 7-inch pots, and by introducing a few into heat from a cold house at intervals of a fortnight, we get a succession of their white feathery bloom from October to March, when they are cut down close and kept cool and rather dry for a short period. Pelargoniums of the zonal kinds rank amongst the brightest of winter flowers; our stock for the season is now in 6-inch pots in an open sunny position; all blooms are kept pinched off them until September, when they are set on shelves near the glass. Under this treatment any free-flowering kind of the Vesuvius type does well. Roman Hyacinths are being potted or put thickly in boxes for supplying cut flowers. Any rich light soil suits them. We cover the pots or boxes with ashes until they begin to grow, when they are transferred to heat as wanted. Primulas, both single and double, are now in frames set on a coal-ash bed; they will be transferred to stages in the greenhouse next month. The old double white is still one of the best for button-hole bouquets, and the single varieties are most useful for indoor decoration. Careful watering is necessary, and the blooms should not be picked off until next month. Our Tea Roses are now being repotted and set in a sunny position out of doors. They soon start into growth, and when placed under glass produce grand buds for several weeks. Of whites, Niphetos is one of the best. Violets now claim a good deal of attention. The late rains have started them freely into growth, and the single kinds in beds now cover the ground with fine large foliage. Double-flowered kinds for frame or pot culture require the runners to be cut off frequently and the soil surface-stirred to keep down weeds. Red spider is the worst enemy Violets have, but a free use of the watering-pot will keep it in check. Miscellaneous subjects for winter include Helleborus niger and similar plants that, although hardy, are grateful for the shelter which glass affords their delicate flowers, and if we would have fine ones in quantity, now is the time to promote a healthy growth of the foliage, for on the maturation of that depends the quantity of flowers which we will get.

J. Groom.

Gosport.

Interior of Palm house at Lehenhof.

RAISING TUBEROUS BEGONIA SEEDS.

When I first began raising seedling Begonias, I used to sow the seed early in spring and bring on the young plants in heat, but as I required a good number for bedding purposes, I found that they occupied a good deal of room at a time when space under glass was valuable, and that induced me to alter my plans. I now sow the seed as soon as it is ripe, a plan which I find answers best. I save my own seeds and watch for the first ripening pods, so as to secure them before the pods burst, and scatter the seeds. On plants brought on in a warm greenhouse in spring the seed is generally ripe early in August, and, if sown at once, I find it to vegetate much sooner than when kept to the following spring. I fill a rather large pan with fine sandy soil and well water it before sowing; I then sow the seed and cover it with silver sand. A square of glass is put over the pan, which is then taken to a warm house, where it is shaded from bright sunshine. In about ten days the seedlings appear, and the glass is then removed, and the pan brought out so as to give them more light. Watering to keep the soil moist is, of course, done with great care, which is all the attention they require. About the middle of October the pan is taken to the stove, in which there is more warmth. By this time the plants will be growing nicely, and the additional warmth keeps them growing until about the end of the year, when the leaves begin to get yellow, and the plants go to rest. Water is then withheld, and the pans placed out of the way of drip on the floor of a cool house, where they remain all winter. It is useless attempting to hurry the little bulbs into growth in spring; they will rest their own time, even if subjected to a high temperature. I therefore allow them to remain undisturbed until early in May in a cold frame. A bed of soil is made up to receive them. As the roots must be well nourished the soil should be fairly rich, and they do not object to a little well-rotted manure placed 3 inches under the surface, but fresh manure is fatal to these Begonias; altogether there should not be less than 4 inches of soil and manure. I turn out the pan of soil into a closely-meshed sieve; then, by means of rubbing, the earth is separated from the bulbs, which are left free and clean in the sieve. The bulbs are then sorted into two sizes, the largest generally being about the size of a Hazel nut. These are planted 6 inches apart each way, and the small ones 4 inches. The crown of the bulb is kept about half an inch under the surface; no water is given them until they begin

to show their young leaves; the lights are of course put on the frame, and attention to air-giving is also a part of the details of management. Careful watering is a very important matter, for if the soil is kept too moist the roots will make but slow progress. As the young growth gains strength more air must be admitted, and in bright weather a little shading is desirable to prevent the soil from being quickly dried up. In a general way the lights may be removed altogether from the strongest plants about the middle of July, and from the others a fortnight later, as they gain strength faster by being fully exposed to the air than they do when drawn up under glass. There are two advantages belonging to planting them in a bed of soil. The first is less trouble as regards management, and the other is that much larger bulbs are obtained than when confined to pots. The plants soon commence to flower after they start into growth, and as the blooms expand, we mark such as we think suitable for any particular purpose. For bedding I prefer those with short sturdy growth that have red or crimson flowers, and I select those as much as possible that have erect flowers; those, however, with drooping blooms are not to be despised, for they flower with greater freedom than the others. If the lights are left off during autumn, the plants will go to rest in their own way; but not until all the stems have died down should the bulbs be taken up. We keep our bulbs for bedding in a cool shed where frost cannot reach them. A heated structure is fatal to them. With regard to treatment in spring for bedding, I could not wish for better results than have been obtained by planting the bulbs in a bed of good soil in a cold frame early in April, and transferring them to the beds at the end of May. At first we give them no water in the frame, and no air is admitted until the leaves appear, when both air and moisture are given, the amount of air being increased as the season advances. During the last fortnight the lights are drawn off during the day altogether. At night they are covered with mats to protect the young growth from frost. At bedding-out time we lift them with a fork, place them on a hand-barrow, and carry them to the bed in which they are to be planted. Begonias thus treated feel their removal but little, and are generally in full flower before Pelargoniums put out at the same time, and when in blossom they stand wind and rain better than the majority of summer bedders. J. C. C.

Malpighia coccifera.—This is a stove plant which bears at this season of the year a profusion of singular, but pretty flowers. They are blush in colour and emit a pleasant odour. The leaves are small, neat, and firm, and bear on their margins small bristles, which in some species have the power of stinging, as in M. urens, the Barbadoes Cherry. It has no objection to being placed in dark corners beneath other plants; in short, it is one of those plants which can be pushed aside when it has finished flowering until it requires to be placed in a more prominent position. It thrives well in equal parts of loam and peat with some good sharp sand for drainage.—W. H.

SHORT NOTES—INDOOR.

Impatiens Hawkeri.—Judging this new plant by the specimen which I saw the other day at South Kensington, I do not hesitate to predict that it will prove as valuable as it is beautiful. It far surpasses in brilliancy that of the now well known I. Sultani.—G.

The blue Throat-wort (Trachelium cæruleum).—This was shown the other day at Southampton as a pot plant in grand condition by Mr. Molyneux. It is well deserving attention as an autumn flowering plant.—W. H. G.

Didiscus cæruleus (Trachymene cærulea) is an annual not worth growing as a border plant, as it always has a shabby look when planted out, but for pots it is altogether the other way. The flowers are light blue, a colour somewhat rare amongst umbelliferous plants, and its native country is Australia. The seeds should be sown in gentle heat in February, and as soon as ready to handle the young plants should be pricked off into 6-inch pots, about six or eight in a pot, in a compost of loam, leaf-mould, and sand. As soon as frost is over place them in a cool frame, where they can remain until wanted.—W. H.

Centaureas from seed.—When Centaureas are about to be stored for the winter, it is a good plan to select such as are most straggling for seeding purposes; when employed in this way they should be divested of all rough base leaves, and also of all lateral shoots, retaining only the principal growths and such as are likely to bloom next year. To bloom Centaureas, however, and to induce them to ripen seeds are two very different things: therefore, to accomplish the latter object, every endeavour should be made to cause them to bloom early. In spring, plant them out as soon as they can be safely trusted out of doors, and carefully prevent the growth of fresh side shoots. Thus treated, they soon get into bloom, and also produce seeds, which should be gathered when ripe, kept dry for a week or two, and then rubbed out of the heads and held in readiness for sowing. If sown in September in pots or pans filled with light sandy soil, placed in a moderately warm house or pit, and covered over with a pane of glass or a bell glass, they will soon vegetate, and may then be pricked off into other pots or pans of light soil, and be left without the use of special glass coverings. After being pricked off, they should be kept throughout the winter quite close to the glass on a shelf in an intermediate house or warm greenhouse, where by spring time they will have formed fine plants, which should be potted off separately in 3-inch pots. In this way, and by placing them for a month or six weeks in an open frame before planting them out, excellent plants may be obtained for bedding purposes. It is not absolutely necessary that the seed should be sown in autumn; it may be sown any time before the end of March, but spring-sown plants, owing to being forced so much in heat, are not so hardy as those raised in autumn. The lateral shoots taken off Centaureas, to be kept for seed, should be struck as cuttings, selecting the hardest and most slender ones, and discarding such as are soft and succulent, which would be almost sure to damp off.—W.

ROSE GARDEN.

THE ROSE SEASON.

This was late this year, short, and, on the whole, not up to the average. A roseless June must absolutely result in a late season; but why Roses that hardly bloomed till the second week in July should mostly have bloomed out before the end of that month is by no means so obvious. And no doubt there have been, there are, many exceptions to this brevity of blooming, and the fortunate possessors of these will rush into print to contest our statement. Well, the more such protests the better, for they prove that the season was longer in some quarters than in others, and that the heavy rains and gleaming sunshine had failed to bring on and drive out the Roses with a rush everywhere. And then no one expects the winners of cups and of valuable prizes *ad libitum* to agree to our moderate estimate of the Rose season. And yet not a few victories were the easier won this season owing to the under average character of not a few of the Roses grown. I do not say that none of the champion prize takers reached their usual standard of superlative excellence. A few, perhaps as many as could be numbered on the fingers of one hand, did; but beyond these—I hope I may write it without offence—we plunge into mediocrity, and this not in one or two places, but in many places and many counties, from South Kensington downwards. In some cases the high estate of the Teas did a good deal to redeem the under average condition of the Perpetuals; but, on the whole, the average Rose harvest, so far as it has gone, like the coming harvest of Apples and Pears, was decidedly under average. As to the causes of this, I attribute it mainly to the incessant worrying of long-continued cold and drought throughout the spring. These little goes of frost which abounded throughout the winter, and ran almost through the spring, often do far more permanent injury to vegetable life and products than one or several old-fashioned seasonable frosts of far greater severity.

In this case they seemed to undermine the strength of the Roses without inflicting any apparent injury, and hence the majority broke weakly as well as late; and, contrary to very general experience, as the growth became more rapid, it failed to pick up lost or delayed vigour. Associated with this tendency to weakness there was an almost entire absence of aphides and insect pests. Rejoicing in this immunity, not a few of us expected that this set-off would more than compensate for the weak start and continued weakness. But it did not, though no doubt it greatly helped the Roses to produce the harvest of beauty and sweetness they have yielded us. Doubtless this almost complete immunity from insect pests would have proved of more benefit had it not been for abnormally early attacks of red rust. Absolutely this debilitating and disastrous pest was not much earlier than usual, but, relatively to the condition of the Roses, it was much earlier, and it was also more virulent. During the whole of my experience I never heard so much of the Orange fungus on Roses as this season. Complaints of its prevalence and applications for cures poured in from all directions. Persistent hand-picking of the infected leaves and the burning of the same by fire seem the only possible means of checking its ravages in its active state in summer, and it must be confessed that the remedy is nearly as bad as the disease, for defoliated Roses are almost as pitiable spectacles, and as impotent for the discharge of their vital functions, as those reddened deep with this rust-like fungus. Fortunately, the second growths are not seldom free from this pest, and thus the Roses recoup their vital force in the autumn. Mildew has been abnormally prevalent as well as the red rust, and in some places these two coloured fungi have threatened between them to make an end of the Roses. As a rule, Tea Roses are less attacked by mildew than others. But this season such smooth-leaved and vigorous growing Teas as the Gloire de Dijon have suffered as much from mildew as the roughest foliaged Perpetual or other Roses. The mildew also clings to our Roses later than usual this season. As a rule it is often drowned off them in the autumn, but at present it shows few symptoms of losing its hold or giving place to clean foliage, and unless this welcome change takes place soon, I fear the autumnal bloom will hardly be up to the average either in quantity or quality. But from these rather sombre views of the character of the Rose season and its effects we gladly turn to note a few of the Roses of the season. First and foremost among those alike in order of time and of merit must be placed Lady Mary Fitzwilliam. This has now taken rank as one of our most useful and popular Roses. Her Majesty has hardly been seen in good form throughout the season. But this is hardly to be wondered at when the recent date of its distribution in this country is taken into account, and possibly next year it may take the popular rank that its early reputation entitles it to. Princess of Wales has appeared in good form on several occasions; and Merveille de Lyon has on more than one occasion taken a first place, not only as the finest white Rose, but the best Rose in the show. This will doubtless prove welcome news to not a few who have hoped much from this Rose and have hitherto reaped a sort of semi-double disappointment. Marie Van Houtte, Etoile de Lyon, La Boule d'Or, Comtesse de Nadaillac, Madame Watteville, and Niphetos have also been specially conspicuous among Teas; Baroness Rothschild, Charles Lefebvre, Alfred Colomb, Etienne Levet, Marie Baumann, Ulrich Brunner, Violette Bouyer, Reynolds Hole, Mdme. Gabriel Luizet were among the finest Perpetuals. Like Merveille de Lyon, Mdme. Lacharme appeared among the finest white Roses of the season this year; while Edith Giffard and Jean Pernet also hold high places of honour among the whites. D. T. F.

White Rosa rugosa.—Wherever the ordinary form of this Rose grows well, the white variety should also find a place. Its large, single satiny

white blooms contrast well with those of the type, and both are equally floriferous. They bloom continuously throughout the summer months, and in autumn produce large showy fruits. The white variety is still comparatively scarce, and in the case of a few specimens of it, purchased by a friend, they had been budded on some strong-growing stock—not on the typical form—a mode of increase certainly not to be commended, as the suckers which spring up are a continual source of trouble; while in the case of a plant on its own roots, the shoots that push up from the base tend to increase the effectiveness of the specimen. In a general way, both kinds can be easily layered, and as roots are readily produced, this plan offers the most convenient method of increasing them. The common form can also be grown from seeds, but whether or not the white variety will come true in this way I cannot say, for though we have raised some they are not large enough to flower. In depth of colouring the ordinary form varies considerably, some being of a much deeper tint than that of others; indeed, there is a variety called rubra that is very deep red.—H. P.

AUTUMN ROSES.

Hybrid Perpetuals promise to bloom well this autumn; the heavy rainfalls which we have had came just in time to start them into a second growth, which in some cases is already pushing forth flower-buds. Specially noticeable in this respect are Ulrich Brunner, Beauty of Waltham, Bessie Johnson, Captain Christy, and Maurice Bernardin, while such well known Perpetuals as A. K. Williams, Boule de Neige, Charles Lefebvre, and La France have not yet been without flowers this season. La France may certainly be styled the queen of Perpetuals, for whether grown as a standard or as a dwarf bush it is a most continuous bloomer, and when on its own roots I think it is better than when on any other stock. I have another old Rose on its own roots, viz., Madame Victor Verdier, which has often surprised me by producing almost continuously during summer abundance of flowers. This is a very dark-coloured Rose in the way of Prince Camille de Rohan, but a rich satiny shade overlies the petals to a greater degree than in any other variety. Singular to say, when budded on the Manetti I could not get this Rose to make anything but the very poorest growth. I also find that many other autumn flowering Perpetuals bloom more freely on their own roots than on any stock, and as the present is a good time to ascertain which are the most continuous bloomers, it is just the time to set about striking them from cuttings. Two or three handlights or cloches are all the appliances required; mix up some sand with the soil on a border facing the east or west, and in this insert the cuttings, which should be made of the hardest portions of this season's growth. Let them be from 7 inches to 8 inches long, and bury half their length in the ground, in which they should stand 4 inches apart. Put them in very firmly, and when the space is filled give a good watering; then put on the lights and leave them to take care of themselves, except it be to see that the soil does not get too dry. In very severe weather an old mat or some other protection should be put over the lights, which about the end of May may be taken away, leaving the young plants exposed to all weathers. By the autumn they will be well rooted, and may be planted wherever they are wanted. All the cuttings may not grow, but a fair proportion will do so.

Roses will be greatly benefited by having a little attention now. The points of the shoots which flowered should be removed, and the suckers rising from such as are budded on the Manetti should be searched for and cut off below the surface. It is also a good plan at this season to loosen the surface soil over the roots. This is especially necessary in the case of heavy soils that are liable to crack. It is best done with a light fork, as it is only necessary to go about 2 inches deep. Loosening the surface in this way allows moisture to get down to the roots; whereas when hard and smooth an ordinary shower scarcely penetrates it. Only in dry soils is there much mildew on Roses at the present time, but wherever there is any, remedial measures should be resorted to at once; the leaves should be dusted with sulphur, and the roots should receive some stimulating liquid to induce the formation of new growth. Good liquid from the farmyard is doubtless the best, but house sewage will answer the purpose, and if there is nothing else, liquid guano is better than nothing at all. This may be used at the rate of an ounce of guano to a gallon of water, and each tree should receive two gallons of it weekly. Should the weather be dry during September, all Roses will be benefited by liberal supplies of water at the roots, and clear water should never be used if house sewage or farmyard liquid is to be had. Briers budded a few weeks ago should now receive attention; any growth which they may have made since the buds were inserted should now be cut back. The ties on all the most forward buds may now be loosened, but not wholly removed, and any buds that may have started into growth should be supported with a stick. Young buds are easily blown off if not made secure in this way. J. C. C.

WINTER BUTTON HOLE ROSES.

The following remarks refer specially to the production of Tea-scented Roses during the autumn and winter months to supply blooms for button holes, for it is not so well known as it should be that this section of Roses is more suitable than any other for furnishing flowers late in the year. In the first place, it is essential that suitable varieties be chosen, and these may consist of the following, viz., Devoniensis, creamy white; Catherine Mermet, rose; Elise Sauvage, pale yellow; Isabella Sprunt, white with pale yellow centre; Madame Falcot, apricot colour; Madame Lambard, bronzy red; Marie van Houtte, yellowish white; Safrano, fawn colour; David Pradel, rose; and Niphetos, white. The next point of importance to understand is the fact that, in order to furnish a good number of Roses continuously, rather large plants are necessary, as small ones only produce a limited number of blooms, and then go out of flower. The sized plants I have in view should occupy 12-inch or 16-inch pots, and, if well treated, will yield a large number of flowers at a time when Roses are scarce. If the varieties have to be provided, I would rather start with young ones than old exhausted examples that have been indifferently managed. If one could begin at once with plants in 6-inch pots that have several branches and require more root-room, one might in a year or two build up thrifty specimens. Such plants as those just alluded to should be shifted at once into 8-inch pots, choosing for compost a good fibrous loam and a moderate quantity of coarse sand. If the loam is inclined to be heavy, use one-third peat for the purpose of keeping the soil open. It is important to provide thorough drainage, but it should not be so bulky as to occupy much room in the pot. After the plants are potted let them have the shelter of a cold pit or frame, in order that they may be shaded from bright sunshine for the first ten days. After that the lights may be removed. The plants may be transferred from this pit to a cool, airy house early in September, and, except to keep them regularly supplied with water, they will not require any further attention. In all probability most of them will furnish a few flowers during the autumn. If blooms open in the cool house, well and good; but the first season they must not be subjected to any extra heat in order to cause them to open their flowers, for the plants must rest during winter preparatory to making strong growth in spring. They must have plenty of light and air in winter, and be kept from severe frosts. In the following spring a light, airy position must be found for them in a greenhouse temperature. They must not be pruned, unless it be to shorten back to half their length any long, strong shoots. If pruned like Hybrid Perpetuals, they will be many years before they attain a good size.

Assuming that they have been managed according to the directions just given, and that a dozen plants have been prepared, a third of that number should be introduced into a house heated to about 8° higher than the temperature of an ordinary greenhouse in the middle of October; and if the others are introduced in equal numbers into the same structure at intervals of a month, a continuous supply of flowers may be obtained all winter. In future years a slight increase in the temperature during December and January may be required, but that is a point which each grower must decide according to circumstances. According to my experience, the most important part is the summer management; they must have a good rest, and they must not be disturbed at the roots during the summer or autumn. If they want larger pots or top-dressing, it should be done early in May, so that the roots may have plenty of time to get established in the new soil before they are turned out of doors. As to resting, they must be taken out of the house about the middle of June, and the best place for them during summer is a warm, sunny border facing the south. They must stand on a hard bottom, for both the roots and the branches require the fullest exposure. Any flower-buds they may have on them must be picked off, and only just enough water should be given to keep the roots right. If the latter are kept quiet, the cultivator may hope to see the young growth hardened up to the colour of mahogany in the autumn, and then he may rest satisfied that it is in a proper condition for flowering in winter. As autumn approaches they will start into growth again at their own time, and, if desired, all of them will be bristling with flower-buds early in October; but such plants as are to be reserved to flower late should have all the most prominent buds removed, and be left out of doors until the middle of November, *i.e.*, if there is no frost to injure them. The others should be taken under cover earlier. With regard to soil and potting, I have already described the kind of compost most suitable for Tea Roses in pots; but, as to repotting, I can only say the cultivator must to some extent use his own judgment. As the object is to get large plants, they will want more root room for the first three years than they will after that time. As soon as they have filled the 8-inch pots with roots, they may be shifted into 10-inch ones; but as soon as they get into 12-inch ones, or others of larger sizes, the roots will not require anything done to them except a rich surface-dressing, say once in two years. When it is considered necessary to give them a change of soil, that should be done in May. About two-thirds of the old material should be removed from the roots, and the new compost must be firmly rammed round the old ball. They will not require top-dressing the same year in which they have been repotted—only in subsequent years, when nothing has been done to them. In order to give them a substantial top-dressing, 2 inches of the old soil should be taken off the ball, and its place supplied with a mixture of half loam and half well-rotted hotbed manure, well rammed down on the old soil. With respect to pruning, they will not want much of that until they get as large as they are required to be; then they may have the old flowering branches cut back a little every year; but, as I have said, until they get large plants, only the long and strong shoots should be shortened back; and as regards training, they will want an occasional stake for support, but the less contortions to which branches are subjected the better.

C. J.

Netley Fort, Hamble.—Here may be found some giant Arbutuses, which thrive admirably by the sea; these and other notable specimens growing here have been carefully preserved and encouraged to display their proportions to the greatest advantage. On the lawn in the vicinity of the mansion are gay carpet and other beds, but the object aimed at throughout the grounds generally is to produce a rich and varied wild garden, only as much labour being bestowed upon it as will show everything in as natural a state as possible. Lilies will soon be a prominent feature here, and also Olearia Haasti, which seems to be a good seaside plant. Handsome specimens of Cedrus atlantica may be found here. Besides the pleasure grounds there is a walled-in kitchen garden, the central borders of which are devoted to good herbaceous plants, Roses, &c., the produce of which is used in the form of cut bloom.—W. H. G.

Kitchen Garden.

STAKING BEANS AND PEAS.

Much unnecessary trouble is often gone to in this direction; at any rate, such is my impression, and experience confirms it. I will not go so far as to say that half of the Beans and Peas grown in gardens would do equally well without staking, but I am fully convinced that a large proportion would succeed without that attention. I am not now speaking of what are recognised as dwarf varieties, but of such as grow to an average height when staked. A good deal depends on whether the season is wet or dry, and especially the situation and character of the land upon which the crop is grown. Here both soil and subsoil are comparatively porous; therefore they do not long retain moisture and the situation is high. The conclusion I have come to is, shortly, that for the earlier Peas, which may be expected to grow, say, a yard in height, it is decidedly best to use stakes, but that for the later crops, except such as grow to a great height, their use is unnecessary. In early spring, when the soil is cold and moist, it is perfectly reasonable that the young plants will grow to greater perfection when supported and, to some extent, sheltered by stakes, but as the season advances they do equally well without any attempt at staking. A day or two since I had occasion to be amongst some Peas which were grown without stakes, and they were certainly more fruitful than others growing in a similar situation, but held up to bleach by sun and wind. With a succulent vegetable like a Pea I take it this bleaching and drying process is just the thing to avoid, and it can be avoided by allowing the crop to mature under the protection of its foliage and in proximity to the soil. The same thing applies to runner Beans. Each year I stake a portion and leave a portion to grow on without stakes, and with no attention except occasionally pinching back the runners. Last season I was especially successful in this treatment, and although it is too early this year to speak positively, present comparison is greatly in favour of Beans without stakes.

So far as I am personally concerned, except for the earliest planting of Peas, I should not hesitate to plant as many of either vegetable as was likely to be required, and grow them on without the aid of stakes. There is a greater secret in their production than stakes. These we can successfully dispense with, but manure to enrich the soil we cannot. When stakes are used, Hazel is probably the best wood for the purpose—at any rate it is the most popular. There is no need, however, to be confined to this. The wood from hedges of several years' growth will often make good staking wood. I do not mean White or Black Thorn, or spiny woods of that class, as they would be very objectionable to handle, but such as Wych Elm, Maple, and other thornless woods which are frequently found in hedges. The wood should, of course, always be cut when the leaves are off, as to use stakes with the dead foliage upon them is both awkward and untidy. This can be overcome by cutting off the small branches upon which the leaves grow, but it is never satisfactory. D.

Late crops of Scarlet Runners.—We find it a good plan to sow a late crop of Scarlet Runners about the beginning of June, and if nearer the middle than the beginning of the month, so much the better. This crop we find comes in admirably when that sown early is on the wane; and this late sowing also produces larger and more tender Beans than the produce of plants which have become exhausted through long bearing. In our case the early crop gets so much injured in autumn by rough winds, owing to the heaviness of the growth on the top of the stakes, that it is frequently useless; but that sown later, owing to its not being so top-heavy, escapes serious injury. If I had to deal with a poor soil, and not overburdened with manure, I should always prepare trenches for Scarlet Runners the same as for Celery; and what manure I could spare I would put in the bottom of the trench. By adopting this plan, the plants would get the whole benefit of the manure, and in dry weather, if water is poured into the trench, but little of it would run to waste. No kitchen garden crop pays better for watering than Scarlet Runners. Those who plant runners in ordinary drills should, after they have watered them, put a thick layer of half-rotten manure over the roots on each side of the row. This can be drawn aside when more water is given.—J. C. C.

SOWING SPRING CAULIFLOWERS.

Where there is no glass, Cauliflower seeds should be sown between the 20th and the 30th of August. A date intermediate between the two just named suits us here very well, but seasons vary, and of local conditions and circumstances note should also be taken. When sown too early, if the winter should turn out mild, many of the plants will button prematurely and be useless. I should, therefore, recommend waiting a day or two rather than sow too early. Sow thinly in drills, and transplant to the south side of a thick hedge as soon as the plants are large enough to handle safely. A stout Thorn or Yew hedge is better than a wall as regards protection, as it shelters without forcing the plants in any way. Plants growing at the foot of a south wall may, in cold, bright weather in winter be injured by the refraction of the sun's warmth from the wall, but the temperature at the foot of a hedge would be steady and as genial as the case required, especially when sheltered by a few Fern fronds or evergreen branches. The alternate thawing and freezing of young plants at the foot of a south wall often has an injurious effect.

Those who have a glazed frame or two to spare may delay sowing till the middle of September, and there will then be little danger of their bolting. The plants, too, when large enough to handle may be transplanted into other frames to pass the winter, and be planted on a south border in March. The warmth of the south border when steady and progressive in early spring is of real help in forwarding early crops.

Where artificial heat can be had regular and moderate from Christmas onwards, there is no particular occasion to sow Cauliflower seeds before the new year. I have sown them in frames in a night temperature of from 50° to 60°, pricked them off when large enough to handle singly into small pots, grown them on shelves near the glass, and planted them out in March and April, according to the character of the season and the means of shelter available, and have cut Cauliflowers from the forced plants before those sown in August in the old way were ready. The trouble, too, is but little when there is space under glass. The space occupied by 500 or 1000 little pots is not much.

E. Hobday.

Tomato Wonder of Italy.—In The Garden (p. 51) is published the result of the Tomato trials made at the Ohio Experimental Station, at the end of which the compiler states that "the Tomato Wonder of Italy" (introduced by our firm) "is small and worthless." As far as mere size is concerned, we agree with him, the fruit being pear-shaped and from 2 inches to 2½ inches long. We, however, disagree entirely with him as to its being worthless. On the contrary, it is not only not worthless, but highly valuable. Were it not valuable, hundreds of acres in the environs of Naples, for which a high rent is paid, would not be annually cropped with it. In fact, Wonder of Italy is one of the most productive of Tomatoes, an average crop of it being about 35 tons per acre [?] It must therefore, we think, be admitted that a variety producing such crops cannot be quite worthless. Either it has not been tried fairly or the variety has not been true to name. Its fruit is all one mass of flesh with but few seeds, a circumstance which makes it valuable for conserves. This Tomato is very early, and does not suffer from those diseases to which other varieties are subject. It is also dwarf. It is true that, owing to its belonging to the small-fruited class, it is not so good as some others for table use, but for conserves it is, as we have said, excellent.—Dammann & Co., *Naples*.

VEGETABLES AND THE SEASON.

In March and April vegetables were very backward and most unpromising, but they progressed wonderfully in June and July, and of late I have seen more really good vegetables exhibited than I ever remember having seen before at this season. Carrots, Turnips, Potatoes, and roots generally are unusually fine, and Cauliflowers, Cabbages, and other greens are luxuriant and abundant. Onions were very late in beginning to bulb, but they have done wonders since they began, and spring-sown bulbs 12 inches in circumference are now plentiful. As to autumn-sown Onions, I never saw them finer. A dozen bulbs shown from here, to which a first prize was awarded at Cardiff last week, weighed 16 lbs., and they were solid and well formed. There were many complaints in the early summer months respecting the deficiency of vegetables, but there is no lack of them now, and they promise to be unusually plentiful throughout the autumn.

I cannot remember the time when, in the middle of August, there were no instances of Potato disease, but as yet I have not seen a diseased Potato. Crops of this esculent are very good indeed, the tubers being abundant, large in size, and fine in quality. Wet weather might bring disease amongst the late crops, but early ones are now out of danger, and the sooner they are dug up and harvested now the better. When matured they are not apt to become diseased if left in the ground, but, at the same time, they are better under protection; we are therefore pushing on with the storing of our crops as fast as the weather will allow us.

Runner Beans are always preferred to the dwarf varieties, and as soon as they can be obtained the demand for such sorts as Canadian Wonder ceases. But runners are now producing pods in such quantities, that it is almost impossible to use them as fast as they become ready, especially where no marketing is done, and if the old pods are allowed to remain on them after they become too old for use, they will soon cause the young ones to cease forming. Nothing brings Beans to a standstill quicker than this, and therefore whenever a long succession of tender young pods is desired from one row or a small space, the pods should all be gathered as soon as they become fit for use. It would be better to gather and throw them away than allow them to remain and terminate the pod-bearing properties of the plants. We often hear of Kidney Beans being very prolific for a time and then suddenly becoming unfruitful; the cause of this may easily be found in the clusters of overgrown fruit seen on the plants. A short time ago a row of our Sweet Peas ceased flowering when the plants were covered with seed-pods. These were all gathered and the plants are again in full flower, and this is what happens in the case of all Beans and Peas which are allowed to carry quantities of matured pods. Where late rows of Kidney Beans are grown these will keep up a supply during September and October; but where the August-bearing plants are expected to produce tender young pods during the months named, do not on any account allow old pods to remain on them.

Yellow Turnips are greater favourites in the north than in the south, but they have much to recommend them everywhere; they are very hardy, they succeed well sown late, and bulb freely in October and November. They bear severe weather better than any of the white ones, and they are always tender and well flavoured. Their colour is the only point that is supposed to be against them, and that is nothing. We have known some cooks to refuse all Turnips but white-fleshed ones; others, on

the contrary, were always pleased to have yellow ones, especially in winter, and I would advise all who desire to have a good supply of Turnips from October until April to at once sow a large quarter of the Orange Jelly variety. There is now plenty of vacant ground from which Potatoes and other crops have been recently removed, and a portion of such ground may very profitably be devoted to yellow Turnips.

Margam, Port Talbot. J. Muir.

The Celery fly.—There seems to be no cure for this troublesome pest beyond the somewhat drastic one of stamping it out by destroying the crop, or, at least, seriously injuring it by picking off and burning the leaves containing the maggot. I think, however, that its appearance may be prevented if taken in time and the plants are dressed with something to make them distasteful to it, but to be effectual it should be applied before the eggs are laid. Syringing the rows with soapsuds and dusting the plants afterwards with soot will generally keep the fly at a distance, especially if repeated once or twice during the time when it is depositing its eggs. Then a solution of Gishurst compound may be used instead of soapsuds, and tobacco powder instead of soot as alternative treatment. In neither case is the expense or trouble very great, and all the ingredients have some manurial value. The eggs are laid by puncturing the leaves, which, as the grubs grow, appear to be blistered, and when the grubs have attained full size they descend to the earth, where they remain in the chrysalis state till the following spring. They then are transformed into the perfect insect. Being encased within the folds of the leaf, there seems to be no means of getting at them with either washes or powders, but if the plants are made distasteful in the way suggested, the eggs will not be deposited. —E. Hobday.

Dwarf French Beans.—One of the finest and most prolific of dwarf Beans is the Long-podded Negro. So much has been said from time to time in favour of Canadian Wonder, and it has become so popular for show purposes, that it has largely ousted other kinds; still if cultivators will get a true stock of the Long-podded Negro and grow it, they will not be in a hurry henceforth to grow Canadian Wonder. The growth of Negro is robust, and the pods are long, straight, and handsome, and produced in great profusion. In dwarf Beans we want something more than show pods; we want flavour, tenderness, and, not least, prolificacy, and these will be found in the Long-podded Negro. I notice that in one seed list this kind is termed "Monster, Long-podded." The first appellation is both superfluous and misleading, as there is nothing of the monster whatever about even the finest dwarf French Beans, and such terms are misapplied. We have quite a score of kinds of dwarf Beans under name, but after all the differences among them are but slight. Three or four kinds will suffice for any garden. Some one kind gets more favoured for forcing than others, but so much depends upon the facility with which the blooms set in heat, that ofttimes success or failure is more due to treatment than to sorts. One good all-round kind very often answers well in all cases.—A. D.

SHORT NOTES.—KITCHEN.

Wilson's Royal Ashtop Potato.—I have for six weeks past been lifting what may be justly termed the prince of all Ashtop Potatoes, and this day I felt curious to know the turn-out per acre. I find, by careful measurement, it amounts to 9 tons, 5 cwt. 3 lbs. I am growing a few true old Ashtop, which is said to be better in quality. It need be, as the turn-out is ridiculously small compared with that of the one under notice. I have sent you a few as a sample.—R. Gilbert, *Burghley.*

*** The Potatoes sent by Mr. Gilbert were a very good and even sample, and the flavour—the only thing, we think, of much importance—was excellent—an old-fashioned kind of flavour, if anybody will understand what we mean by that. —Ed.

VEGETABLE MARROWS.

The Vegetable Marrow classes at exhibitions show that no one kind is favoured more than another, as is the case with most other vegetables. At a recent show at which I was engaged as judge I found twenty-two pairs of Marrows in one class, and of these no two seemed to be exactly of the same kind. Again, if we turn to the exhibitions of garden produce from the best private gardens, long, short, round, or Custard Marrows are invariably presented, but with this difference, that only white kinds are shown, whilst cottagers have just as much regard for green or mottled kinds as for white ones. Very probably, all other things being equal, it will be found that white kinds get the preference, but that is purely a matter of fancy, as when cooked it would be difficult to discover in what respect green-skinned kinds differed from white ones. Some kinds are more prolific than others; in one respect that may be so; the smaller fruited kinds produce more than large fruited ones, but in the end the balance of actual bulk is about the same. Of course, if the fruits of the longer or larger kinds be cut whilst small, the relief given to the plants favours more abundant fertility, but the best test of any plant's productive powers is found in leaving all its produce to mature fully, and then weighing the whole at the end of the season. In the market gardens the long white is preferred, and if somewhat ribbed all the better. Still, a nice green specimen or two is not objected to, as these produce variety and give some acceptable colour to the greengrocer's window. Cut whilst the skins are tender, Marrows soon become battered and disfigured. There are few directions in which reform is more needful in connection with market garden produce than our method of packing and getting it fresh and uninjured to the consumer. Some little divergence of opinion exists amongst good vegetable judges as to the proper size or age for prize Marrows. They may be too big in some cases, but if the skin is quite tender and the fruits even and handsome, it seems unfair that small fruits should be put before larger ones. It is a common rule to allow something for size in the case of cottagers' products, for these show by their exhibits that they think quantity to be of considerable merit. When, however, such kinds as Moore's Cream or the round Pen-y-byd are presented, of course size is out of the question, and here it is really one of quality and flavour. Marrows have become very popular; they are widely grown, and they prove valuable aids to the gardener during the summer months. A. D.

Late Peas.—Rows of Ne Plus Ultra sown on May the 20th are now (August the 14th) 7 feet high; the pods at the bottom are fit to gather, and higher up are younger pods and blossoms innumerable. This Pea, in my opinion, has no superior during this month and September. British Queen sown on June the 4th is now in blossom, and will carry us on as long as the weather is warm enough to cause the pods to fill. Duke of Albany sown on June the 4th is well loaded with beautiful green pods, the earliest of which are now fit to gather. This is a very handsome podded variety, and the pods are very deep green in colour. Huntingdonian, the best of the Champion of England section, sown in the middle of April, is producing a very profuse second blossom that will result in a very useful crop, though the pods will be smaller than those of the first crop. The late rains have been beneficial to Peas and Cauliflowers, but Potatoes and the grain crop want sunshine.—E. Hobday.

Loasa lateritia.—During summer this thrives well in the open. The seeds should be sown as soon as gathered in the autumn, and kept in an intermediate house throughout the winter, when some of the young plants may be transferred to larger pots for greenhouse decoration. Those to be kept under glass should have some slight support given them. They require to be cautiously handled, as the bristles, which are copious, secrete an acrid fluid, and inflict a peculiar sensation when touched with bare hands. Loasa bispida bears yellow flowers and has a more erect habit. It grows to the height of about 1½ feet.—W. H.

Trees and Shrubs.

SLOW *v.* FAST-GROWING CONIFERS.

It is stated in The Garden (p. 122) that the chief demerit in Thujopsis dolabrata is its slow growth. This statement is news to me, as I have always looked upon this superb Conifer as a gem of the first water, alike useful in the pinetum, the flower garden, as a screen or hedge tree, and last, but not least, as a lawn specimen in the villa garden. Moreover, it is as hardy as a common Oak, bears pruning to any extent, and is by no means fastidious as to soil, provided it is not waterlogged. The situation, however, which suits it best, at least with me, is on the side or near the foot of a slope where moisture is always present, and the soil, a strong calcareous loam, is not easily affected by drought. In a situation of this description, although the tree grows slowly at first, it makes good progress when fairly established, as the following particulars will show. My first tree was planted out in stiff loam resting on limestone in 1867. It has not been disturbed or protected, has withstood 34° of frost, and now measures 18 feet in height and 9 feet in diameter close to the turf. The tree, as is its habit, for the first few years threw out side leaders, but these were regularly shortened whenever they appeared, and it is now a dense cone as handsome as the finest Lycopod ever grown.

If "G." requires fast-growing Conifers, the great American continent, independently of Japan, leaves him no lack of choice, as he has the Pines and Piceas, the Abies and Wellingtonias to select from, and, be his garden large or small, I shall be taken by surprise if he asserts that he has not found more than one suitable spot for Thujopsis dolabrata. If the landscape planter takes in acres or scores of acres, his arboreal picture will be incomplete without this, and most likely the variegated form, an equally good grower, worked in with Bamboos and Japanese Maples. If the flower gardener wishes to break away from the everlasting flats of bedding plants, let him introduce good sized trees of Thujopsis, 2 feet, 3 feet, or 4 feet apart, and fill in with flowering plants. If perchance he has a sloping bank or a group of rockwork, what so graceful and refreshing as the dwarf compact Thujopsis dolabrata læte virens? If the villa gardener wishes to get away from his cockneyism, let him eschew the Californian giants, and spare his friends' nerves by planting comparatively slow-growing Conifers of which I will name a dozen.

The hatchet-leaved Thujopsis is one, Thuja elegantissima is another. The Plum-fruited Yew (Prumnopitys elegans) comes next, and although a native of Chili, it is quite hardy, and contrasts well with the greenish bronze of the first and the rich gold of the second. Cryptomeria elegans, bright green in summer and rich plum colour in winter, must not be omitted, and Abies orientalis may be its companion, but not too near the house, as either of these will attain 20 feet in good loam in as many years. Then to tone down the colour, the soft, lovely grey Abies Hookeriana or Pattoniana, A. Tsuga and A. T. nana may be introduced with telling effect. These Abies make delightful lawn specimens, and ought to be in every collection or selection, be the garden large or small, but, judging from the fact that they are seldom met with, we may assume that they are not known, otherwise Wellingtonias within 20 yards of the hall door would not be so frequently seen as they are swamping the villa grounds. If the planter wishes to shut out a neighbour, the kitchen garden, or buildings, and true Pines are to be represented, P. Cembra may be introduced with telling effect, and by way of adding the finishing touches of graceful form and bright colour to the foreground, the Retinosporas are indispensable. These may be had in green and grey, in gold and silver, but, unfortunately, they are not quite at home on all soils. With me they did not succeed on our cold calcareous loam, but by excavating and forming stations with lighter soil from the igneous

rock formation to which a little ordinary peat was added, they have settled down into satisfactory growth in the most exposed situations.
Eastnor Castle, Ledbury. W. Coleman.

VARIETIES OF HEATHER.

Most of our hardy Heaths are represented by several well-marked varieties, but the most prolific in this respect is the common Ling or Heather (Erica vulgaris), some of the forms of which differ widely from each other and from the type. A selection of the most prominent among the several varieties would include the following: dumosa rubra, a low, dense, but upright-habited kind, with slender spikes of deep coloured blossoms; alba minor, in habit like the preceding, but with pure white blossoms. In rigida alba the flowers are also white, but the plant is more spreading and the spikes of bloom larger. In pubescens alba the foliage is covered with a hoary pubescence, which stamps it as a distinct and peculiar kind. Another white-flowered variety is Searlei, a fine bold form especially valuable on account of its being a late flowerer. A good deep coloured variety is coccinea, and the pretty little slender-habited tenuis is yet another well worthy of mention. One of the boldest growing of all is Alporti, with deep purple blossoms. This kind is the latest of all to bloom, and forms a good companion to Searlei. The double blossoms of flore-plena are not so showy as some of the others at a little distance, but nearer they can be seen to be decidedly double. Varieties possessing peculiarities of foliage or habit rather than the flowers would include pygmæa, which forms a dense cushion-like mass of a very deep green colour. So widely does this differ from the ordinary kind, that it resembles a cushion of Moss rather than a form of Heather. In aurea the foliage is of a golden tint, but I have met with a couple of very distinct varieties under this name, one being a bright yellow, and the other much deeper in colour; in fact, a sort of bronzy orange. This is a dwarf kind, and if planted alternately with the deep green pygmæa forms a good edging to beds of the larger kinds. The variety variegata is readily distinguished by the normal foliage being interspersed with leaves almost, if not quite, white. Unless required in large quantities the propagation of most of these Heaths is a simple affair, for the plants can generally be divided without trouble, and where such is not the case, from their close proximity to the ground a branch or two can be readily layered. T.

Holly berries.—Like "G. S. S.," I have seen old Holly berries on the trees in July. I only, however, remember seeing them once, and that was three years ago on a specimen in the grounds here. This tree had nearly all the old berries on it and a crop of young ones at the same time—a circumstance, I believe, to be very unusual. Has anyone noticed that the trees which bear heavy crops of fruit for a few years either get much weakened or die outright? This is the case with trees on this place.—J. C. C.

The Bladder Senna (Colutea arborescens).—For hot and sandy soils I know no flowering shrub that will surpass this, as even during dry seasons it will flower throughout the entire summer. Though the individual blooms are not so showy as those of many other Pea-flowered shrubs, they are very welcome at the time they make their appearance, besides which the curious bladder-like pods add another feature to the plant. As seedlings are raised plentifully in this country, there is a good deal of variety to be found amongst them, some having green pods even when ripe, while the majority are of a reddish hue. There are several varieties to be found in different lists, but the most widely removed from C. arborescens is that known as cruenta, whose orange-red flowers are quite distinct from the yellow ones of arborescens. The pods of cruenta, too, are much deeper, being of a bright, sometimes cherry-red, tint, and are then most conspicuous during sunshine. The foliage of cruenta is somewhat smaller than that of arborescens, and of rather a glaucous hue. These kinds are quite sufficient for the planter, as representing the two extreme forms, for the different intermediate tints which may be picked out from a bed of seedlings give too much of a sameness. These Bladder Sennas are old inhabitants of gardens, C. arborescens having been mentioned by Parkinson, while C. cruenta was introduced during the early part of the last century.—H. P.

BIRCH AS A SCREEN TREE.

We get a very various collection of trees recommended for screen planting, but I do not see enough said about the Birch. There are plenty who go in for Evergreens and also for such free-growing trees as the Poplar. There are many qualifications possessed by the Birch which none of these have. In situations where screens or wind breaks are wanted, it is clear that a very important consideration is to have a tree which is not liable to be torn about by the winds. Another thing is to have one which by its habit will afford protection down to the ground level. The commonest classes of trees which grow on a single stem are deficient in this respect, as there are very few which are feathered to the ground. The Birch, springing up, as it does, more in bush form with several stems from a stool, will very soon fill up space admirably, as if planted in belts some three rows deep and arranged in a zig-zag manner, the openings between the stools in the front row will be filled by the base of the tree in the second. This, of course, would apply to a great extent to all trees which have a bushy habit, but especially so to the Birch. Perhaps the greatest recommendation of the Birch is the beauty of its stems after a few years' growth. When, as I have said, the trees are arranged in belts two or three deep, the effect of the silver bark, as the stems incline at all angles, and the ramification of the smaller branches is hardly to be equalled. This applies to the winter aspect, but it is increased tenfold by the foliage during the summer. Another point about the Birch is that it does not grow to a very great height, and the stems do not reach a very large size. In certain classes of screen-planting it may be quite in character to employ trees which grow to towering heights and large sizes, but this is only for comparatively distant effects. For planting in proximity to residences such trees would be highly objectionable, as the portion of the tree which should really form the screen is away up in the air where it is not wanted, and there is the very appreciable danger of the whole thing being blown across the house with the chance of destroying property and perhaps life. With a tree like the Birch neither of these disadvantages exist, as the windbreak is where it is wanted, *i.e.*, near the ground, and the sizes of the trees are so small relatively, that very little risk is incurred even if they are planted near enough to buildings to fall upon them if blown over. In fact, I look upon the Birch as a *multum in parvo* to planters who have limited spaces to deal with and soils very diverse. There is no doubt that the Birch, like the Alder, will grow faster and to a larger size upon moderately moist sites, but it does not refuse to make progress in places the very reverse. In these remarks the term screen has been principally adopted in the sense of windbreak, and the value of Birch in this respect considered, but what is true of this part of the subject is true of it as a screen to shut out blotches in the landscape or to render lawns or premises more private. It is, perhaps, already used more in this direction than in the other, but it is equally suitable for both. The circumstance of its being devoid of leaves during the winter is from any point of view of little importance, and from some points it is a factor in its favour. It cannot be denied that, however grateful the green may be in the dull months, there is a certain monotony in the constant presence of foliage, but in the case of the Birch there is, as the seasons roll on, a never-ceasing succession of effect. D.

Olearia Haasti.—This beautiful hardy shrub is now in great beauty in the gardens of Mr Buchan, Wilton House, Southampton. It is a close-growing compact bush with small glaucous grey leaves and pure white flowers, produced in profusion. It blooms when only a few inches high, lasts a long time in flower, and continues to increase in beauty with size and age. How is it that this plant is so seldom seen? The genus is allied to Eurybia, a native, I believe, of New Zealand.—W. H. G.

SURFACE-DRESSING RHODODENDRONS.

Our latest additions to our collection of Rhododendrons have been The Queen, James Mason, Helen Waterer, and a few others—all certainly improvements on older kinds. Previous to The Queen, Alarm and Minnie were our best Rhododendrons, both of which The Queen surpasses. This variety may not, perhaps, flower so freely as the older sorts, but the flowers have better substance, are better in form, and the truss is bold and massive. James Mason is a striking flower, on account of its having a light centre and a bright scarlet edging. The habit of the plant, too, is good, and the blossoms freely produced. Helen Waterer is a fascinating variety, the flowers of which have a white ground colour margined with bright crimson. In my opinion, this is one of the most striking of Rhododendrons; but for making bold masses, it is very doubtful if we shall get any better than the kinds which we already possess. In John Waterer we have a variety capable of producing the most glowing masses of crimson imaginable; in Joseph Whitworth we have a grand purple-shaded flower; and in conces-um roseum the most beautiful of rose colours. Brayanum and Blandyanum are two well-known crimsons that have held their own amongst many rivals. Maculatum purpureum is a light purple; Mrs. John Penn, salmon-pink; Mrs. Thomas Brassey, white, shaded purple; Baron Schröder, plum colour; Countess of Headfort, lilac; and Crown Prince, rose with a yellow blotch. Without asserting that the sorts just named are the very best, I can say with truth that they are a selection that will disappoint no one. We have a few plants of the oldest of the arboreum section, with which I have had to deal tenderly long ago. The soil (which was made for them) has been exhausted during the last twenty years; they have been surface-dressed twice, and now they require that help again. Such surface dressings give them a new lease of life for at least a few years; the improvement in their condition the first year is not much, but the second it is more marked, and in the third and fourth their vigour seems to be quite restored. Our natural staple for this class of plants is loam, in which they thrive wonderfully well. Our largest specimen requires four good cartloads of loam for one dressing. It is spread all over its roots, and the plant is worth such dressings, for it is more than 30 feet high, and has a proportionate spread of branches. It would have been dead before now had it not been attended to in this way, while it is as vigorous now as ever it has been.

My experience as regards surface dressing Rhododendrons would certainly lead me to adopt the same plan in other cases in which there is decline in the way of vigour. Where the specimens are large, a mere sprinkle either of peat or loam is comparatively useless. Sufficient thickness of new soil is wanted to afford room for the formation of a good quantity of new roots, and then the benefit will be lasting. It will be well to remember, too, that the roots in a suitable medium extend farther than the branches; therefore, in order to benefit the outermost fibres, the new soil must also extend beyond them. Plants growing in the natural soil of any place may not need to be surface-dressed in order to maintain vigour, as the roots will have room to extend in a suitable soil; but where the soil has been made for them, and become exhausted, top dressing, as a remedy, might be resorted to with advantage. Where peat has to be used for surface-dressing, I should advise that it be beaten up rather fine and laid on early in September, so that the autumn rains may settle it down, and enable the roots to lay hold of it quickly. If applied in spring or during the summer, birds would probably scratch much of it away from the roots; as a rule, whatever the material used may be, it should be laid on 3 inches thick. With regard to plants that are grafted or obtained by layers, I do not know if my experience is different from that of other people; but I certainly prefer layered plants to others, because they are longest lived. At all events we have los

more grafted plants than others. Why this should be I cannot tell, further than that I believe the top dies before the roots, which seems to show a want of reciprocity between the two. Perhaps some reader of THE GARDEN can throw some light on this matter. In other respects I like grafted plants as well as others. They will sometimes throw up suckers from the crown below the graft; but an experienced eye can soon detect them and cut them out. The plants should be gone over every year at blooming time for this purpose.

On the subject of pruning some misapprehension seems to exist in the mind of amateurs; they appear to think that hybrid Rhododendrons will submit to being pruned the same as a common Laurel, and to a certain extent this is true. If we prune back only the young wood, it will break freely into growth again; but it is impossible to prune Rhododendrons without sacrificing one or more season's crop of flowers. If young branches only are cut back, then only one season's flowers will be lost; but if old hard wood has to be dealt with, it will take two or three years before new growth produces any flowers. Where old plants have to be pruned, the best plan is to cut all the branches down to within 2 feet of the ground. This should be done at the end of February, and then they will have a long season before them in which to make new growth, and it will have time to get hardened before winter; but in a general way it is best not to prune them at all. If in any case the plants have outgrown their space, it will generally prove more satisfactory to root them out and plant young ones than retain them. It is useless to cut down some of the old branches and leave some, because those left will rob those cut back, and they will die. Therefore it must be all or none. Rhododendrons make good single specimens on grass when suitable varieties for such positions are selected. It is necessary to know something of their habit of growth, some being loose and straggling. Sorts with short-jointed growth and a compact habit are the most suitable for such situations. Brayanum (crimson), Duc de Brabant (salmon-tinted white), Everestianum (rosy lilac), Exquisite (white), Nero (purple), and Vandyke (bright red) are all good kinds for the purpose named. J. C. C.

GARDEN IN THE HOUSE.

WHITE-FLOWERED PLANTS.

I FEEL satisfied that if we were to go carefully through the list of hardy plants and shrubs that bear white flowers there would be found a greater number than many are aware of. Not many white flowers can be had during the first two months of the year. But if one makes a speciality of the Christmas Roses and plants them in a warm sheltered corner, and puts a few handlights over them, there will be no scarcity, except in very severe weather. Double and single Snowdrops should also be largely planted in warm borders. In February the common white Arabis commences to flower. In March and April the number will increase. Double white Daisies and Primroses, Forget me nots, and Hyacinths will be well in flower if proper provision has been made for them. The pretty double white Anemone flowers in April; anybody can grow it, as it is indifferent about soil, sun, or shade, and no flower, either exotic or hardy, is purer in colour. A wreath or cross made wholly of this, associated with its own leaves as greenery, cannot fail to give satisfaction. In May and June there will be quite a wealth of white hardy flowers. The common garden Pink will be the first, and then should follow the white variety of East Lothian Stock, which is pure in colour and compact in growth. Lily of the Valley should form a strong feature; there should be a bed of it on a sunny border, and another in the shade of a north wall, which will make a difference of three weeks in their coming into flower. The double white Rocket should find a home in every garden, as its flowers are very fragrant, and if the individual blossoms are mounted on wires they are well suited for wreath making. In July and August there should be no scarcity of flowers. Roses should be plentiful, especially of such varieties as Boule de Neige and Aimée Vibert, both of which may be grown in any form desired. The last-named is an excellent climber for a wall of moderate height; it also does well as a standard. The other may be grown as a dwarf plant or standard. There are several capital herbaceous plants which flower in these two months. The white Phlox is one of them, but the two best are Achillea Ptarmica fl.-pl. and Campanula persicifolia alba. The Achillea is a hardy plant, which will thrive in any kind of soil. Its blossoms are pure white, and last long when cut; the Campanula, too, is both hardy and beautiful. It produces a number of blossoms of the purest white at intervals on erect stems. Nor must we omit Carnations, amongst which there are several fine white varieties. Saxifraga granulata and Spiræa Aruncus are also desirable plants; a wreath or cross made wholly with Lilium candidum would be very attractive, and everybody can grow it, if they do not plant the bulbs more than 2 inches under the surface, and choose a sunny spot for it. There are several annuals, too, which may be had in flower during the summer, particularly Sweet Peas, Candytufts, and double white Chrysanthemums. In order to furnish white flowers during September, everyone should grow the beautiful Anemone Honorine Jobert. It is not only a handsome plant when grown in masses, but its flowers are useful in a cut state. There are also one or two French Chrysanthemum-flowered Asters, the flowers of which, being snowy white, are admirably adapted for wreaths and crosses. These are grown in quantities by those who require white flowers in autumn, as is also a white Pompon Dahlia named Lady Blanche, which produces large numbers of flowers on individual plants. So highly is this little Dahlia valued by some, that it is grown in large pots, to enable the plants to be taken under glass on the approach of frost in autumn. If stood in a light, airy house, their season of flowering is prolonged for three weeks or more, and the colour of the flowers is whiter than that of those grown in the open.

For the late autumn months we must depend chiefly on Chrysanthemums, and if anyone sets about it in the right way, they can have a constant supply of them from the 1st of September until the end of November. Madame Desgrange is the best variety to grow for early flowering. The colour of its flowers is not pure white when grown in the open, but it flowers so early and so freely, that it makes up in some measure for that defect. Most people, moreover, could manage to find a few spare lights under which to grow it. We have only to mark out the size of the lights on a piece of ground that is fairly rich, warm, and sheltered, and to put out the plants 2 feet apart early in spring, and allow them to grow on without stopping, as strong growth is desirable. They must be supplied with water when necessary, and they will want the support of some sticks and ties to keep them from being injured by wind; and this is all the trouble they will give during summer. As soon as the flowers begin to show colour, which is generally about the end of August, a temporary framework of wood should be placed round them, strong enough to support the lights, which should be only a few inches above the plants. This is the only protection they want. The space all round should be left open, so that air can circulate amongst them. La Vierge is a good white variety belonging to the early-flowering section, if more than one is wanted. In order to get white Chrysanthemums as late as it is possible to have them, a variety from the late-flowering section must be chosen, and the best for this purpose is Mrs. George Rundle, on account of the purity of the colour of the flowers, as well as for the freedom with which they are produced. The best way in which to grow it is to plant it against a warm wall or fence, and to keep the plants neatly tied up during the summer time. As soon as they come into flower, a few mats should be hung up in front of them, or a piece of canvas to protect them from frost. There is no need to cover them up unless there are signs of frost; during the day the covering should be removed. Amongst hardy shrubs I may mention the lovely white Magnolia conspicua, which flowers so freely when trained to a wall in any but a north aspect; this flowers in April. In May and June there are white Lilac and the Guelder Rose (Viburnum Opulus), also Hoteia japonica; then there is Spiræa Thunbergi, with its long arching branches clothed with flowers at every bud. Nor must the double-blossomed Cherry be forgotten; its flowers are so clear and so neatly formed, that they make up admirably into wreaths. The white Jasmine, although its flowers are small, is still a favourite with many. Deutzia gracilis and D. scabra are two well-known hardy shrubs suitable for our purpose, as are also several Spiræas, especially S. ariæfolia. J. C. C.

NOTES FROM SHIPLEY HALL.

THE BEECHES.—One of the leading features in the grounds attached to Shipley Hall is the Beeches, of which there are large numbers of unusually fine trees, which stand irregularly on the ridge whereon the house is built. The trees collectively have attained a large size; they differ in character from examples of this tree usually met with in parks and pleasure grounds, which generally are furnished with drooping branches that clothe the trunks down to their base, such as result from their having in the early stages of their growth stood sufficiently far apart to admit of full development in the lower limbs. The trees in question have evidently been planted thickly and afterwards allowed to stand for a lengthened period near enough together to prevent the formation of side branches of any consequence, and when they had attained an unusual height have been thinned, after which they have formed massive spreading heads, whilst the trunks, straight and free from the semblance of branches for some 30 feet, have thickened out in a way that seldom occurs. The tallest are about 120 feet high.

HOLLIES.—Hollies thrive wonderfully and attain an immense size. The large-leaved varieties, such as Hodginsi and Shepherdi, show their remarkable freedom of growth. Of these, as of most of the best kinds, there are quantities of grand specimens dispersed about the grounds. Golden Queen and other golden varieties along with the best of the silver-leaved sorts are represented by large numbers of the most perfect specimens, the lower branches stretching out on the turf in a way that only occurs where the land suits them, and they have plenty of room and nothing to interfere with their growth.

EVERGREEN SHRUBS AND TREES.—The Retinosporas (Japan Cypresses) are special favourites here. The collection contains all the varieties worth growing, and, what is more, the plants continue to thrive, maintaining the densely clothed condition for which they are so much admired in the early stages of their existence, but which in so many places they unfortunately lose as soon as they attain any considerable height. From the fact that these beautiful plants are only met with in their best form in places where the soil is naturally moist, or where means are provided for giving them the water they require, it is evident that they not only need more moisture than the generality of Evergreens, but that to maintain them in a condition worth looking at when planted in dry localities they must in dry seasons be supplied with water. At Shipley Hall, I understand they are watered freely in dry periods during the summer. This points to the necessity of confining the planting of the Retinosporas to places where the soil is of a damp peaty nature, or localities where the annual rainfall is exceptionally heavy. A tree, however beautiful it may be, that will not continue to thrive with the water that it gets from the clouds can scarcely be reckoned suitable for planting everywhere. Anyone who has moved Retinosporas that have attained considerable size will have noticed how the roots in place of extending freely in the way common to other trees, keep in a compact body within a very limited space, crowding the soil for a few feet round the tree with a thick mass of feeding fibres, which are thus wholly dependent on the moisture present within a small space, and in this way soon exhaust that which is within their reach, and then are in a semi-perishing condition, which accounts for the thin, half-denuded of foliage state the plants usually get into when they have attained any size. In addition to the varieties usually met with there is

here a beautiful golden form of R. pisifera, much the brightest in colour that I have seen. R. obtusa aurea nana is 10 feet high; other varieties are proportionate in size to this. Amongst other golden-leaved Evergreens are several distinct varieties of Yew that have been raised in the Handsworth Nurseries; they are brighter in colour than the ordinary forms, and have a better and more erect habit of growth than most Yews. The largest of these is 16 feet in height. Interspersed, as they are, at sufficient distances apart amongst green-leaved trees, they are very effective. Abies Alcoquiana, planted six years ago, when about 4½ feet high, has now reached 16 feet. This handsome Japanese species promises to become one of the best of all the Spruce Firs.

Lilies are largely grown, quantities being dispersed about the pleasure grounds, occupying prominent positions in the large clumps of Evergreens, which serve as a background for the Lilies when in flower. Several large beds in the garden are filled with them. Two long beds were planted with L. auratum, one in autumn and one later on in the winter; the bulbs have done much the best that were put in first, the growth being double the size of that of those planted later, and they have come up more regularly; amongst them are some of the beautiful L. auratum platyphyllum, and also another fine variety, L. auratum vittatum rubrum. L. pardalinum, often supposed to require being grown in peat, does here well in the ordinary soil, reaching a height of 6 feet and increasing freely. L. Parryi is doing very well, flowering and increasing freely. This handsome yellow Lily can scarcely fail to become a favourite when it is better known.

Herbaceous plants.—Of these there is a nice collection, consisting of many of the most popular kinds. Noticeable amongst them are Spanish Irises, of which large quantities are dispersed about the garden. The soil seems to suit them, as they not only thrive and bloom well, but increase freely. Hyacinthus candicans does well; some that were planted four years ago, and have not been disturbed since, are remarkably strong. Herbaceous Pæonies also are well represented.

Plant houses.—In a large lofty conservatory, situated near the walled garden, many of the occupants are planted out in a roomy bed, which occupies the centre of the house, where, as usual under such conditions, the plants attain a large size. So treated, Neottopteris Nidus has leaves 6 feet long; whilst the scandent stems of Asparagus plumosus have attained some 20 feet in length In a narrow border running along the back wall several varieties of Bamboo are planted, and these, left to grow much as they will, make an excellent covering for the wall; the kinds are B. Metake, B. arundinacea, B. japonica, B. violescens, and B. nigra.

Fern house.—There is a fernery of considerable height adjoining the conservatory, in which the plants are turned out, the walls being covered with medium and small-growing kinds, that collectively are in fine condition. A long glass-covered way connects the house with the fernery; a portion of this next the mansion is kept gay with flowering and fine-leaved plants. In the remaining portion the walls on both sides are carried up to the roof, and are clothed with Ferns; here, as in the fernery, the plants are in beautiful order, with an absence of any that fail to thrive such as invariably exist where care has been wanting in confining the kinds to such as do not naturally grow to a size that causes them to smother the weaker growers. In the planting of ferneries in recent times, it is often apparent that there has been such a disposition to favour large-growing species, that the smaller and more elegant kinds did not get a chance of succeeding.

A warm house is principally devoted to the growth of small and medium sized Palms and other fine-leaved plants for general decorative purposes.

In a lean-to house, which is used for flowering Carnations early in spring and other things of a like nature, the singular-looking Lophospermum atrosanguineum (syn., Rhodochiton volubile) is grown on the roof, producing quantities of its curious dark-red flowers. It is an evergreen climber from Mexico, of quick, but not too rampant, growth, and, though seldom met with, it is well deserving a place, especially where climbers of strong vigorous habit are unsuitable. The spring-flowering Carnation W. P. Milner, a white variety with well-shaped flowers, full enough, but not so full as to cause the pods to split, is grown in quantity. Sir Beauchamp Seymour, salmon-red flaked with crimson, also comes in early in spring with a little warmth. These are both fine kinds, that may be relied on by those who have these favourite flowers to provide.

Orchids.—Amongst Orchids there is a good stock of Lælia anceps, which includes the white variety, and also one of the darkest-coloured forms that have appeared. A plant of this, after blooming at the usual season, is now again coming into flower. The cool kinds are represented by Odontoglossums and others that thrive in a like temperature.

Vines.—Fruit is well managed, as is evidenced by the success which Mr. Elphinstone has attained at most of the leading exhibitions. In three of the houses which it was thought desirable to replant the Vines have been pushed on this season so as to get the fruit ripe in time to admit of new Vines being planted; this has been done, and they have every appearance of making satisfactory progress before the end of the summer. In two of these houses Black Hamburgh and Madresfield Court are the principal kinds. In a house of Muscats three years planted the Vines have done very well, and are now carrying a good crop, nearly ripe. The latest house contains a very good crop coming on, consisting of Gros Maroc, Gros Colmar, Golden Queen, and Gros Guillaume.

Peaches and Figs. Peaches occupy three or four houses, which are high enough to admit of the trees on the back walls not being interfered with by those grown on the front trellises. The trees are in good condition, and in the case of those where the fruit was not cleared were carrying heavy crops. In the earliest house the fruit was ripe in April. Figs have a house to themselves. The varieties grown are Brown Turkey and Negro Largo; the latter fruits as freely as the former, but to secure this the roots are regulated annually. The trees were bearing an unusually heavy crop. T. B.

School gardens.—Can any of your readers tell us of experiments made with gardens as attached to schools, and whether the same have been a success or a failure? The school garden might become a most useful aid to education, and ought, as myself and others believe, to be made a *sine quâ non* in all rural and agricultural districts. My old friend Quibbler says that it is in the towns more especially that school children require gardens, and perhaps in a sense he is right, but, anywhere and everywhere, a good garden attached to a school, in good hands, would prove to be an ever-open book of knowledge, yielding a harvest of food for thought as well as of pleasure to the eye. If children were taught the names of all the common garden and field flowers, and such simple operations as tilling the ground, seed-sowing, and transplanting, they would never forget it, I feel sure. Quibbler says, if I want a garden to every school, somebody else will want a kitchen added, to teach the children cookery, and a carpenter's shop for the boys, &c., *ad infinitum!* But I do not quite see the point of his argument here, for all the girls will not be cooks, nor all the boys carpenters; whereas every thrifty artisan or labourer indeed ought to have a garden. Gardening is, as I take it, without a doubt the most simple and natural kind of amusement with which a man may beguile his leisure, and whatever else he possesses in the world, after a good, sound and healthy house, ought to be a garden, either before or behind, but, if possible, the garden should form a sacred circle around the home.—F. W. B.

Garden Flora.

PLATE 558.

TALL GROWING WINDFLOWERS.

(WITH A COLOURED PLATE OF PINK AND WHITE JAPANESE VARIETIES.*)

Amongst hardy herbaceous plants few genera are more popular than the Windflowers, or Anemones, as they are botanically called. In point of size they vary from the little vernalis or palmata to the gigantic A. Fannini lately introduced from Natal, where it blossoms from September until December. Its flowers are white and fragrant, about 3 inches in diameter, and its leaves measure from 1 foot to 2 feet across. It is likely to prove a useful plant for cool conservatory decoration, *i.e.*, if planted out and room given for proper development. Anemones of the coronaria and fulgens groups belong to quite another class, and require different treatment. We shall therefore in the following account confine our remarks to the tall-growing species, which are of a permanent character and suitable for borders. They like deep rich soil, and it must be well drained, especially for kinds that need a little shade. These conditions being provided, the less they are disturbed the better will they be. Most of them are easily propagated by root division and seeds, which they generally ripen freely, and which will germinate if sown in the open ground as soon as gathered.

Anemone alpina.—This, although one of the commonest of South European plants, being found on almost every great mountain and forming one of the roots generally gathered by tourists, is not so often met with in gardens as it deserves to be, a circumstance probably accounted for by its slow growth and the dislike to which it has to being disturbed. It is very variable, and by some botanists split up into many species. In strong soils it is very liable to be abnormal in form, adding rather than detracting from its value, as the number of segments is often thereby increased from six to nine, or even a dozen. It grows from 1 foot to 2 feet in height, roots strongly, and should have a deep, well-drained soil in which to grow in a sunny part of the rockery or ordinary border. Its flowers, which are few in an umbel, are creamy white inside and pale purplish outside, from 2 inches to 3 inches in diameter, and set on finely cut Fern-like leaves at the base of the umbel; the lower leaves, which are large, are finely divided. A variety called sulphurea has pale lemon or sulphur-coloured flowers, and is also a good border plant. Both flower in April and May, and the type has been cultivated in the Oxford Botanic Garden since 1658.

A. japonica, two varieties of which are here figured, is undoubtedly the finest of the tall-growing Anemones. It is a native of damp woods on a mountain called Kifune, in the neighbourhood of Miaho, Japan, and was first introduced to this country by Fortune. We have not heard of any attempts having been made to naturalise it in our wild gardens, but, if started well and left undisturbed, we see no reason why it should not become as much at home as our own wood Anemone (A. nemorosa) and its varieties. If disturbed, this Anemone not unfrequently takes two and even three years to recover from the effects of the interference. Our plan, and one which we think a good one, is to plant the offsets in deep boxes in good rich soil, and when well established, plant out the whole without breaking up the soil. Even for greenhouse decoration this plant is not nearly

* Drawn in Dr. Lowe's garden, Woodcote, Wimbledon Park, September 12, 1885.

THE PINK AND WHITE JAPANESE ANEMONE JAPONICA

so often used as it ought to be; it flowers freely in pots when well attended to with liquid manure, and blooms earlier than in the open; by a little management, too, in keeping back a portion of the stock, a succession of plants in flower may be had for a considerable time. There can be no

Anemone japonica alba.

question about the value of this Anemone and its varieties as hardy decorative plants; large clumps of them are strikingly effective all through the autumn months. The white variety, Honorine Jobert, is particularly handsome and easily managed; the secret of success lies in having a good deep bed of rich soil, and afterwards leaving the plants alone. If they show signs of degeneration at any time, supply what is needful either in the shape of liquid manure or top-dressing. Another variety called rubra, much deeper in colour than that recognised as the type, and generally with

Anemone sylvestris.

twice the number of segments, is also a desirable subject. It is more compact in habit, and has smaller flowers than the true A. japonica.

A. NARCISSIFLORA.—The annexed cut shows th habit and general appearance of this plant, whic is one of the freest-flowering species in the grou to which it belongs, each stem carrying a large head of beautiful delicate white flowers set on an involucre and making quite a charming bouquet in itself. It does well in the ordinary border, and with a little attention in the way of grouping it properly, it makes a grand show in early summer. It is said to be connected with A. polyanthes by intermediate forms, none of which, however, we have seen in cultivation. It is dwarfer in growth than that kind, rarely attaining more than a foot in height; the leaves are palmately five-parted, and the divisions are deeply cut into narrow or linear lobes. It has a wide distribution, being found on the Alps of Central and South Europe, Western Asia, Siberia, North-west America, and also in Cashmere.

A. OBTUSILOBA.—This species, if in cultivation at all at the present time, is very rare, although common at one time in good collections. It is nearly allied to A. polyanthes, but in its present state not nearly so valuable a decorative plant. It appears, however, judging by descriptions, to be very variable in colour, and if taken well in hand something could no doubt be made of it. The flowers are white, purplish, or golden, the latter two colours being very desirable in a tall Windflower that succeeds the Globe-flowers and Crowfoots. It grows from 1 foot to 2 feet high, and bears a few three-flowered stems, making a good and desirable plant. The lower leaves are stalked, nearly round, and deeply cordate, and three-parted, the divisions variously cut and lobed. It is a native of the temperate and alpine Himalayas from Cashmere to Sikkim, and is found at 9000 feet to 15,000 feet elevation. We hope soon to see this plant introduced.

Anemone narcissiflora.

A. POLYANTHES.—So far as our knowledge of Himalayan Windflowers extends, we know of none more worthy of a place in the flower garden or rockery than this white starry form. It has a sufficiently high elevation from 10,000 feet to 12,000 feet to withstand all the vicissitudes of our climate, and as it does not seem to be at all particular as to position, it will, when better known, make a first-rate companion to the well-known Japanese plant. It generally begins to flower a month earlier than A. japonica, and continues in bloom until that species succeeds it. In a low, damp, and half-shady position it attains a greater height than in the open, ranging from 18 inches to 2½ feet, and bearing a profusion of flowers, if equalled, certainly not surpassed, in quantity by that of A. japonica. This species has been confounded with that bearing the name of A. obtusiloba, but it is a far better garden plant than obtusiloba: while the latter bears only from one to three flowers in a head, there are rarely less than a dozen on A. polyanthes; the latter has much compressed and generally winged achenes, while in the other they are rarely if ever compressed, and the achenes have no wings. The whole plant is densely silky; the leaves are from five to seven-lobed, about 4 inches in diameter, and have long petioles. The flowers are large, about 2 inches in diameter, white, many in an umbel, and very showy; the involucre leaves are variable and more or less divided. It is sometimes stated to be a form of A. narcissiflora, which also extends to the Himalayas, but it is distinct enough for all cultural purposes. It flowers in June and July, sometimes earlier, and may be increased by division of the roots in autumn. The most satisfactory plan, however, is to raise it from seeds, which it ripens in abundance, and these sown in the open when gathered give no more trouble until they are ready for pricking off or planting out. It is a native of the inner Himalayas from Cashmere to Sikkim.

A. RIVULARIS.—This is a well-known garden plant, and a good companion to A. polyanthes, vitifolia, and others belonging to the tall-growing section. It is perhaps one of the easiest of Anemones to grow. It makes an excellent border plant, and is not at all particular whether the position be shady or not. When fully exposed it is much sturdier than in shade, and if anything more floriferous. The roots do not run so much as in some of the others; therefore it is less troublesome to keep in its proper place. The whole plant is covered more or less with a silky pubescence. The root-stock is stout, the lower

leaves three-parted, and the segments lobed and evenly serrate. It grows from 1 foot to 3 feet in height, branched, and bearing flattish heads of many flowers, each from 1 inch to 2 inches in diameter. They are star-shaped, white and often bluish tinted inside; the involucre leaves are large, and, like the others, three-parted. A monstrous form, with the inflorescence or leafy umbel often 6 inches in diameter, is said to be common in the Western Himalayas, but we have never seen it in cultivation. It flowers in early summer, and is said to be one of the most common plants in the temperate regions of India and Ceylon.

A. sylvestris.—This Snowdrop Windflower is a charming free-growing species, and one that should be in every collection, however small. In small borders it is apt, however, to become troublesome. It should have plenty of room in which to run about, and is an excellent plant for filling up odd corners. A sunny spot in the wood or wild garden suits it admirably, and there it soon makes a large patch. It flowers early in May, and the blossoms are followed in June by a display of white woolly seeds, which hang loosely together for a considerable time. It grows a foot or rarely more in height, producing on each stem one—seldom two—large white flowers, which in the bud state resemble Snowdrops; hence the common name. The involucre leaves are generally more finely divided than those lower down. It is propagated by offsets from the root, which may be planted where desired as soon as taken off. The annexed cut shows its habit of growth. It is a native of Central Europe and Siberia.

A. virginiana.—This is an American species, robust and unruly in habit, and suitable only for the woodland garden, where it will be found able to take care of itself. It produces a succession of flowers during the whole of the summer. Its near ally, A. pennsylvanica, is also a useful plant for the purpose just indicated. Its flowers are large, pure white, and striking.

A. vitifolia.—This species is found plentifully in Nepaul, where it is said to be one of the most common of native flowers. Although a very desirable border plant, flowering a fortnight or more earlier than A. japonica, and as easy to cultivate, it seems to be getting rapidly out of cultivation. The plant found in gardens under this name is generally a form of A. japonica, which it somewhat resembles in habit, but is widely different both in flowers and leaves. It seems to thrive best in a half-shady moist situation, or where the soil is stiff it will do well in the open, but it requires slight protection in severe weather. It varies in height from 1 foot to 3 feet, and is much branched. The lower leaves, which are very handsome, are from 5 inches to 8 inches in diameter, and deeply five-lobed. They are smooth above and densely covered with a white tomentum beneath. The involucre leaves, like the radical ones, are set on longish stalks and Vine-shaped. The flowers are about 2 inches in diameter, white, and in decompound flattened panicles. It may be propagated by division in autumn, but it increases very slowly; the offsets should be pricked off into a rich bed until ready for planting out. It is a native of the temperate Himalayas in Sikkim, but only in the inner ranges, from 5000 feet to 10,000 feet elevation. D. K.

NOTES.

The garden in August.—Bright yellow Composite flowers are waving in the warm breeze, with butterflies and bees in plenty on the soft lilac flower-heads of the Eupatorium, a plant that should certainly find a place along with Sedum spectabile in every insect-lover's garden. The gold-rayed Lilies and the shining trumpets of the long-flowered Lily of Japan are still lovely, as also are the vivid scarlet flowers of Lilium chalcedonicum, while a few odd flowers of L. excelsum (testaceum) yet linger in the shade. The Carnations are lovely on the borders, so, too, the Delphiniums, and a mass of Silene Schafta is like a rosy satin cushion laid on the ground in the sun. The showers have freshened up all things, and after planting out seedlings and rooted things many and varied, the almost everlasting labour of propagation is again begun afresh. Slips of all good hardy Carnations and Pinks, of Pentstemons, Veronicas, and Antirrhinums are now being planted in sand under handlights, where they will root and remain all the winter if weakly, being planted out as soon as they become rooted if strong. Most brilliant now are the scarlet Gladioli, the earliest Tiger Iris, and the Gaillardias as seen in the sun. Mutisia decurrens has been very effective, being one of the most vivid of all orange-scarlet flowers of its kind known to me. The single Dahlias are getting towards their best, and the white Japan Anemone is as ever most lovely. The best yellow Daisy is Helianthus rigidus, and Pentstemons and Campanula pyramidalis are in full bloom. On warms nights the garden is delightful, filled as it is with the breath of Musk and Mignonette, Jasmine, Myrtle, and Bergamot, Roses, Lavender and Thyme.

A Crocus Book.—In the tragedy of "Œdipus at Colonus" of Sophocles, as recently translated by Professor Jebb, of Cambridge, there occurs the following passage: "Stranger, in this land of goodly steeds, thou hast come to earth's fairest home, even to our white Colonus; where the nightingale, a constant guest, trills her clear note in the covert of green glades, dwelling amid the wine-dark Ivy and the god's inviolate bowers, rich in berries and fruit, unvisited by sun, unvexed by wind of any storm; where the reveller Dionysius ever walks the ground, companion of the nymphs that nursed him. And, fed of heavenly dew, the Narcissus blooms morn by morn with fair clusters, crown of the great goddesses from of yore; and *the Crocus blooms with golden beam.*" Go back far into times past as one may, we ever find the happy marriage of flowers and sunshine, but it is also pleasant to know of the progress of our own day also, and so it is pleasant to read in another place that, "After over eight years' work, Mr. G. Maw, of Benthall, has passed through the press his "Monograph on the Genus Crocus." The book will be one of the most exhaustive of its kind. The author has not only supplied the text, but has also furnished the illustrations—altogether eighty-one quarto plates. Besides these there is an elaborate map, showing the separate range of every species of Crocus; also diagrams of latitude and longitude, done on quite a novel plan." In a word, this modern tribute of intelligent thought is a noble offering to that brightest of our flowers of autumn and of the days of spring.

Wild Heather.—There is a purple veil of Heather once again on the hills, and it is wreathed as subtly around them as are the mists of dawn. The moors are carpeted with ruby colouring, and the bees are happy, for their richest harvest is that they win from the Heath and Ling. What a world of delights and of regrets also this blossoming of the wild Heather brings! Delight in rich sunny autumn days with the corn and fruit everywhere ripening. Regret that the halcyon days of summer are no more. And yet to anyone who has experienced the luxuriant sameness of the Tropics these constant changes in our climate are most satisfying and enchanting, and a ramble over the blossoming Heather becomes a positive delight. I saw to-day a tuft of Ling (Calluna vulgaris) growing in an Orchid house, it having come in with the peat a year or two ago. Every year it has flowered in the hothouse just at the same time as it would have done outside on the bleak moorland whence it came. No focussing of heat and sunshine under a glass roof has altered its blossoming. Again this year it is in bloom at its usual season with steadfast constancy. What if the Daffodils and Anemones and Apple blossoms have vanished for a season, are there not Apples large and rosy-cheeked now on every bough? Have we not the great Japan Lilies distilling their rich odours in the garden, and with them a hundred Daisy flowers waving over the grave where Narcissus sleeps, in certain hope of a beautiful resurrection in the spring?

Musk.—In many gardens Musk is, if grown at all, limited in its area to a flower-pot in the greenhouse or on the window-sill. In mild localities, however, it is quite hardy; indeed, it must be a cruel combination of cold wet soils and a hard winter that will actually kill its rhizomes anywhere. A broad carpet of Musk is now and then a good feature in the garden, but as it is extremely difficult of thorough eradication, it is as well to select a position where it cannot harm more delicate habited plants. One thing you may rely on most implicitly, and that is, the common Musk is more than a match for our native weeds on any ordinarily rich warm soil. Planted out and staked with a few short Fir or Larch boughs, you may have a clump of Musk a yard high and as much through, and if in full sunshine on a moist bottom, it will be studded with flowers for six months of the year. The hybrid Musk (Harrison's) grows outside well as a summer bedding plant, but is not so tenacious of life as is the typical kind. If you wish to see it at its best, grow it in a basket hung up near the roof of a light and airy greenhouse or porch. As so grown, it is elegant in habit and most floriferous, and if you wish to intensify the colour of its flowers, fill the centre of the basket with a rooted cutting of a purple-leaved Coleus, or with two or three bits of Iresine Herbsti, which shine like stained glass as seen between the eye and the light.

The Japan Eulalias.—The Eulalias are tall-growing Grasses, as graceful as Bamboos, and easier to manage in almost all gardens. There are three forms, viz., the green-leaved type, a variety having its long and slender leaves striped like ribbon Grass, and a third which has yellowish zebra-like markings on its long green leaves. All are well worth culture, either as solitary clumps or masses on the lawn, or as pot plants in the conservatory. No matter how grown their habit is most graceful, and as yielding good foliage for Gladiolus or other cut flowers they deserve more notice than they have hitherto obtained. We find their growths cut rather long most graceful, effective, and durable for indoor uses. They require a good deep warm soil and plenty of moisture, and then form tufts 5 feet or 6 feet high in the open border every year. Even when killed to the ground, as they are now and then during extra hard winters, their dead stalks have a grace and effect peculiarly their own. They are not difficult to increase either from seeds sown during the spring months in heat or by division of the roots. The two variegated forms striata and zebrina are peculiarly elegant and delicate looking as grown in small pots in a warm house, where they group well along with Ferns, Asparagus, Aralias, or Dragon trees. All three varieties are now flowering freely with us in the open air at 6 feet in height.

Genus hybrids.—This is the title used by Sachs for plants presumably raised or originated by cross-fertilisation between two genera, but it is, to say the least, questionable if this union of distinct genera ever takes place. It is quite true that man, as a botanist, has in times past set up straw men under the name of genera; and it is

equally true that man, as a hybridist, has, in following Nature's own laws, succeeded in knocking these straw images down again. In a word, it seems doubtful as to the definitions that should be assigned to the boundary lines of a genus. My own view is that hybridism should decide the question one way or the other; that is to say, if seedlings can be raised by the cross-breeding of any two genera, I should take that as proof absolute that such genera had been formed with an insufficiency of knowledge, and that the parent species really belonged to one genus instead of two! Take Phaius and Calanthe as a case in point. The production of Phaius irroratus as a hybrid between these once-supposed genera proves, as I imagine, most conclusively that they are really of one genus. The mere fact of one being deciduous and the other evergreen proves nothing more than that they have for ages grown under different natural conditions—the Calanthe on rocks or trees in the sun, the Phaius under leafage in the shade; and this is further shown by some Calanthes being evergreen and almost bulbless, as is the so-called Phaius. I admit that my line of argument cuts both ways. For example, no one has crossed the Gooseberry with its co-species the Currant, nor even the Black Currant with the white or the red varieties; and if this is really impossible, we shall here have to form two or three genera of what are now merely supposed to be species. I am certainly convinced that hybridism is the best proof of the natural relationship among plants.

The Feather Flowers.—In North America the species of Liatris are sometimes known as Snake Roots or Feather Flowers, and there is a soft and feathery look about their flower-stems as well developed in deep rich soils. There are several kinds, but L. pycnostachya is, as I believe, one of the best for garden culture. L. spicata is also a showy kind, and, like the former species, is easily raised from seeds or increased by division of the roots or crowns in spring. To see these singular composite plants at their best one must either rear them from seeds or divide them early every spring. Like many other things, they deteriorate if left in the same spot too long, and this is one of the real difficulties in hardy flower culture. Many plants will exist for ten or twenty years in the same place if once planted, but it does not follow that they satisfy one as so grown. In a word, rotation of crops, or good cultivation is as necessary for hardy flowers as for culinary vegetables. A Lily is as fond of good, fresh, deeply dug earth as is a Cabbage, and a change of soil is as essential to good Roses or Narcissi as it is to Beetroot or Potatoes. No one who is afraid of digging up and replanting will ever give us many pictures in the garden. And yet the man who uses a spade well has as much or even more power over beautiful flowers than a painter has with his colours. Both must use them freely and boldly in the right way.

Scarlet Tropæolums.—In town gardens I rarely see anything in the gardens or windows so fresh and brilliant as are these Nasturtiums of various kinds. For window boxes they are, as I think, well-nigh unequalled, and all one has to do is to sow the seeds in fresh, rich earth, and water the plants when necessary. Another good way of growing these flowers is in a bed on the Grass, where their shoots can ramble out on the closely-shaven lawn. They are very beautiful from May to November, and for carpeting bulb beds, or for a half-shady place, these dwarf Nasturtiums are more satisfactory than Pelargoniums or other bedding plants. The above relates only to the modern forms of Tropæolum majus, but where it will thrive there is nothing in the genus can surpass the blood-flowered T. speciosum in lightness of growth and in floral grace. We have at last succeeded in flowering this erratic beauty by planting some of its thick white roots on a moist border with an eastern exposure, and which is sheltered by shrubs from the midday sun. Even if it never flowered it is worth growing for its fresh green Maiden-hair-like leaves. I once saw a man digging Potatoes in a roadside garden in Scotland. The hedge next the road was scarlet with flowers, and the thick white roots of this lovely Tropæolum came up along with the Potatoes. "What will you do with these roots?" I asked. "Thraw 'em away," was the laconic reply. I asked for some, which were willingly given—an armful almost. "Now," said the donor, "be ye careful whare ye pit it—its the warst weedie you can ever git into a garden." And so it seemed to be there, and is in other places northwards, but with some it is one of the most capricious and stubborn of plants.

Rootwork.—I do not mean rootwork as opposed to rockwork, but wish to allude to the silent labours of the roots of living plants. There is nothing more mysterious than the silent root power ever going on in even the smallest of gardens. There they are, as it were, "the power behind the throne" unseen, but ruling all things, useful or beautiful, above them. We have roots as anchors or grips; roots as collectors of nourishment from the earth and air, and roots as storehouses or savings banks, for the surplus material collected during growth and secured ready for the demands of the season of flowering and seeding. Take our biennial vegetables, Beet, Turnips, or Parsnips, for example. They spend one season in the collection and storage of material, which they utilise during the next by developing it into flower and seed-bearing stems. The forethought, so to speak, and thrifty behaviour of many plants are simply wonderful, but none the less wonderfully true. Some plants make sure of a constant supply of nutriment by storing it up in their bulbed or swollen stems. The plants seem to have gradually developed this power of securing constant supplies and of obviating waste in a way analogous to that which prompted the old musicians to add a bag to their wooden pipes, or a wind-box to the organ. Ever since the days of Linnæus we have been led to consider the flower as the main locality of botanical characters. Now we are going a little nearer to the root of the matter. If there is a power in plants analogous to the reasoning brain of man, there can be no doubt that roots possess that power quite as fully, or more so than do the blossoms. We have no natural type of self-abnegation more noble than that of the roots, which labour silently in the dark, while their offspring, the flowers, plant themselves in the sunshine and in the light of open day.

Useful plants.—Just at the present moment, although I remember the names of many botanical collectors and botanists who have made special studies of Orchids, Palms, Ferns, Aroids, and even the microscopic Cryptogams, yet I do not remember the name of a solitary individual who has made a life study of the plants which are known to be useful to man. Even if only partially true, this almost passes belief, but, as a fact, there is in the world a vast field of research, and especially amongst the unknown allies of plants now well known for their useful properties. We reap the harvest of the whole world in plants useful as in other ways, and yet we have never appointed a man to make a special study of the plants on which our lives, our health, our food, our clothing, and our beverages depend. We have accepted many useful plants on the traditions of the native people who have proved them. It was so with Tobacco, Cinchona, india-rubber, and gutta-percha, and with many other economic things, but the question is not have we Cinchona or india-rubber, useful as they are, but have we discovered the species or kinds which yield us these products of the best quality? The local herbal medicines of the world would form a noble study for a student anxious for a subject and a name, and I believe I am right in saying that we have no one reference book worthy of the name devoted to such an interesting and pleasant subject as the edible fruits of both hemispheres. Food, fibre, and medicine represent the very trinity of our lives, but who is the authority on food, on textiles, and on *materia medica*?

Veronica.

WORK DONE IN WEEK ENDING AUG. 17.

August 11 to 17.

Throughout the week the weather has been favourable to our garden operations, and by no means unfavourable in other respects, as there has been an occasional light shower with a fair amount of sunshine, so that growth and maturing of crops have experienced no check. Perhaps of all the branches, kitchen gardening has during the week required, and has had the most attention. Winter Spinach has been sown on ground that has just been cleared of Potatoes, a dressing of soot and forking over being the preparation needed. Sowed Cabbage on a warm border open to the south and west; our autumn plantings to stand the winter will be made from this sowing, the remainder of the plants being left to winter where sown; hence the necessity of selecting a favourable wintering position. The sorts we prefer are Sutton's All Heart and Ellam's Dwarf. We sowed the Red Dutch for pickling purposes at the same time. Sowings of White Lisbon and Giant Tripoli Onions have also been made on rich, firm ground, in drills 15 inches apart, and Cauliflowers have been sown on a border having an eastern aspect, which being cooler than the south or west the plants do not get crippled with insects till of sufficient strength to resist their attacks; it is from this sowing that our plants are obtained for wintering in handlights, and for planting under the shelter of walls for early spring cutting; a later sowing will be made a fortnight hence on a south border to winter where they are sown. Thinned out Lettuces and Endive, and pulled up seeding Lettuces and prepared same ground for another sowing. Rotation of crops is all very well, but where ground is limited and supplies required excessive, it is an impossibility to adhere to the plan, and we have long since given it up as hopeless, though of course we favour and practise the plan of never repeating the same crop twice in succession on the same ground when it can by any means be avoided. Well watered and earthed up the earliest Celery. It is less labour to let the plants complete their growth before earthing up at all, but as a supply is often needed before the crop from this mode of treatment is ready, we earth up part now, but the remainder is left till it has done growing, and by the time that it is needed it is just as well blanched as that which was done early and at various times. Hoeing and earthing up Broccoli completes for the week the work of this department. Though we have had more than a sufficiency of work to keep all our indoor hands on at express speed, the variety of work has not been great. Strawberry potting is at last completed, and all are conveniently arranged in respect of being near to the water tank, of which they require plentiful supplies, and at night are well syringed. Runners already appearing on those first potted are pinched off as soon as perceived, as also are weeds. Chrysanthemums take up more than our spare time in the way of watering, tying, disbudding, and "taking" the buds. The latter are now showing in quantity, and mildew has appeared on a few of the plants, and dustings of sulphur is our remedy, and an effectual one, too, only it needs to be repeated so long as the least trace of the fungus remains. Pinched,

weeded, top-dressed, and pegged out shoots of frame Cucumbers, also of Vegetable Marrows and Ridge Cucumbers. Cut off large foliage that shaded the fruit of Tomatoes and thinned out the fruit, the deformed and smallest fruit being selected for removal. The trees in early and second Peach houses having had all their wood thinned out and secured to trellis, the hose was applied with the double intent of washing off spider, of which there is a little, and of watering the inside borders, which we have now mulched with clean straw, partly for appearance' sake, but more especially with the intent to keep the borders moist and prevent cracking open of the soil, which occurs as soon as it gets dry on the surface, and of course destroys many of the most valuable roots. Laterals on Vines in late houses we pinch or stop back once a week—black Grapes not quite so severely as white varieties, which require plenty of sunlight to colour them up well. Put in cuttings of variegated Panicum, a plant we find most useful for basket and vase decoration to droop over the edges, as well as for use as a setting for large flowering plants, Isolepis gracilis and the common Lycopodium being valuable for the like uses. Tuberous Begonias, Gloxinias, Celosias, and Fuchsias being now at their best we keep cool, and shade them thickly to preserve their beauty as long as possible. Put in first cuttings of Pelargoniums on open borders, Abutilons and Fuchsias in frames. Re-arranged fruiting Pine stove, the plants having fruit approaching the ripening stage being stood under the shade of Vines to retard it, and the pit is again filled up with fruiters that are just out of flower. Potted a few suckers, and plunged them after renewal of leaves, which we use for bottom heat, in a well heated pit, which will be kept close and moist till the roots have formed in the new soil. Flower garden work has been much the same as that of last week—pinching, tying, clipping edges, mowing, in fact, whatever tends to neatness of appearance, a thing which we do so far as means allow. As to variety of flowers and styles of flower gardening, our ideas are progressive, for, besides having a goodly assortment of what are termed old-fashioned flowers, herbaceous plants, Lilies, &c., we have annuals and biennials—such as Stocks, Scabious, Candytufts, Sweet Peas, and Roses in abundance—sub-tropicals, and what is termed carpet bedding—a term we repudiate, simply because we have none of it, as not one of our designs is flat, which necessarily must be the case for the term carpet to be applicable. Picking off bad flowers and seed vessels to keep the various plants in good flower, and tying tall plants securely to stakes are matters of daily occurrence. Single Dahlias are now in splendid flower, and perhaps there is no flower that more quickly shows signs of exhaustion, or rather stops flowering, if allowed to seed; hence it is of the utmost importance that as soon as the flowers fall the seed-pods should be picked off. Violas, Calceolarias, and Verbenas are very nearly allied to Dahlias in this particular and continuous flowering can only be assured by picking them over as frequently as Dahlias. Sowed Brompton, East Lothian, and Queen Stocks at the foot of a south wall, in which position they are intended to winter. Hants.

FRUITS UNDER GLASS.

Pines.

The forward batch of Queens intended for early fruiting, having filled their pots with roots, will now require more light and air to mature their growth before the short days set in. Where space is limited these plants are not unfrequently plunged too close through the early part of the summer, and require a general turn over about this time, when a selection of the most promising is made, but this is the only advantage gained, as the best growers agree that the most satisfactory results follow plunging newly-potted plants where they can remain until the fruit is ripe. It sometimes happens that the beds heat themselves dry or sink too low, when the roots receive a premature check or the foliage becomes drawn. To steer clear of these evils it becomes necessary to renovate the beds and re-plunge rather loosely in a bottom heat, which should not exceed 80° to 85° about the crock roots and rather less near the surface, or, better still, the old beds may be levelled and well watered to revive the heat, when the plants can be re-arranged on the surface and loosely packed with fresh leaves to keep them steady and draw the heat upwards. Treated in this way danger of over-heating is avoided, and yet the gentle increase will favour, giving moderate supplies of diluted liquid or guano water when the roots require it. As autumn draws on and a steady bottom heat becomes absolutely necessary more dry leaves or tan, as the case may be, must be added and made firm to reduce the necessity for giving water, and to prevent the temperature from falling much below 80°. These remarks apply specially to Queens, whose tender roots are often injured by being rested in too low a medium, when the plants throw up deformed fruits, but Rothschilds and Cayennes, which are hardier, will bear a matter of 5° to 10° less, provided they are kept steady and not overdone with water. Where Pines in various stages are swelling and ripening it is a good plan to lift the most forward out bodily and place them in a dry vinery or warm Grape room to ripen. Those left behind can then receive their proper treatment, and the house can be shut up with the full complement of solar heat and atmospheric moisture.

Successions.—By this time all potting should be brought to a close, and the plants placed where they are to remain for the winter. The nearer the glass and the less fire-heat for the present, the better; shading likewise, unless to newly potted plants in light airy pits, should also be discontinued. There is, of course, no rule without an exception; but shading and crowding should always be the exception, as succulent plants like Pines, no matter what their age, always winter best when the foliage is broad, flat, and firm, and the roots are kept steadily progressing in a mild tropical bottom-heat. If stock of any particular variety is likely to run short, a few suckers may still be taken off and potted; but unless they are very strong and a snug pit with a sharp bottom-heat is at command, little, if any, time will be lost by allowing them to remain on the old stools through the winter.

Figs.

The second crop having been gathered from early forced trees, a season of rest must now be secured to them, either by running off the roof lights to their fullest extremities, or placing pot trees, which do not require potting, in the open air. The Fig being so thoroughly at home in a high temperature, exposure through the month of September will be quite sufficient, when the lights, having been painted, may be returned to the roof to protect the points from autumn frosts. Thorough cleansing, it is hardly necessary to say, should be the first consideration after the fruit is gathered, the *modus operandi* depending entirely upon the kind or kinds of insects with which the trees are infested. Spider, scale, and bug, one or all, make rapid progress in the high and dry temperature of the Fig house, and the best time to dislodge them is during the season of rest. Spider can be destroyed by pure water or soapsuds applied with great force through the syringe or garden engine. Brown scale melts away under hot water plied at a temperature of 100° to 120°, and the trees take no harm, always provided they are well syringed immediately with water some 30° to 40° lower. Bug, on the other hand, although it may be checked, cannot be entirely destroyed with water, hot or cold, but by adding a wineglassful of paraffin to four gallons of water, and keeping the latter well agitated with a second syringe to prevent the oil from floating, an occasional syringing will keep the trees clean until the time arrives for applying the tar dressing.

Pruning.—Forced Figs, like forced Peaches, hould be pruned and thinned as soon as the crop is off, as there is then less danger of bleeding, and the shoots retained have full exposure to the influence of light and air. Moreover, old shoots pruned back at this season push forward latent buds which break into growth when the trees are started, and produce a second crop of fruit in the autumn. The principal point in pruning is the removal of all weak, straggling, and blind shoots, and the retention of short spur-like points well furnished with leaves, from the base of which the first crop of fruit, as yet barely perceptible, will spring. If half swelled fruits were rubbed off as soon as it became evident they could not ripen, embryo Figs will have formed in the axils of many of the leaves, and the removal of the remainder, everything in fact larger than a small pea, will enable the trees to expend their declining force upon them. It often happens that we see trees carrying a quantity of green Figs through the autumn and winter, but this is bad culture, as they never stand to ripen, while their retention robs the trees and prevents useful fruits from forming.

Succession houses in which the second crop is ripening will require more air and drier treatment, aided by gentle fire-heat to ensure high flavour and to prevent the fruit from spotting. The finer and better the fruit the more is it liable to suffer in a damp, stagnant atmosphere, and as moisture in the form of diluted liquid must be supplied to the roots, the only preventives are plenty of dry mulching, liberal ventilation, and fire-heat to keep the air in motion. To have a steady supply of good Figs, three houses should be at command; the first, which ripens its fruit in April and May, will then ripen its second crop immediately after the first is gathered from the second, and as these trees should be perpetual bearers they will keep up the supply until the autumn house comes in. Late houses and cases, it should be borne in mind, do not produce more than one flush of fruit. These, therefore, should be kept thin of wood, and all half-grown Figs which cannot ripen should be broken off, as they are worse than useless. When late Figs begin to ripen in cold houses, and the trees, as they should be, are clean, syringing must be discontinued, but root moisture being necessary, a copious supply of liquid given on a fine morning and well mulched in with dry litter, will keep them safe over a long period.

Peaches.

I stated some time ago that the best time to commence cultivating the next crop is immediately after the last fruit of the current year has been picked from the tree. The remarks upon the management of the early house which then followed also apply to the second and third in almost every particular, the only difference, as the season advances, being more dry heat with a brisk circulation of air through the day, followed by early closing with solar heat on fine evenings. If the trees in early houses are quite satisfactory and can be depended upon another year, the removal of old mulching and sour surface soil is a light, but important, operation which cannot be undertaken too soon, as every day gained after the buds are well formed means a stronger roothold on the new top-dressing. Having worked off the inert soil quite down to the roots and thoroughly watered the trees, I give them a liberal sprinkling of bone dust and apply fresh compost, consisting of any calcareous loam and old lime rubble, minus animal manure. This is rammed or beaten as firm as the backs of steel forks can make it, and a thin covering of fresh stable litter completes the operation. Trees, on the other hand, which show the slightest tendency to grossness are kept in condition by annual root-lifting and slight shortening when the points are relaid in fresh compost. Although fruit trees of all kinds so readily respond to root-pruning and relaying in pure loam, a great number of would-be fruit growers look upon the slightest disturbance as sacrilege, and defer the operation until their trees become gross or unhealthy; they then lift or root-prune with a vengeance, when they require at least one year to recuperate and make fresh fruit-bearing shoots. Once bitten, twice shy; they condemn the system instead of

themselves, gather one or two good crops, and again drift into an unsatisfactory condition. To this class of spasmodic cultivators I say keep the roots entirely under control by checking them every year, and do it in this way: If the tree has not been root-pruned for several years, throw out a semi-circular trench 6 feet to 9 feet from the bole, more or less, according to its size; clear it out down to the drainage, save all the roots, and work steadily inwards until the deepest show signs of rising to the surface. Keep the roots as well as the foliage moist, as the work must be performed while they are in full leaf; make good the drainage, put in a good stratum of new compost, and having cut away all cankered roots and shortened the strongest, commence relaying. Cover each set of roots with a thin layer of soil, make it firm, and proceed in this way until the last set rests just beneath the surface, a firm resisting bed as solid as the undisturbed ball, which may be from 3 feet to 6 feet in diameter, being imperative. Flood the trench with tepid water —the best of all rammers—and leave it for twenty-four hours to settle. When the water has passed downwards, put in the rest of the compost, prick over the undisturbed part of the ball with a steel fork, top-dress and mulch with stable litter. Keep the house rather close, syringe two or three times a day, and shade from bright sun if the foliage shows signs of suffering. If early-forced trees are treated in this way, say in August, they will commence making new roots and pushing laterals within a fortnight, when a gradual return to ordinary treatment will become necessary. The leaves, it is just possible, will fall earlier than usual, but the wood being ripe, every flower-bud will stand and set, when the weight of the crop can be regulated at discretion. This, the first and most trying ordeal, having been got over, the work the second and succeeding years will be safer, lighter, and easier. A trench 1 foot in width must be taken out quite close to the first year's new compost, when all the strongest roots, considerably increased in number, must be shortened to within 12 in. of the first year's pruning, re-laid, and watered home as before. I lately heard a gentleman say, "Take no notice of gardeners; they preach what they do not practise." This is my practice; and I now have trees which have occupied the same stations for twenty-five years carrying full crops of fruit averaging 10 ounces each, and I attribute their longevity to slight, but annual, root-pruning.

Late houses, which have been brought on steadily, are unusually backward this season, and with us require a little assistance to get the fruit ripe before we commence gathering from the open walls. The fine rains we have recently had having thoroughly penetrated the external borders, proper attention to the mulching will keep the roots in a satisfactory condition for a long time to come, most likely until all the fruit is ripe. It will not, however, do to depend on summer rain, as large trees growing close to the glass and carrying heavy crops of fruit carry off immense quantities of water. If all available fruits have not been raised to the influence of sun and light, no time should be lost in getting this work finished, as colour adds greatly to the quality and value of Peaches. Some do not endorse this opinion; whilst others assert that a Peach capable of laying on deep crimson or purple is wanting in one great essential to perfection where exposure is neglected. The old Alexandra Noblesse, Early Silver, that delicious Peach the Malta, now so rarely met with, and a few others are naturally pale, but full exposure to sun and light streaks and mottles them, and adds a blush which all admirers of beauty appreciate. Let every Peach, then, which can be turned have full exposure, and increase its size to the fullest extent by pinching the points of all shoots which will be cut out after the crop is gathered. Trees on reserve walls should now be looked to and checked if the heavy rains have started them into vigorous growth. Checks of all kinds, it is generally admitted, are bad; but when trees growing against open walls are intended for forcing, and ripe wood is of more importance than ripe fruit, there are ways and means which may be brought to bear without hurting either. A fine tree, say, of Bellegarde or Royal George, which was carefully root-pruned last autumn and well mulched in the spring, may now be relieved of manure to let in warmth and air. Further, a trench may be thrown out quite clear of the roots, and glass-lights, at this season plentiful, can be placed in a slanting position against it to increase the air temperature and throw off drenching rain. These aids tell more or less in the right direction, but trees intended for early forcing should always be prepared under glass.

The Blue Winter Windflower (Anemone blanda). Engraved for "The English Flower Garden" from a photograph.

The preparatory house need not be large, but it should always be fitted with a flow and return pipe. The border should be narrow and elevated, and the entrance sufficiently large to admit of the removal of a good-sized tree when the time arrives for removal. W. Coleman.

Flower Garden.

ANEMONE BLANDA.

One of the earliest and loveliest of spring flowers is this good Greek plant, its blossoms of a rich deep blue beginning to open in the end of February, a full six weeks in advance of its paler Italian cousin, A. apennina. It thrives in a rather sunny, open, but sheltered place in poor soil. It is strange how rare in gardens this fine plant is still; it is raised from seed with the greatest ease, so that anyone beginning with a single plant could raise a large stock in two or three years.

Intermediate Stocks.—These are so commonly grown for spring decoration only, that they are not encouraged for summer use to the extent they merit. I put out from a spring sowing some 300 plants of a white intermediate, and all are now grandly in bloom. They are about 12 inches in height, branching, and of the purest white. Quite 80 per cent. are double, and a better Stock for summer culture I have not seen anywhere. If Stocks be needed to furnish cut flowers, this is a first-rate variety for the purpose. We have such a wealth of beautiful summer Stocks, that we miss the Bromptons less than was the case some years ago.—A. D.

HOLLYHOCK CULTURE.

The Hollyhock blooms shown lately at South Kensington, and alluded to in The Garden (p. 157) formed an interesting feature of the exhibition. Hollyhock cultivation has been discontinued to a very considerable extent in the south during the last few years, owing to the disease with which the plant has been attacked, but it has been grown, and grown well, in the north, and it is perhaps not more difficult to fight the disease in the south than in the north. In 1884 some magnificent varieties were exhibited at the Crystal Palace from growers in the north, the single flowers of which were the largest I had ever seen. Our plants have been growing in one position for two years, and no plants have been propagated from them. This has been done in the hope that the disease would die out, but it does not do so. As far as I am able to judge, I do not think it likely that it will be stamped out, but in most seasons it does not materially injure the bloom. It was certainly very virulent when it first made its appearance, and cultivators were for the time nonplussed. I have just now carefully examined our plants, and find only one leaf with a slight trace of disease upon it. The whole of the plants are in full bloom, and even although the disease should spread (although I do not think it will), the bloom for this season will not be affected.

Now is a good time to propagate Hollyhocks, and if the cuttings or eyes are free from disease when taken off, it is possible that the old plants might be attacked out of doors, while those in frames in other parts of the garden might be free from it. Those who are not accustomed to propagate Hollyhocks would do well to act on the following advice: The leaves will most likely have red spider on them, even if not discernible; therefore dip the cuttings in a pail of soft soapy water tinctured with tobacco water: this will destroy this pest. There are usually some cuttings to spare round the base of the stems; these ought to be removed with a heel attached to them, and be planted separately in 2½-inch pots, or 3-inch ones; use fine sandy soil, pot them firmly, and place the pots in a close frame. The side growths may also be cut off now, although it is better to do so in July. Each leaf that has a leaf-bud and not a flower-bud at its base may be cut out and planted much in the way in which Vine eyes are done. The plants produced therefrom will flower earliest next year. They may be potted into 3-inch pots, and may stand the winter in cold frames or in a cool greenhouse. In order to make sure of the old stools passing safely through the winter, they also should be carefully dug up in October, and be potted in 7-inch or 8-inch pots. It is best to get the roots into as small pots as possible, although it may be necessary to use 8½-inch ones for the largest. After re-potting the frame in

which they are placed should be kept rather close for a week, and no water should be given to the roots until the end of that time, as a too liberal supply will cause them to decay. Such growths as cluster round the crowns of these plants will continue to grow from the time when the plants are potted until February; then all but one should be taken off and propagated either as cuttings or by root-grafting. They will strike freely in a gentle bottom heat, and better in a heated propagating house than in a frame. The temperature of the house should be about 55°. In a frame there is a greater tendency for the root-grafted plants or cuttings to damp off. They form roots more quickly if covered over in the house with a square of glass laid flat over them and resting just above the leaves. As soon as rooted let them be lifted out of the bottom heat and placed near the glass, to be subsequently moved to a cold frame. From this they should be re-potted and planted out in May. Spring-struck cuttings succeed those propagated the previous autumn, and thus form a succession. The Hollyhock is one of the grossest feeding of plants, and requires a deep rich soil in order to produce large healthy leaves, the usual precursor of the best flowers, on long stout spikes. Spring-struck plants make, as a rule, more vigorous growth than those struck in autumn, although some autumn-struck varieties are also very vigorous. In ordinary seasons it is not difficult to save seeds of the very best varieties, but in that case the decayed or decaying flowers must be removed before they cause any injury to the seed-pods. If not quickly removed the seed-pods sometimes get destroyed by the decaying petals.

Rearing of seedling plants is most interesting, 50 per cent. being really good varieties. Some of the best sorts produce seedlings neither better nor worse than their parents, and it must also be observed in reference to this point that seedlings are always much more vigorous than the parents, and can be grown up to the flowering stage without the aid of either glass houses or frames; herein, therefore, lies the value of seedlings for those who have no glass houses, or who are unable to use them for such a purpose. The seeds may be sown on a border of fine sandy soil in the open ground. As a rule it is unwise to trust them to the ordinary soil of the garden. Mix up, therefore, a compost of loam, leaf mould, and sand. Rake it over to remove stones and the rougher portions. Draw shallow drills 6 inches apart, and sow the seeds thinly in them about the 1st of May. If frames or a hotbed are available, the seeds may be sown in boxes and be placed under glass to vegetate. In any case the young plants should be pricked out in the open ground as soon as it is possible to do so, after the first leaf or two are formed beyond the seed leaves. The plants may be planted on the ground where they are to flower in July or August, in order that they may be well established before winter sets in. When they have a good hold of the ground, they pass through the winter without being injured by frost. The ground for seedlings ought to be well drained, and if deeply trenched water will pass rapidly through it; water hanging about the roots is as injurious to Hollyhocks as frost. The disease will often attack the plants when they are in cold frames in spring, or even when they are being propagated. I had to fight a stubborn attack of this kind some four or five years ago; we cut off every leaf that had fungus spots upon it and burned them at once. The entire stock of plants was then dipped in a strong solution of soft soapy water and flowers of sulphur. Treated in this way, the disease had disappeared by the time the plants were put out in the open ground. It, however, re-appeared in autumn after they had flowered. This attack I attributed to the evil influence of some Mallows that were growing in the neighbourhood, that were almost destroyed by an attack of the same fungus. J. Douglas.

Primula floribunda from seed.—This is well named, for it is a singularly free bloomer, and, still further, comes into bloom at an exceedingly early stage. Most of the hardy Primulas, if seed be sown in the spring, will bloom only in the following spring. P. floribunda, from seed sown in spring, is in bloom already, the plants being so small that a score go into a 12-inch pan, and yet every one, even the tiniest of the batch, is either in bloom or throwing up buds. The foliage bears some resemblance to that of P. verticillata. The blooms are bright yellow and borne most freely in whorls or trusses. This species is admirable either for rockwork or pot culture, and merits wide appreciation.—A. D.

SPRING FLOWERS IN THE PYRENEES.

No. III.

If the garden of the Pyrenees at Esquierry proved a failure in June, we found such a beautiful natural spring garden a day or two afterwards above the Luchon Hospice, as quite made up for any disappointment. This place is about 6 miles south-east from Luchon, and the road to it, though flowery in parts, is not without drawbacks. It is very different in construction from the Routes Thermales, which I have mentioned before. The avalanches and slips of the winter are seldom repaired by June, and it is not till then that communication by wheels is open. The road runs along the side of an almost precipitous slope covered with Silver Firs wherever they can find standing room. There is just space for two carriages to pass and no protection on the lower side. As soon as the road is clear an extensive cartage of wood to the town takes place, and the bullock-carts downwards get the inside. So that the road, bad in itself and, at the time we used it, puddled by heavy rain, is not a pleasant one for a four-in-hand, such as is always used to take tourists about in those parts. But we had walked on, and two ladies were left in the carriage, when in passing a line of descending bullock-carts the overworked horses began to jib and the carriage to slip back; so they got out and walked the rest of the way with anything but a pleasant recollection of the drive to the Hospice. But this is not all that is dangerous in the road. There are, on the upper side of it, certain open slopes called "timber shoots," down which trunks of trees are sent, butt first. A man is stationed to warn any passengers, showing a written authority to close the road for two, four, or six hours, as the case may be. To pass with a carriage is impossible, as the trees block up the way. I was coming down with a guide when we were stopped, and the guide told me we might make a rush if we did not like to wait two hours. Trees can be dodged, but they loosen large stones in their descent, which are more erratic in their movements. Such are the unpleasant incidents of going to the Hospice. On the other hand, the scenery is grand, and the flowers along the more open parts of the road are beautiful. Huge spikes of Marsh Orchis, Thistles with such heads as I never saw before, but of which I do not know the name, and a large Vetch, or Everlasting Pea, with orange-coloured flowers, called Lathyrus montanus in Grenier and Godron's "French Flora," but being, I believe, Orobus luteus of Linnæus. I saw it in several parts of the Pyrenees, and it struck me as a novelty, though I doubt whether it would be an acquisition in gardens. The carriage road ends at the Hospice, but a mule road goes on into Spain. An hour's steep walking along this, through open slopes covered with a forest of white Asphodels in flower and large yellow Gentians not near flowering, brings us to a mountain pasture with a stream running down the middle. This is from 5000 feet to 6000 feet above the sea level, Luchon being about 2000 feet. The higher slopes of that pasture are filled with what we may call garden flowers more thickly than I ever imagined possible in Nature. I was reminded of Ovid's description of the Vale of Henna, in Sicily, when, after filling several verses with the names of all the beautiful flowers he knew, he said there were besides these a multitude of kinds of flowers without a name. Four months of the flowers of an English garden were all here in their prime at once. Besides nearly all the flowers I have mentioned as growing about Gavarnie, there were Daffodils and Poet's Narcissi, Fritillaries (Pyrenean) and Orchises, Dog's-tooth Violets, and Hepaticas, both in great abundance; Soldanella alpina and Gentians, both verna and acaulis; besides the rocks which bounded the slopes being covered with the usual rock alpines, such as Primula viscosa and integrifolia, and many Saxifrages and Sempervivums. This was the only place in which I saw Ranunculus amplexicaulis, but it was everywhere here, with larger flowers than I can make it produce in my garden. Once before I thought I had found it, covering a high mountain pasture near Eaux Bonnes, but the flowers there were much smaller, and it proved to be an inferior kind of more slender growth—R. pyrenæus—no acquisition where the other can be obtained. But to return to my Hospice garden. Yellow Oxlips were plentiful; Anemone narcissiflora grew here and there in patches with large bunches of flower, the outside stained with bright rose. Geum montanum was there too; also low beds of Daphne Cneorum, a mass of fragrant pink umbels. I had before recognised this abundant on the racecourse at Biarritz, where it grows very dwarf, flowering in March. Another remarkable plant which was common on this mountain, and which I saw in several parts of the Pyrenees, is Eryngium Bourgati. It has prettily variegated leaves, and it is easily cultivated in gardens. An Orchis with yellow flowers (O. sambucina) I had not seen before. The flowers I have here mentioned, with many others, were all growing together within a short distance on one mountain side. I was there twice; on one occasion it poured with rain, which afterwards turned to snow. On the other I started so late in the day that I had hardly two hours on the mountain, or I might have seen much more. On the whole, I came away from Luchon with the conviction that the whole neighbourhood at the right season affords excellent lessons in the treatment of garden plants.

Edge Hall, Malpas. C. Wolley Dod.

SHORT NOTES.—FLOWER.

Zinnias.—Amongst these there are some superbly-coloured double flowers that vie with bouquet Dahlias in dimensions and density, and excel them in beauty. Plants put out singly in good soil and with ample space produce wondrous flowers and exceedingly rich in colour. It is a wonder florists have not adopted Zinnias for exhibition as they have done Asters?—A. D.

Bartonia aurea.—Were I asked to give the names of a dozen annuals for a mixed border this must be one of them. The flowers, which close up at night, are golden yellow, and borne in terminal clusters. The foliage is rough and of a greyish green colour, but, unlike that of some of the other members of the family, it does not possess the power of stinging. Seeds of it should be sown in a cool frame in early spring, and planted out along with other annuals.—W. H.

Iris susiana.—This is one of the most distinct and striking of all Irises, and one which when seen in perfection is not easily forgotten. Some time back a good clump of it might have been seen in the Botanic Gardens, Cambridge, bearing a number of beautiful flowers large in size and rich in colour. It is planted on a south border against the Cactus house, where it thrives with very little attention; the only care taken with it is to place a garden light above it as soon as it has finished flowering, and left until the Iris commences to grow, when it is removed.—W. H.

White Spiræa palmata.—Spiræa palmata itself is now beginning to be popular, and I should say that the white variety, when better known, will meet with an equally favourable reception. It is, except in colour, a counterpart of the older kind. The situation in which we grow it is hot and dry, conditions scarcely suitable to this Spiræa when planted out of doors, but in pots slightly shaded and well watered it produces a magnificent display. The white variety has this year given universal satisfaction.—H. P.

NOTES ON HARDY PLANTS.

Epilobium obcordatum is in several respects a trying plant, and, pretty as it is, I fear it is not destined to be often seen in our rock gardens. In winter it is liable to be killed if left out of doors. I am inclined to believe, however, that it would succeed if kept dry, for where no more protection than that of a bit of glass has been given plants of it have survived the winter, and, moreover, proved stronger when growing time arrived than roots kept under warmer conditions, viz., on the top shelf in a cool greenhouse. I have, however, another fault to find with it, and that is when the flower-stems have well developed their flower-buds, they turn brown as if blighted and dry up, but the plant remains all right at the crown. Later on—about September—a few perfect flowers may, however, be seen, suggesting that the sunny and somewhat dry places thought to be essential for it in winter are too hot in summer; it enjoys plenty of moisture during the growing period. Whether in the open or in pots young plants of it should be well rooted before the cold season sets in. Either slips or divisions may be chosen; if slips, no time should now be lost in getting them rooted.

Asarum caudatum. — Poking among the acute leaves of this plant with a bit of stick to loosen the surface soil, I was delighted with the fragrant smell of the ripening herbage, and if it proved as sweet in the scent jar, that alone would be a good reason for growing this plant, which may be otherwise considered more curious than beautiful. This American species makes itself quite happy with us in almost any situation if the soil is loose and not dry; it spreads moderately—just enough to make one feel that it is fairly well accommodated.

Sibthorpia europæa.—It is astonishing in how many ways this native trailer may be used with happy effect. Indeed, it may be said that there is more in the manner in which such graceful plants are made to do duty than in the plants themselves. Many imagine that this Sibthorpia cannot be grown except they can give it a constant moist bed. True, it is found wild under such conditions, but if one can give it shelter from wind, it will succeed without more root moisture than that afforded other plants. Do not, however, deprive it of dews and light showers by sheltering it under trees, the drip from which is injurious. Set it in a little depression that will catch the rain, between stones that will guard its brittle stems and leaf-stalks from wind, and it will thrive in full sunshine. Some fine sand or old cocoa fibre laid around it will form capital material for it to root into.

Linaria hepaticæfolia.—This is also a small creeper, but one which quickly covers a good space and flowers freely. It may be said to be adapted for situations just the opposite of those which suit Sibthorpia. It will flourish on the drier parts of rockwork, provided its roots have been placed in a seam of good rich loam. In less critical places it will need no care beyond stopping as may be required. Small as its purple Snapdragon-like flowers are, they beset the flat herbage in such myriads as to render the plant quite a favourite.

Silene Schafta.—This is such a lasting and brilliant Catchfly, that, common as it is, few of us can dispense with it. Perhaps the greatest objection that can be raised against it is the fact that it seeds freely. About this dwarf, rosy-red flowered Catchfly there is none of that miffiness which characterises some of the section to which it belongs. In short, it is a plant which brightens up our gardens for many weeks in summer.

Campanula hirsuta.—This is one of the best of dwarf Bellflowers. Its blossoms, which are clustered on spreading prostrate stems, last in succession for many weeks. They are also of a darker blue than those of most of the dwarf varieties. This Campanula is very hardy, and never fails to be effective. It should be set on a sloping bank, or be allowed to droop over stones. It is suitable for either beds, rockwork, or pots, and its grey-green foliage and violet-purple blossoms render it capable of association with the best of alpines.

Catananche cærulea and its variety bicolor are magnificent flowers, but, unfortunately, bright only during sunshine. There is, too, another drawback, and that is, the outer florets rarely expand into the horizontal form. Moreover, the plants being tall, suffer greatly from wind. To obviate this, when the main stems are well developed and, say, just about the time when the first flowers open, draw down the stems and peg down the long flower-stalks, the shorter ones from which in a few days will all become erect. Thus situated, the heads seem to open fresher and fairer than when left aloft exposed to wind. The idea regarding bending down the stems occurred through an accident. Several plants had their tall stems in our way, and they were pressed down, but being rather ripe they did not break near the root: the tops came down among some plants of Saxifraga Fortunei, where they could do no harm, and there they were left. The charming effect produced by the big sky-blue heads of the Catananche among the deep green fleshy leaves of the Saxifrago may be readily imagined. A more lovely blend of leaf and flower could scarcely be conceived.

Hypericum olympicum.—This has a princely flower, large and beset with a brilliant array of dazzling stamens. The species is suitable for borders, rockwork, and even for pot culture. I fear, however, that it is not quite hardy—in the north, at least. It should have a warm situation and a somewhat light soil. The herbaceous tender kinds are more easily dealt with in winter than the shrubby species; in many instances where well established, one or two shovelfuls of coal or wood ashes put over the crowns are all that is required. A good way of growing it is as follows: Take slips or young shoots in spring, say, 3 inches long, place one each in 2½-inch pots, and set them in a Cucumber frame. As soon as rooted, which will not be longer than from ten to twenty days, pot them in 3-inch pots, keep them close for a day or two; then move them into airy quarters, and as soon as all danger from late frosts is over, plunge them out of doors. Sturdy little plants about a foot high will be the result, each one in August being topped with a cluster of flower-buds, which will expand one by one in a very pleasing way. These little pots may be employed in or out of doors for any special purpose, and if garnished with Moss may be even used for table decoration.

Calliprora flava.—This if grown in good clumps in borders is very effective; or it may be placed on rockwork to stop the gaps caused by the dying down of spring flowering bulbs. The flowers, which appear in July and August, are three quarters of an inch across, and are of a somewhat tawny-yellow colour lined with brown. They are of good substance, and are set on stalks seldom more than 6 inches or 8 inches high. It is a free bloomer, and increases moderately well. It should set at least 4 inches deep, and may be mixed with such plants as Chionodoxas, Scillas, Ornithogalums, &c., at the planting season in September, for, though it may have been in flower but a month previously, its leaves will have ripened.

Sisyrinchium convolutum.—This is a pretty summer bloomer, which, from its ample tuft of pale green Grass-like foliage, continues for four or five months in succession to send up sheathed scapes furnished with bright yellow flowers more than an inch across. The plant, which is about 9 inches or 12 inches high, is therefore very useful either in warm borders or on rockwork. The colour, size, and shape of the flowers remind one somewhat of those of the single Jonquil. Its hardiness is doubtful, but I have proved it to be capable of enduring repeatedly 16° of frost, *i.e.*, when under dryish conditions. Glass or wire shelters might therefore prove sufficient to keep it alive in even other than light warm soils. As a matter of fact, I have lost it more than once in the open, but I kept it last winter by means of the shelter just named. J. W.

Outdoor Balsams.—Permit me to mention that the double Balsam flowers sent lately, and of which you wrote favourably, were the produce of plants growing in the open ground. It was chiefly to show what fine blooms could thus be produced that I sent them to you. I have not a plant in a pot or under glass, but large numbers are growing in the open ground as ordinary annuals, having been dibbled out in rows at the end of May. They are all blooming superbly, and are greatly admired by all who see them. Balsams should be more grown for outdoor decoration than they are. Here, simply lifted from the seed-bed and dibbled out in rows after they have become stout and some 8 inches high, they become all that can be desired as decorative plants.—A. D.

China Asters. I observe in the report of the Royal Horticultural Society's exhibition of the 10th inst. that it is stated "Asters were indifferent." That such was the case I can readily understand, because Asters generally are late this season, and the classes were arranged for a date too early to secure good blooms. It is also notorious that the first or main-stem blooms of Asters are seldom the best, the strong side shoots usually yielding the best flowers. Though late, therefore, we shall probably have finer blooms this year than have been seen for several seasons, for everywhere the plants are clean and robust. I saw a grand lot of the Victoria and Paeony-flowered kinds the other day in the gardens at Maiden Erleigh.—A. D.

White-leaved edging plants.—Two of the very best light-coloured edging plants for beds are Santolina incana and Euonymus radicans variegatus, and this is the best season for rooting cuttings of them. Little bits dibbled into firm soil in a cold frame will form roots during the winter, and make good plants for setting out in spring. Place 2 inches of coal ashes in the bottom of the frame, and when trodden and beaten down cover them with 4 inches of light sandy soil, which must also be made firm. If ashes are not used, worms may become troublesome during the winter, and although they might be dislodged by the aid of lime water, it is best to keep them out when possible. Dibble the cuttings 2 inches apart, and keep the soil moist by watering when necessary, which will not be often. The frame should face the north.—E. Hobday.

Dianthuses.—Two fine selected double forms of Dianthus chinensis, pure white and deep crimson, are well worthy of notice. Some blooms of the white kind fairly rival in size and bulk those of Mrs. Sinkins Pink; the crimson may be described as a fine double form of Crimson Belle. A very charming pure white single kind is Snowflake, but it seems to be a little taller than the usual height. With a little more selection that, too, will make a very handsome and distinct variety. One of the most striking and richly coloured of the annual Chinese Pinks is the fiery red kind called Brilliant. This reaches an average height of 8 inches, and produces large richly coloured flowers that glow brilliantly in the sunlight. These are beautifully fringed. It makes a grand bedding plant, and its colour can hardly be excelled. By merely sowing seed in spring and dibbling the plants out some 9 inches apart a rich mass of colour can be readily obtained. Mixed kinds sown in rows beside paths in kitchen gardens or on Vine borders yield a profusion of flowers for cutting, a purpose for which the doubles are specially useful, but all the forms are more or less serviceable in this respect.—A. D.

Giant Mulleins.—I have never grown Mullein as garden plants, but now and then one has come up in my garden, and because of its fine leafage and noble appearance I have let it stand and bloom. This year one solitary plant has shown itself, and now when it is some 5 feet in height and has begun to bloom, it will probably reach 7 feet ere it has done. But my attention has been specially attracted to it, because the flowers are so much larger than usual; indeed all preceding ones have had flowers comparatively inconspicuous. The plant now blooming, however, has very fine bright yellow blossoms quite an inch and a half across; the spike of bloom is therefore very striking and handsome, almost resembling that of a Foxglove bearing Œnothera-like flowers. So this must be a finer form than usual.—A. D.

Portulacas, single and double, make good edgings. I saw some the other day 14 inches in width and perfect throughout, but varied so far, that in some cases there were lengths of distinct colours, and in other cases they were mixed. Amongst Portulacas may be seen whites, apricots, yellows, orange and rose tints, reds, creams, and other hues, all beautiful when distinct, and all also beautiful when in combination. Portulacas grow to a height of about 3 inches at the most, and spread and intermix admirably, forming dense lines, margins, or masses. The soil for them, after being dug and levelled, should, early in May, be trodden to the width to be sown. This hardening is needful in order to prevent heavy rains from washing the seed in too deeply. A very shallow drill 6 inches broad should then be drawn, the seed thinly and evenly sown, and then very thinly covered; under this treatment growths soon result.—A. D.

5506.—**The Stocks** referred to by "R." belong to the intermediate class. The seeds should be sown thinly in boxes or pans in September or October, and the seedlings should be pricked off in 2-inch pots as soon as large enough to handle and placed in a frame. They should be shifted in February into 3-inch pots, using plenty of manure in the compost. Air should be given to the frame in all but frosty or wet weather. Do not let the pots get too full of roots before they are shifted into their flowering pots, which should be about the end of March, using half manure and half loam. I may add that no artificial heat should be given them from first to last; the frames should be covered with mats on frosty nights. Very little water should be given in the winter, except it is really necessary.—C. E. F.

Dwarf Nasturtiums.—No bedding plants can possibly excel in the production of gay colours and plenty of bloom dwarf compact-growing Tropæolums. These forms are not to be confounded with the King of Tom Thumb type, from which they materially differ. There are four diverse colours—yellow, scarlet, crimson, and maroon all of the same dwarf-spreading and marvellously free-blooming habit. These always throw their blooms well up above the foliage, and produce effects throughout a long season such as no other annuals can produce. I grow them from seed every year, simply dibbling the plants out into rows when strong enough to be so treated. Generally they reach a height of 8 inches, and spread to a width of 12 inches to 14 inches, keeping up until frost comes one constant head of bloom.—A. D.

Clumps of Lavender and Rosemary.—A dozen plants or so of Lavender planted in a cluster on the lawn have at all times a pretty effect, but especially so when in blossom, and their scent is exceedingly pleasant. The site for them should have some preparation in the way of deepening the soil and, if necessary, adding fresh material to it. A warm, well-drained spot suits Lavender best. Slips or cuttings of it will root now under a handlight. It is always desirable to have a stock of young plants coming on, as old plants die sometimes in a cold winter. After the flowers are all gathered the plants should be clipped with the shears, cutting off all *débris* as to flower-stems and making all neat and trim. Rosemary is equally effective for grouping on the lawn; in fact, it is more so at most seasons, and in spring, when in blossom, few shrubs possess so distinct a character. The growth has a spiky appearance, and a cluster of plants, 10 feet or 12 feet in diameter, jutting out into the lawn on the margin of a group of shrubs cannot be surpassed for effectiveness; the Rosemary, too, improves with size and age, which the Lavender does not. A cluster 7 feet or 8 feet high and as much in diameter or more, when once seen, needs no recommendation.—E. Hobday.

Giant Poppies. — Both "Veronica" and "J. W." have done their best to make clear the distinctions which exist between Papaver bracteatum and orientale. It is very possible that the designation "orientale," with its association of deep and brilliant hues, has led many to believe that the intense crimson-flowered kind was of that name, and not bracteatum. However, the huge orange-red flowered sort is now shown to be the true orientale. Judging, however, by my own plants, I am inclined to think that crosses have already been made between the two kinds, as in a batch of seedlings a considerable variation in habit, foliage, size and colour of the flowers, and other divergences have been found. Whilst the very largest blooms produce rounded capsules, others have them decidedly wineglass-shaped, as described by "J. W." It is, therefore, evident that some features of both the giant Papavers are found in the strain. Grand as are the huge blooms of P. orientale, yet they are very fugitive; hence any evidence of doubling in them would be welcomed. Probably by constant seeding and selection double flowers might some day be obtained, and once we have giant double Orientals we shall have, without doubt, the largest and grandest of flowers which our gardens can produce, the biggest of Pæonies not excepted.—A. D.

PROPAGATING HARDY FLOWERS.

For cutting and decorative purposes hardy flowers are indispensable, but in order to be successful with them frequent attention as to propagation, dividing, and remaking of beds and borders has to be paid. One effect of the dry weather which we have had has been to hasten the ripening of bulbs. The foliage of Croci and Narcissi as well as of early Tulips is now withered and yellow; and when it is intended to re-make the beds or borders specially set apart for them, that kind of work may be done at once. I am aware that some prefer top-dressing Narcissi with leaf-mould later on to lifting them periodically. Many advantages attend this treatment in large collections; but in the case of my limited collection, lifting, dividing the bulbs, manuring, and adding fresh soil suit better. This applies also to Ranunculuses—Persian, Scotch, Turban and French, including that fine robust-growing variety, the Cockade Ranunculus, the Meladores of the old florists. I should add Ranunculus aconitifolius (Fair Maids of France), that no garden should be without. In the case of alpine Auriculas I like to have my beds always presentable. There is no reason why a bed containing bulbs need be a blank until next spring. There are plenty of showy, handsome, surface-rooting plants for the centre and around the edges, and as I have been at this work at intervals lately, I will name a few, commencing with the alpine Auriculas; ground where these were planted had become hard, and water would not lodge on it. Like many other things in the late hot weather, they suffered much, and as they contained many edged, shaded, and self seedlings, not procurable elsewhere, I resolved not to lose them. Of mossy Saxifrages I have many, all useful and handsome; but I shall only mention the largest and smallest, S. Wallacei and S. purpurea. The former is now becoming generally known for cutting and indoor decoration. It suffers much in dry weather, and, except propagation at this time of the year is resorted to, it is likely to die off and get lost. A moist cool shady place suits it best. As a dry-weather plant commend me to this delightful little velvety-green cushion S. purpurea. With me it has not got even a sprinkle for more than a month, and here it is quite fresh and velvety, neither foliage nor flowers ever exceeding 2 inches high. Another advantage is it does not overrun neighbouring plants like the others. These Saxifrages answer admirably to edge bulb beds. I have covered two beds of Leucojum æstivum and Colchicum autumnale with them. Veronica gentianoides variegata I regularly lift, divide, remove the flower-stems, and replant about this time every year. The foliage is exceedingly handsome—a combination of green, white, and purplish green, while the pale lilac flowers on tall stems when others are scarce render it useful. It is perfectly hardy, and decidedly the handsomest of herbaceous Speedwells. The perennial Cheiranthus is an old acquaintance, and gives masses of yellow blooms when the flower beds contain hardly another hardy yellow flower, except Alyssum saxatile, and of a deliciously rich sweetness quite different from that of the Wallflower, to which it is allied. It is readily propagated by cuttings, but an easier method is to move up the soil around the young stems in spring into which they readily root, and can be removed with the soil attached without check. To Pansies and Violas much sun heat is injurious. Of the latter, Countess of Kintore, Mrs. Gray, and a very dark purple withstood the late drought and heat best; at least a dozen other varieties degenerated or died. I have cut off all the seed-pods, long stems, and blooms, and given them a new heavily manured bed. If I had not propagated my show and fancy Pansies from side shoots in April and May, many would have been lost. Of choice double white hardy flowers the following are useful and easily grown, viz., Campanula persicifolia (the true variety is as double as a white Camellia, and much superior to the double blue Campanula), Achillea Ptarmica, Hesperis matronalis (the pure white double old Rocket, hard to find now), Spiræa Filipendula, very useful for cutting, and, best of all, Matricaria inodora, very double.

Clonmel. W. J. Murphy.

Primroses and Polyanthuses from seeds.—Whether due to season or to some other cause I know not, but certainly I have never found thrips or spider so non-prevalent amongst Primroses and Polyanthuses as this summer. It is a most hopeful sign for next spring's bloom that the foliage has remained so green and vigorous, whilst the new leafage is breaking up fast, and I anticipate as a result a gay show of bloom all the winter. Northern readers who find these spring flowers to thrive with luxuriance always can hardly realise the miserable appearance of ours here in the hot south during some seasons. When thrips eat up every leaf, naturally such defoliation seriously affects further growth, and summer drought often proves far more injurious than winter cold. Primrose and Polyanthus plants, raised from seed sown just after having been saved last summer and planted out in spring, are so robust and fine as to afford the fullest proof, if proof were wanted, of the value of summer sowing. A big patch consisting of about 1000 fancy Polyanthuses will next spring make a show that must be seen to be appreciated. Seed of both Primroses and Polyanthuses of the present year's saving sown three weeks since in frames is now coming through rapidly, a good watering daily during dry weather being alone needful to ensure free germination. Considering how readily a grand show of these charming spring flowers may be obtained from seed, it is remarkable that they are not more plentiful in gardens than they are.—A. D.

Sweet Williams.—These are now a striking feature in the public park at Wolverhampton, where they are largely used as edgings to large clumps of shrubbery. Here one realises what dense flowering subjects they are. Strong plants have thrown up many spikes of bloom, and, whether looked at near or at a distance, the effect is very fine. The plants stand about two seasons, and then they are replaced by young ones. The strain is good, but capable of improvement by means of careful selection. Where, however, hundreds are required, the cultivator cannot select as rigidly as in the case of an amateur who wants but a small quantity. The Auricula-eyed Sweet William is one of the best decorative strains. The original of this was a rich dark crimson flower, having a bold white centre and smooth edges to the petals. In course of time this type gave various shades of colour and marking, and that known as Barlow's Giant is one having large, stout, smooth-edged flowers in great variety, It will be observed that a great many of the Sweet Williams grown at the present day have fimbriated edges to the petals. Hunt's Sweet Williams were popular years ago, but they had fimbriated edges to the flowers. There are, however, many who like flowers of this character when associated with large and stout florets. Fine as are our Sweet Williams of the present day, they are yet capable of improvement by careful selection. It is not too late to sow seed. Good seed soon germinates if sown in the open ground, provided the situation be a shaded one for a portion of the day and the soil kept moist. As soon as the plants are large enough to handle, they should be pricked out into a nursery

bed, so that they may grow on into size; and then some of the strongest at least, if not all, will flower next season; but by the second year they will make plants that will produce huge heads of bloom of a showy character. Any particular variety of unusual excellence can be propagated by dividing the plants in autumn, or by cuttings of the young growth made during the present month.—R. D.

ORNAMENTAL GRASSES.

Members of the Grass family belonging to this country do not, as a rule, reach a great height, but in tropical climes they assume gigantic proportions, some of them attaining to 50 feet, 60 feet, and even 100 feet in height, rivalling the Palms in stature and resembling them in structure. For the decoration of the lawn and wild garden the material in the way of Grasses from which to select is ample; the difficulty is what to choose and what to avoid. The following enumeration contains species calculated to add grace and beauty to our gardens:—

The Arundo, or Reed Grass as now understood, does not include any species indigenous to this country. All of them are tall, handsome Grasses, attaining a height of from 6 feet to 10 feet, and should be introduced into every garden where there is the slightest possibility of their thriving. A. conspicua resembles a small form of Pampas Grass. It commences to flower in July, and is therefore a desirable acquisition; it is hardier than the Pampas, which should have its crowns protected in winter. Besides A. conspicua, there are A. Donax and Donax versicolor.

Arundinaria.—This genus is nearly allied to Bambusa. A. falcata has been planted somewhat extensively in Ireland, where it thrives admirably and attains a height of 20 feet. It has also been found to grow well in the south and south-west of England. Its graceful growth should lead to its being planted very largely everywhere. There is another very fine species, A. Schomburghi, a native of the Upper Amazon, which grows some 50 feet or more in height. This should be a grand ornament, planted in isolated groups upon the lawn, if we could only get it introduced. In 1862 I received specimens from Nagasaki of a very fine feathery Grass, supposed to be a species of Arundinaria. It grows 10 feet in height and is said to prove good for planting in tufts like the Pampas Grass. In Japan it has a fine effect on the hillsides in November and December. Let us hope this may soon be introduced.

Agrostis, or Bent Grass (A. vulgaris), is a troublesome weed upon light lands, but useful for covering dry sandy banks where but little else will grow. There are in this genus some extremely beautiful species varying in height from 1 foot to 3 feet. Some of the smaller kinds are suitable for pot culture, and are well adapted for working into button-holes and shoulder sprays. The best are A. capillaris, diffusa, dulcis, nebulosa, pulchella, verticillata, vulgaris vivipara, and vulgaris variegata.

Aira, or Hair Grass, is a widely distributed family. A. cæspitosa is one of the tallest of our English Grasses, often attaining a height of 6 feet. It is not only very ornamental in isolated groups, but useful as a cover for game. It is, however, troublesome in pasture land. The best are A. cæspitosa, cæspitosa vivipara, lutescens, and pulchella.

The genus Andropogon contains many fine ornamental species. A. schœnanthus, the Lemon Grass, deserves a passing notice, although too tender to be used in the open air. An infusion of its leaves is said to be useful in cases of fever, whilst from its fibrous roots and from those of another species (A. muricatus) mats and fans are made in India, which impart an agreeable fragrance to the atmosphere where used. Although none of the species can be said to be thoroughly hardy, they amply repay any attention bestowed upon them. The best are A. bombycinus, formosus, and squarrosus.

Bamboos in their native habitats often attain a height of 100 feet. Their economic properties are well nigh inexhaustible, and in a decorative point of view they cannot be over-estimated, their elegant, feathery spray giving a distinct and tropical appearance to any garden in which they are grown. The kinds enumerated below vary from 6 feet to 20 feet in height, and form grand groups upon the lawn, or indeed in any sheltered position. They enjoy a free, rich, open soil. The best are B. aurea, nigra, edulis, Metake, Simoni, Fortunei, striata, violacea, viridis, and viridis glaucescens.

The Broom Grass, a very large genus widely distributed, contains some seven or eight species indigenous to this country, and amongst them one or two make beautiful garden ornaments, especially when grown in good rich soil. The best are Bromus brizopyroides, diandrus, hirsutus, jubatus, lanuginosus, macrostachys, Schraderi, scoparius, and vestitus.

Of Briza, or Quaking-Grass, some of the species are handsome, and well deserve attention. Two are British, viz., media, which is widely distributed and much sought after for winter decoration, and minor, which is local. They are useful either in pots or in the border. B. gracilis, maxima, media, and virescens are the best.

Brizopyrum.—This is a small genus of handsome and singular Grasses, none of which are indigenous. They range from 1 foot to 4 feet in height, and are mostly from the Southern Hemisphere. The best are B. siculum and scirpoides.

Coix (Job's Tears).—This genus has obtained its popular name from the supposed resemblance of its pendent hanging seeds to dropping tears. C. Lachryma is a broad-leaved handsome plant which thrives well in the open air, in a warm sheltered spot. It is also very ornamental when grown as a pot plant. It requires an abundant supply of water, otherwise the leaves are apt to become brown or rusty looking.

Dactyloctenium.—This genus contains a few distinct and ornamental plants which grow from 1 foot to 2 feet high, most of them annuals; they produce dense finger-like spikes of flowers, all pointing one way. As pot plants, they are very elegant, but rather tender for the open air. D. ægyptiacum and radulans are the best of them.

Digitaria (Finger Grass) is a genus containing handsome plants, mostly natives of the south of Europe, the inflorescence of which is produced on long finger-like spikes; they grow from 1 foot to 2 feet or more in height, and are very suitable for the fronts of mixed borders. They thrive best on a light sandy soil. The best are D. ciliaris, sanguinalis, and villosa.

Dichelachne.—Under this name I have grown a very handsome Grass, which makes dense tufts some 2 feet or more in height, and is furnished with a beautiful feathery inflorescence. It is a native of New Zealand, and is perfectly hardy. It is named D. crinita.

Elymus is a genus containing about half a hundred species, two of which are natives, viz., E. arenarius, the Sea Lyme Grass, which grows about 3 feet high, and is useful for planting by the sea-side; and E. geniculatus, the Jointed Lyme Grass, a kind of great service for planting on dry gravelly inland warrens and game preserves. Some of the exotic kinds are very effective, although somewhat coarse. Amongst them E. crinitus, condensatus, Caput-Medusæ, and giganteus are the best.

Erianthus.—As a genus this is nearly allied to Saccharum. E. Ravennæ forms large, dense tufts, similar to those of Arundo conspicua, and should be grown if only for its foliage, but it produces in addition large handsome panicles of bloom, which rise to upwards of 6 feet in height. This plant requires a light loamy soil and a southern aspect.

The Pampas Grass is too well known to need description. It forms a bold, isolated mass, the flower-spikes from which rise some 10 feet or 12 feet in height. Unfortunately, its handsome plumes often get damaged by wet. I am under the impression that when first introduced it bloomed earlier than now. The West Indian G. saccharoides is a grand species, producing noble silvery plumes, but as far I know it has not yet been introduced.

The Lagurus, or Hare's-tail, is a useful Grass, found somewhat sparingly in Guernsey. L. ovatus, which is an annual, grows from 8 inches to 18 inches high, and produces roundish, soft white, spike-like panicles of flowers, ornamented with long beards. It is useful either in pots or in borders.

Melica.—The species belonging to this genus are widely distributed; two are natives of Britain, but very few of them are worth cultivating. M. nutans, however, is worthy of note, being one of the few Grasses that thrive under the shade of trees. M. altissima makes a good garden ornament. It grows from 2 feet to 4 feet in height, and produces dense racemes of flowers, with large shining glumes.

The Blue Moor Grass (Molinia) is an indigenous plant, and very effective in the front row of a mixed border. It also makes a good bog plant. Its leaves are about 8 inches high, and its branching panicles often extend a foot above them. The best are M. cærulea and cærulea variegata.

Panicum.—In this genus are large, bold, and, in some instances, gigantic Grasses. They are widely distributed throughout the tropical and sub-tropical portions of the globe, but many of them are sufficiently robust in constitution to withstand our climate in summer. Dotted upon the lawn or grouped in masses in the sub-tropical garden, they form grand ornaments. They enjoy good rich loamy soil. The best are P. altissimum, aurantiacum, bulbosum, clandestinum, capillare, miliaceum, and virgatum.

Pennisetum longistylum and setosum are handsome plants either for indoor decoration or for the mixed border. Their bearded heads of flower somewhat resemble those of Hordeum jubatum, but more dense and soft in texture. The species are widely distributed through sub-tropical countries, growing usually from 1 foot to about 3 feet high.

Paspalum scrobiculatum and stoloniferum are highly decorative and beautiful Grasses. They grow some 2 feet in height, and bear their inflorescence in long dense spikes; in some species it is digitate, in others alternate.

Phalaris, or Canary Grass.—The species of this genus are mostly annuals, and very elegant. They are natives of Central Asia. Some fifteen or twenty are recorded, but amongst them there is great sameness; they form beautiful masses either in the wild garden or mixed border. P. arundinacea is perennial, its variegated form being known as Gardener's Garter. The best known are P. aquatica, arundinacea variegata, brachystachys, canariensis, and cærulescens.

Phragmites, known also as Arundo Phragmites, is the largest of our British Grasses. It is very ornamental placed beside rivers or lakes, where it grows upwards of 6 feet in height, whilst its creeping roots afford material protection to the banks by binding the earth together.

The Sorghums are bold and effective plants for isolating on lawns, or for massing in the sub-tropical garden; their broad handsome leaves and large dense panicled inflorescence make them conspicuous. S. halepense is perennial and hardy, but the majority of the species are annuals. Their seed, under the name of millet, is largely used for poultry feeding, but it does not appear to ripen in this country, so as to be profitable. The best are, in addition to halepense, bicolor, rubens, and vulgare.

Stipa, or Feather Grass.—A large genus, in which, however, few species possess any beauty when out of flower, and their feathery panicles are but short-lived. Plants of this Grass are usually grown in quantity, in order that the panicles may be cut and preserved for winter decoration. S. pennata is the species mostly employed for this purpose; but S. juncea and tortilis are also attractive Grasses.

Maize (Zea).—This is an effective plant, but we have heard objections raised by some to its introduction into the flower garden. To me it matters little what the plants used there are provided the desired effect is produced, and the tropical appearance of this plant ought to secure it a place there. It should be planted in a warm sheltered position and in rich soil. The variegated form is a charming addition to the garden. It is not quite so robust as the type, but it grows freely in the open air, even close to the sea. It comes true from seed, from which it is easily raised in spring. It should not, however, be planted out until properly hardened off. W. H. G.

Drummond's Everlasting Pea.—This has been exceptionally effective this year; whether owing to deeper root-hold or to some other cause I cannot say, but certainly

the flowers have been not only finer and more abundantly produced, but deeper in colour than usual, and two huge bushes 5 feet in height and as much through have been very beautiful. I am glad to find that this year the plants are seeding fairly well. In previous years it was most unusual to obtain seed, and it is not at all an easy plant to propagate otherwise. It is a capital plant with which to clothe an old tree stump.—A. D.

Garden Destroyers.

INSECTS INJURIOUS TO FRUIT CROPS.

The report on insects injurious to fruit crops prepared for the Agricultural Department by Mr. C. Whitehead has just been issued. The introduction states that the report relates entirely to insects injurious to fruit crops, and to those among them which cause the most serious losses to fruit cultivators. There are others whose injurious effects are comparatively inconsiderable, so that it has not been deemed necessary to describe them here. For the most part the insects which have been described are formidable enemies, and in many cases more formidable because their work of mischief either is attributed to other causes, or is not discovered until it is too late to adopt means of prevention or to apply remedies. Some of these insects cause the failure of an entire crop, as, for example, the Hyponomeuta padella, or ermine moth, by whose action the Apple crop has in some seasons been destroyed throughout large areas of orchard land; while others, like the Carpocapsa pomonella, or codlin moth, materially damage the appearance and quality of the fruit. Fruit growing is a most important branch of agricultural industry, and, taking the average of seasons and of the various fruit-producing districts, has proved profitable when other crops have not answered. The acreage of fruit land in England, according to the statistics given in the "Agricultural Returns," was 197,539 acres in 1885, and probably at this present time amounts to over 200,000 acres, as there has been a gradual increase in the acreage during the last ten years at the rate of about 3500 acres per annum. Besides this acreage, properly termed "arable or grass lands used for fruit trees of any kind" in the "Agricultural Returns," which is *bonâ fide* farm fruit land, there is a large aggregate acreage of garden ground appertaining to all houses in the country, from the nobleman's mansion to the labourer's cottage, upon which much fruit is produced, and whose full yield is most important to the owners and to the consumers of fruit, which in its natural state, or preserved, forms an important and most wholesome part of the diet of the people. Information as to the history and habits of the chief insect spoilers of the fruit crop may, it is hoped, tend to their discomfiture and to the larger production of the fruit lands of this country.

The following insects are mentioned in the report:—The raspberry beetle (Byturus tomentosus), the green chafer (Cetonia aurata), the strawberry weevil (Otiorhynchus sulcatus), the red-legged garden weevil (Otiorhynchus tenebricosus), the raspberry weevil (Otiorhynchus picipes), the apple-blossom weevil (Anthonomus pomorum), the nut weevil (Balaninus nucum), the pear saw-fly (Selandria cerasi), the gooseberry and currant saw fly (Nematus grossulariæ), the currant clearwing (Ægeria tipuliformis), the goat moth (Cossus ligniperda), the wood leopard moth (Zeuzera æsculi), the lackey moth (Clisiocampa Neustria), the common vapourer moth (Orgyia antiqua), the magpie moth (Abraxas grossulariata), the winter moth (Cheimatobia brumata), the codlin moth (Carpocapsa pomonella), the small ermine moth (Hyponomeuta padella), the strawberry moth (Peronea comariana), the currant borer (Lampronia capitella), the raspberry shoot borer (Lampronia rubella), the cherry aphis (Myzus cerasi), the apple aphis (Aphis mali), the plum aphis (Aphis pruni), the currant aphis (Rhopalosiphum ribis), the woolly aphis (Schizoneura lanigera), the mussel scale (Mytilaspis pomorum), the red spider (Tetranychus telarius), the black currant mite (Phytoptus ribis), and the natural enemies of injurious insects.

Sulphide of potassium.—This remedy for mildew has now been extensively used by a large number of our leading gardeners, and as I have been mainly instrumental in getting its merits tested, I am glad to be able to report that the anticipations of the discoverer of its value as a remedy for mildew have been fully realised. As mildew is very prevalent this season I hope every one who is troubled with this pest will test the sulphide, and report whether it proves successful or not.—Edward W. Badger, *Mosley, near Birmingham.*

MR. WILLIAM INGRAM.

The spring garden at Belvoir the Rev. Canon Hole has on more than one occasion styled "the most beautiful garden in all England." Writing in his own genial style, he says: "It has been my happy privilege to visit many a fair ground and goodly heritage between the Border and Land's End; I have admired in many a pleasant spot those tasteful and skilful combinations of Nature and Art which are not to be found in other lands, even where climate and scenery are far more favourable than ours; but Belvoir in its vernal loveliness excels them all!" Then he goes on to tell how the position of this garden is perfect—sunny slopes, "green and of mild declivity," or steep and stony, suggesting alpine plants and pathways, with grand old trees, evergreen and deciduous, over which, as you walk on the higher ranges of the gardens, you see the lake beyond, and through which, as you wander below, the picturesque towers of the castle above. The arrangement of the beds, banks, and groups is perfect; colour just where it is most effective, of every hue, but always in congruity; no sensational contrasts, but an exquisite freshness, brightness, unity, and repose. Mr. Ingram, it may not be generally known, was the originator of the system of spring gardening, which is here carried on to such a state of perfection; and for the last twenty-five years he has been following it up and developing it. When he first went to Belvoir, the pleasure gardens were comparatively small; but year after year he has gradually matured and worked out his plans for their improvement. After the summer flowers are over, the spring plants, which are all perfectly hardy and able to resist the most rigorous weather, are allotted their respective positions, and begin to bloom, some as early as February in a fine season, continuing throughout March, April, and May, and making the garden very beautiful at a season of the year when formerly gardens were without a flower. Countries very wide apart contribute to the charms of Belvoir. Himalayan Saxifrages, Siberian Squills, plants from the Pyrenees, hardy Primulas from the Alps, Rhododendrons from the Caucasus, and one of the loveliest of the bulb family, Glory of the Snow, from the mountains near Smyrna—all these not only exist, but flourish at Belvoir. More than this—we had almost said, better still—many of our English wild flowers are utilised, and, under Mr. Ingram's careful tending, are brought into vigorous and stately growth. We are glad to be able to record, therefore, that Mr. Ingram's labours and skill in originating and developing spring gardening have, during the past week, received a very generous recognition. No one who has ever visited Belvoir could fail to accord him the fullest meed of praise; but this appreciation has now taken a tangible form, the result of a movement which was set on foot some twelve months ago, and of which Lieut. Emmerson, of the Belvoir Company of Volunteers, has acted as the efficient and courteous secretary. A committee was formed, and subscriptions have come in so liberally, that the committee were able the other day to present Mr. Ingram with a cheque for £90 15s. 6d., and several pieces of plate, on which was the following inscription: "Presented, with a purse of money, to Mr. W. Ingram, by his friends and neighbours, in appreciation of the manner in which he originated and developed the spring gardens at Belvoir Castle."

Canon Twells, in making the presentation, which was done in the garden, said: "Most of us know that Latin inscription in St. Paul's Cathedral, which tells us that if we ask for the monument of Sir Christopher Wren, we have only to look around us. In the same way, if anyone asks for a justification of this testimonial, he has only to lift up his eyes and survey the lovely scene by which at this moment we are confronted."

We may add that Mr. Ingram also received the gift of a framed photograph of the garden, which had been very successfully taken by Mr. Broadhead, of Leicester.

Orchids.

ORCHIDS AT SOUTHAMPTON.

For upwards of twenty years Mr. N. J. Buchan, of Wilton House, Southampton, has been a consistent lover and grower of Orchids, of which he has an extensive and well grown collection. Seedlings are springing up here in all directions—Cypripediums, Selenipediums, Dendrobes, and various other seedlings—the result of crossing distinct genera. Seedling Odontoglossums, too, come up everywhere. They have a very peculiar mode of vegetating; the seed appears to swell up beneath the Sphagnum until it attains the size of a Pea, after which it produces leaves from the upper portion and roots from below. Here Orchid seeds not only vegetate in the Sphagnum in which the old plants are growing, but even upon bare boards; some actually grow between the latticework of the footpaths, a proof surely that temperature and atmosphere are properly balanced. Cypripediums and Selenipediums, the gardener, Mr. Osborne, has not succeeded in crossing. There is a very promising hybrid here, the result of a cross between Colax jugosus and Zygopetalum Mackayi; the plants are strong, and may probably flower in the autumn. Coelogyne Lemoniana here exhibited a distinct character, inasmuch as it produces flowers twice in the season; these are now showing, and the next batch from the same pseudo-bulbs will come up after Christmas. On a fine plant of Oncidium macranthum I counted sixty flowers, all expanded; and there was a beautiful variety of O. Lanceanum with upwards of fifty flowers, and the leaves were not disfigured with the black cankerous scars so common to this plant. Cattleya crispa superba had forty open flowers on it. Dendrobium Dearei was growing as freely as the old nobile, and flowering most profusely. There were also large plants, well furnished with numerous flowers, of Odontoglossum Uro-Skinneri and various grand varieties of O. Alexandræ. Oncidium Jonesianum is a grand plant. Its leaves are terete, somewhat like those of O. Cebolleti, and the flowers are large and pure white, spotted and barred with brownish crimson. Cattleya Schofieldi is another fine plant in this collection. Its flowers are olive-green spotted and barred with brown, and the lip is white dotted and spotted with violet. W. H. G.

White Lælia anceps of 1885.—Can anyone yet tell the best way to succeed in growing this refractory Orchid? We have tried plants in various houses and ways. Plants of it in pots in the Cattleya house on the north side stage with shingle under the pots have proved the best, but we cannot get a spike of flowers. Certainly our plants are not large, but ample in size to bloom in quantity were they typical L. anceps or L. Hilliana, &c., which are blooming alongside the new comer. Mr. Douglas says he finds his plants to be equally unsatisfactory. Can others record any success? if so, I would be obliged if they would do so.—De B. Crawshay, *Rosefield, Sevenoaks.*

SHORT NOTES.—ORCHIDS.

Shading cool Orchid houses.—At Wilton House, Southampton, the canvas shade of the cool Orchid house does not touch the glass, but is supported upon false rafters about a foot above the roof. This allows a current of cool air to circulate between the shade and the glass, and doubtless contributes to the geniality of the atmosphere within the house.—W. H. G.

Certificated Hollyhocks.—In our report of the last meeting of the Royal Horticultural Society at South Kensington we erroneously stated that Mr. Blundell, of Dulwich, was awarded two certificates instead of three. The sorts for which he received certificates were Princess of Wales, Primrose Gem, and Shirley Hibberd.

Names of plants.—*Mrs. M. A.*—1, Buphthalmum cordifolium: 2, Bocconia cordata; 3, Saponaria officinalis.—*L. P. and Co.*—Pyrethrum Parthenium fl.-pl., Sedum oppositifolium.—*R. Linter.*—1, Oncidium ornithorhynchum; 2, O. incurvum.—*Inca.*—1, Cut-leaved Beech (Fagus sylvatica laciniata); 2, Diplacus glutinosus.

WOODS & FORESTS.

LARCH SEED, NATIVE V. FOREIGN.

It has recently been stated that the oldest and best Larch forests in this country are those that have been acclimatised, while the younger plantations from home-raised seed are the most diseased. There is some truth in the first part of that statement, viz., that the oldest and best Larches are those that were first introduced, but for the rest of the statement there is no foundation, because the younger plantations are not from home-raised seed, but chiefly from foreign seed. And even if the younger Larch plantations were from home-raised seed, this does not prove that that is the cause of disease, or that they are the most diseased; no, it only proves negligence, and that there is a want of judgment on the part of those employed to gather seed to discern between that which is fit and that which is not. Last season, for instance, I found the gatherers picking cones from the very young and most unhealthy Larch trees of our woods. And it is well known that diseased trees often bear seeds most abundantly. A year ago the seed of the Larch was destroyed in our woods by summer frosts, and I do not believe there was above one per cent. of vital seed. Nevertheless, these cone-gatherers bore away great burdens of these bad cones, until I stopped their work and turned them from our plantations. What do these men care how much they deceive their employers and the public. They have no interest in the future success and prosperity of the trees that are to ensue from the seed they have been entrusted to gather; no, their interest in the matter ends when they get their bags filled.

For some years I have been testing the quality of the vitality of both foreign and home Larch seed, and the result of the test is not favourable to the progeny of the foreign Larch. In the seed-bed during the growing season the progress of both Larches are nearly the same, the foreign, if anything, having the best of it; but the foreign does not ripen its wood in proper season; it is cut down with frost, and is ever afterwards permanently injured. On the other hand, the home Larch does not at first show such rapid growth, but manifests throughout a stronger constitution and vitality, and when once consigned to the forest ground, the produce from the foreign Larch cannot be compared with the home trees; in a word, the home Larch lives on, and the foreign Larch dies away. I am aware that there are districts both in England and Ireland in which the climate is quite conducive to the growth of foreign Larch. Still, I am of the opinion that the most propitious climate and conditions conducive to its success would be yet more so to the home-raised Larch.

Since the Larch was first introduced into this country the climate must have undergone a vast transformation. For example, the Larch refuses to grow in soil which formerly it delighted to luxuriate in. What is the cause of that? The soil being the same, the climate, a co-equal factor in plant life, must have changed. Moreover, I again repeat with all the small force of urgency at command that there is not sufficient care used in the gathering of tree seed. Perfection of parts in the parent plant is indispensable to perfection in the offspring. Perhaps it is not generally known that from a bushel of Larch cones there is not more than from 2 ounces to 3 ounces of good seed; from a bushel of Scotch Fir there is only from 6 ounces to 8 ounces; and from a bushel of Spruce from 7 ounces to 9 ounces. But these weights are liable to modification, depending on the age, &c., of the individual trees they are gathered from. J. F.

USES FOR WASTE WOOD.

It is not altogether easy to define what should be classed as waste wood, but in the ordinary meaning of the term it is understood to be the lops and tops of timber trees and the off-cuts from the boles in the process of sawing up. The proportion of waste in manufacturing will naturally vary greatly, according to the dimensions and quality of the article it is primarily the purpose to obtain from a given tree, and the conformation of the body of the tree will of itself be an important factor. It is not, however, to this side of the question I wish to look, except so far as it concerns the production of waste. To take the subject in the order in which the waste or unmarketable wood is produced, it is obvious that the lop and top of the trees will have to be dealt with first, as, when a felling occurs, the greater proportion of the woodman's work is at once directed to the disposal of this waste wood. There is one way in which it may readily enough be got rid of, viz., for fuel, and when it is not valuable enough to be carted away for ordinary domestic use it can be burnt upon the spot for charcoal or otherwise. There are, however, purposes beyond this to which waste wood may be put, and it is to these I wish to allude.

Firewood.—In lopping trees for removal, between what is usually denominated the brushwood and the bole there is always more or less, according to the size and the habit of the tree, of limbs or branches. This in many parts of the country is called cordwood, but it is a term very loosely applied, as in one district it means round logs, whilst in another it may mean short blocks of less than a foot in length and cleft ready for, say, a register grate. When the limbs or branches have been reduced to the last-named form, it is clear that the chance of any usefulness beyond that of making a fire is at an end, but when they are merely lopped from the bole of the tree in lengths as long as can be conveniently handled, they may often be turned to much more useful purposes, inasmuch as fuel can be obtained from other material. To utilise these logs to the best advantage, however, it is necessary that some cheap cutting power be available, as, although it is not often that any great skill is necessary in working up, cheapness is all-essential, otherwise the cost of labour would make it more profitable to use something else. In short, to make the most of this class of waste wood a saw-mill in some shape must be at hand. The usefulness, and, in fact, the almost indispensability, of such an appliance has often been urged in this paper. For working up small wood of the class under notice a single bench would answer every purpose, and now there are very few districts where such a thing is not to be had, if the owner of the wood does not himself possess one.

Generally when a fall of timber takes place it will be found most convenient as soon as the brushwood has been disposed of by being made into fagots, or in some other way, to cart the branches and limbs to which reference has been made to some central spot where an engine and bench can readily be set to work upon them. In doing this there is the advantage of selecting from the bulk of wood such as is suitable for the especial purpose in view and of cutting up what has no better worth for the firewood stack. It will, however, be generally found that a lot of useful material may be found among the waste before this becomes necessary. To take Oak logs, for instance; one of the handiest things upon a place is a supply of mound posts. These, as they are generally wanted from 6½ feet to 7 feet long, should be one of the first selections made. From the branches of ordinary trees it will be difficult to find round pieces which run straight to the length, but in most cases there are many logs which are approximately straight one way. In this straight direction they have to be sawn into two sections by means of a centre cut, and a couple of useful mound posts are at once available.

Fencewood.—Amongst this waste wood it is seldom that material suitable for rails is found, but it is almost in all cases capable of affording a large quantity of rough palings, so that the rails, in erecting a fence, would be the only thing left to be provided. A height of 4 feet or 4½ feet very often makes a serviceable fence, and for such as these logs of wood which are not long enough for posts may be turned to account. Dividing fences of this class may not be required to be absolutely close, and yet close enough to make them quite secure. Small and rough logs properly cut up may be made to answer this end. The size of the round wood itself and the purpose to which it is to be put will to a great extent control the way in which it is prepared. If a rough and heavy erection is wanted, then it will be enough to merely cut the logs into sections in the same way as the posts and use them in the same way, with the difference that they merely reach the surface of the ground and are fastened to the rails instead of being let into the ground for support. For this portion of the work Elm or Oak may be used indiscriminately. When a lighter style of erection is wanted, it will be necessary to employ a little more labour in the preparation of the wood, but the same kind of logs will do duty. Instead of merely cutting them into half round sections they must be reduced to a greater number of pieces of lesser thickness. To make the most of the material, the straightest pieces should be chosen and two parallel cuts be taken, so that a thin slab may be taken off each of the two opposite sides and a plank of some inches in thickness, according to the size of the log, be left to be reduced to pales of the required thickness by making cuts at right angles to the original ones. The slabs taken off in the first instance may then be edged down and will make two additional pales. It is obvious that such wood as this can be employed for many other uses beyond that of pales for low fences. Turned in a horizontal instead of a vertical direction, it would be useful for the pales for tree guards, and in many instances it could be used for rough floorings for sheds and outhouses, where the nature of the use would not allow of the employment of material of appreciable value, but where wood of this class would be greatly to be preferred above an ordinary soil floor. So far, I have spoken of waste wood in its raw state, *i.e.*, as it is always to be found in quantity wherever any trees are felled, but there are other kinds of waste wood which may often be bought from the merchant's yard and used in conjunction with what is manufactured at home.

It will be seen that the materials which have been referred to hitherto have been of short lengths and narrow widths, conditions which are unavoidable when only small logs or branches are cut up. Merchants, of course, saw up trees of all lengths and size, and in consequence of the uneven way in which British hardwood trees generally grow, it is seldom they are not well supplied with waste. This takes all shapes and sizes, according to the form of the trees which have been sawn and the class of scantling into which they have been worked. There is, however, generally a good proportion of slabbing of good lengths and widths, *i.e.*, the rough outsides which are always cut off to make at least two

square sides to the tree. Besides this, there are often right-angled pieces coming off, which make useful light posts. I have spoken of these things as being procurable from the merchant's yard, as it will sometimes be found that work of the kind we have been dwelling upon could not be carried through entirely with the material at command upon the place. It of course requires discretion as to how far it will be economical to use up "waste wood," as it is quite possible that it may be made to cost more than using really good and marketable timber. D. J. Y.

NOTES ON THE PARLIAMENTARY REPORT ON FORESTRY.

By "Yorkshireman."

The report from the Select Committee on Forestry, or the chief part of it, has been circulated, and contains some evidence that may interest foresters, but not so much as might have been expected.

The committee.—This body deserves notice from the fact that it is composed of men who may be said to be practically unacquainted with the subject they had to investigate, but that was probably unavoidable in a parliamentary committee. That some of its members did not always feel sure what questions they should put to the witnesses, and did not grasp the answer when they got it, will appear in a rather amusing aspect here and there to those who read the report and who understand forestry themselves; as, for example, when Mr. Seely asks Mr. Thistleton Dyer what planting Oak "pure" meant—a forester's expression borrowed from one of the horticultural papers—and on another occasion when another member asked the same witness to give him the English name of a certain Indian tree, &c. This unacquaintance with the subject on the part of the examiners is quite apparent in the report, and hence, no doubt, its diffuseness and length, considering that the sole object of the enquiry, as set forth in the report in three lines, was "to consider whether by the establishment of a forest school, or otherwise, our woodlands could be rendered more remunerative." Not knowing exactly what questions to put in examining the "witnesses," the latter were encouraged, by leading questions and otherwise, to say what they had a mind to, and some of them have, of course, availed themselves of the opportunity to ventilate their hobbies pretty freely.

The witnesses.—"The committee had power to send for persons, papers, and records," and they availed themselves of this power to the extent of summoning six witnesses, and under the head of "Profession or Condition," three of the six are described as "Civil Service Ingineers" (if "C. S. I." indicates that), "M. D.," and "Colonel" respectively; the other three are Mr. W. G. Pedder, Mr. W. T. Thistleton Dyer, and Mr. Julian C. Rogers. It might be regarded as a phenomenal circumstance by some that of the twenty-six committee-men and witnesses nominated to investigate the subject of forestry, there is not a single practical forester amongst them. It might have occurred to a jury of common-sense people with "power to summon" whom they liked before them that the examination of woodmen or foresters was desirable, if for no other purpose than to show whether our British foresters were as stupid or as clever as they were reputed to be, but such an idea does not appear to have occurred to the commission in question that did sit. Numbers of questions were put and answered on this point to witnesses who did not, and could not, give any reliable information on the subject. The evidence of Mr. Thistleton Dyer on the subject is amusing, but honest. Asked by the committee: "You are assistant director of Kew?" the reply is, "Of the Royal Gardens, Kew." To the second question, "And you have paid great attention to the management of forests and woodlands?" the conscientious answer is, "My attention has been drawn to the general subject of forestry from the fact that Kew performs to a large extent the part of a botanical authority to the government, and numbers of questions affecting botanical work are referred to Kew, which it is my special business to attend to. Amongst these, of course, from time to time are questions relating to forestry, and although I have not myself any practical knowledge of the management of forests, I have been compelled, of course, to look into the subject," &c. This is a good example of some of the questions and answers. The assumption on the part of the chairman of the committee, Sir John Lubbock (who put these questions), that an officer of Kew must necessarily have paid "great attention to the management of forests and woodlands," shows the crude notion our legislators have concerning the functions of a botanical garden, and Kew in particular. Mr. Dyer, pressed to say if it was "his opinion that if a general education in forest matters were available, it would have an advantageous effect upon our English and Scotch forests and woodlands," "imagined there could be no doubt about that," and he quoted from "a file of a contemporary in which some of the superior members of foresters in this country occasionally write" to show "that the woodland practice in this country is in a very unsatisfactory state when you find two competent authorities on the same subject in a prominent newspaper diametrically in opposition to each other on the same point." This one cannot but regard as rather second-hand evidence on such an important subject, but it is an example of the kind of evidence sought and given.

Testimony of the witnesses.—It seems to have been assumed by the committee that our Indian forests are better managed than the forests at home, and that this better management is due to the better training of the forest officials there; hence, much of the evidence was directed to the elucidation of this point, the purpose of the committee, be it remembered, being to prove the need of educating British foresters also. Mr. William G. Pedder, of the Revenue Department of the India Office, was the first witness on this point. Sir John Lubbock surmised that the increase in the net revenue from Indian forests was due "to a considerable extent to the improved education of the forest officials," but the witness "did not lay much stress upon the increase of revenue, because, as a matter of fact, the financial results had hardly yet become apparent at all," and the general purport of his evidence was to the effect that "the principal duty of the forest department of India" had been rather to arrest the destruction of Indian forests and take care of what was left. This witness said he "knew but little about English woodlands," but gave some evidence on the subject of schools and about our Indian forests and their extent. Here is a specimen of the questions addressed to this witness by one of the committee, and which should be quoted as put with the answers:—

138. I suppose forests have existed in India for a great number of years?—Yes, from the creation of the world.

139. Then who planted them originally?—No one; I suppose they planted themselves; they are primæval forests.

140. They have not been planted within history?—No.

141. Then the process of managing these forests in ancient times must have been better than it is now; because if the process of destruction that you say is going on so rapidly had gone on before they would have disappeared from the face of the earth long ago?—Yes; but there are reasons why they could not be interfered with. Forests through which there are no roads it was impossible to cut and take away.

To ask a witness who planted forests "originally" that had been there from the creation of the world showed a laudable desire to "bottom the matter," that should be commended to all future Parliamentary committees.

Dr. Farquharson, the committeeman who wanted to know who originally planted the forests at the creation, and who was unfortunately not referred to the twelfth verse of the first chapter of Genesis, volunteered some information himself to the witness, Mr. Pedder, on the grazing of woodlands, a subject discussed in *Woods and Forests* before. Dr. Farquharson said they were in the habit of grazing woods in Scotland with highland cattle and held that they did not eat the young shoots of the trees; but the witness contradicted him, pointing out that forests could not be safely pastured by cattle, according to the best authorities, until they had grown up, and that sheep and goats were particularly destructive.

Dr. Cleghorn was of opinion that "we are in England very good arboriculturists, but not very good sylviculturists," a rather vague description, which he explained to mean that in the production of fine specimens of trees we stood higher than any other country, but were not skilled in the management of woodlands or in the production of timber—an opinion with which we agree, speaking generally. In this witness's opinion "the selection of species, the choice of soils, the situation, the mode of planting, the mode and degree of thinning, and the determining the time of felling the timber so as to obtain the best results" are all matters of first importance "requiring skilled training and much observation," an opinion that receives corroboration in *Woods and Forests* almost every week. He also thought Great Britain and Ireland in a very backward condition as regards "systematic forestry," while at the same time he was aware there was no country relatively where the consumption of timber was larger than in our own—a somewhat paradoxical condition of things, though the description is true enough. Dr. Cleghorn also believes, as all foresters have also declared who have written on the subject, that there is still vast scope for planting waste and other lands in this country, but whether by doing so we should be anticipating future demand caused by the present rapid destruction of natural forests abroad, or whether it might be worth while to plant any but readily accessible positions in this country under any circumstances, was open to question. The west coast, it is also stated, is more favourable to the production of timber than the east coast. Another fact elicited was that "with a steadily increasing annual demand for timber, which is constantly rising all over the country, the amount of timber in England, Wales, and Ireland is steadily, and even rapidly, diminishing"—in some parts "without any attempt at reproduction of timber." If true, this may be said to be the most important fact brought before the committee, and one showing the necessity of State interference of some kind.

As to foresters, the same witness said there were some exceedingly shrewd and valuable men in Scotland, but they would have been better if they had had "more theoretical knowledge . . . They have read what books they have been able to get in their cottages, but having no school to go to, lacked the opportunity of improvement." We fear the experience of publishers of papers and periodicals on forestry does not quite bear this out either in England or Scotland. Colonel Pearson, the next witness, did not think the young foresters in Scotland were practically very well instructed in the management of timber for commercial purposes, but thought there "were many of them exceedingly intelligent men who, by rule-of-thumb and by experience which had been handed down to them, had learned the system of planting and growing trees exceedingly well." These were points on which knowledge was required, and an example of want of knowledge which the colonel quoted was a case "in which a great number of trees (Scotch Firs) were blown down that might have been saved by a fringe of Birch, which would have grown perfectly well above the Scotch Fir, and which ought to have been planted to keep the wind out of the ravines," but which was instead planted by Scotch Fir right up to the top of the ravines, and "the wind got amongst them and knocked them down like a field of corn." What do Scotch foresters say to this hint? We confess to not seeing the advantage of a fringe of low Birch at the top of a ravine to protect Scotch Firs further down that had overtopped the Birch a long way. The rather extraordinary character of Colonel Pearson's evidence has been commented on before. To this report I may again allude.

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"This is an Art
Which does mend Nature; change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

ROSES OF THE FUTURE.

WHAT rosarian can fail to welcome with glowing enthusiasm "T. W. G.'s" "coming race of Roses (see p. 138), which shall keep all gardens gay throughout the summer with blooms of every conceivable shade of colour, in which blue is an unknown factor." This, indeed, is a grand idea, and it is well to aim high, as Sam Slick said to his father, when surprised up the parental Apple tree, though we may never reach it. Roses in perpetual bloom and many-coloured beauty, with fragrance thrown in without stint or measure, would lift the floral treasures of our gardens out of the miry clay at once. A Rose without fragrance is hardly more than half a Rose at best, and hardly deserves its name. Other qualities, too—such as constitution, continuity of blossoming, form, substance, staying power—are needed in popular Roses. Constitution is a comprehensive phrase, and includes all that pertains to vigour, health, and fairly long life. Not a few of our popular Roses are the creatures of a season, if not of a day. They come, they go; we can hardly say they are with us in health when already they droop, become diseased, and die, and are seldom seen more. The ratio of the durability of Rose life has decreased more rapidly than the quality of our Roses has improved, and, with a few notable exceptions, it may be affirmed that, as the quality of the blooms has waxed, the health and length of life of the plants have waned. Worse than this, the highest qualities have not seldom been wedded to milliness of constitution. It is time all this had become matter of long past experience. As one means of getting rid of milly Roses, a juror of experts should sit upon the Rose itself as well as its produce before the latter was certificated.

Semi-disease-proof Roses ought to become possibilities of the near future were more attention paid to constitution in the selection and propagation of Roses new and old. At present it is hardly too much to say that constitutional stamina and vigour are wholly ignored in such matters. The great aim is to produce perfect blooms. No sooner are these produced than they are exhibited, certificated, forced into unnatural growth to form plants quickly, until any natural vigour the seedlings possess is rushed out of them in the feverish race to convert each bud into a half-sovereign or a guinea. Thus by the time the plants are distributed most of their natural strength has been further overstrained and attenuated to the lowest living point by the feverish forcing to which they have been subjected. Bearing all this in mind, we marvel the less to find miffy Roses disfiguring many gardens, while Roses, like giants, are becoming more and more rare. As to continuity of blooming, never was the force of a word or a phrase more misleading or more abused than the words Perpetual or Hybrid Perpetual. I accuse no one, no class, of fraud. The phrase was chosen at first more to define a class than describe a quality. Gradually, and especially among amateurs, it has come to be understood as twice or more times blooming Roses in one season. In this sense the phrase is certainly a fraud as applied to the majority of the Roses in these classes; and as for true continuity of blooming, that is, crop succeeding crop of bloom at very short intervals where can we look for it? I fear we shall still have to search for it among the old China monthly Roses, or their lineal descendants, the Teas. So far as quality in its full and free development is concerned, we may almost be said to have advanced backwards. The nearest approach we have to this quality among the many so-called Hybrid Perpetuals may be found in the exquisitely fragrant, clustered, white Rose Boule de Neige. This crossed with Chinas, Teas, or Bourbons ought to yield a rich harvest of fragrant continuous-blooming Roses. Good form is another quality that is far from being perfected in many of our popular Roses. The National Rose Society has done useful work in publishing its semi-perfect types of Roses of several forms. Whether some of these should be admitted to the honour of a place at all in such estimates may be an open question. But my one point here is that each Rose accepted as of good form should be so and continue so from earliest budhood to perfect expansion. The latter phrase is not used here as synonymous with full blown. This last has a *passé* flavour or ring about it, suggesting the possibility of falling to pieces, or of one or more petals having already fallen. But perfect expansion should excite no suspicion of decay, nor exhibit any symptoms of deformity. Roses, such for example as Souvenir de la Malmaison, however beautiful in bud and useful in the garden, could hardly come up to our standard of good form, viz., fine buds and finish.

Substance or thickness of petal should be a prominent quality in the Roses of the future. Camellia-petalled Roses take on more colour and hold it longer than the flimsy petalled that fade or curl up at the first touch of sunshine. The burning out of the colour of Roses is such a common expression and such a growing evil, that whatever of constitutional vigour or substance of petal would hold it longer with a firmer and more unchangeable grip is to be eagerly welcomed in the Roses of the future. This is closely allied with what is here termed the staying property of the flowers, alike on the plants and after the blooms are cut. Some Roses, as it were, fade and fall to pieces, or lose colour or fragrance almost as soon as they are severed from the plants, while others keep fresh and sweet perhaps a week or more after opening or gathering. There are also curious differences between the staying powers of Rose blooms of the sorts that flower in summer and in autumn, and these are not by any means always explicable by any mere differences of temperature between the two seasons. Neither is it always true that the fuller the Rose the greater the staying properties of its individual blooms. Niphetos is by no means a full Rose, and yet few, if any, equal it in staying properties, and the same remark holds good of others; and perhaps few contributions could prove more interesting than the experience of Rose growers and exhibitors on this most practically useful point of Rose growing and use. The journeyings to and fro of some individual blooms and perfect dozens of such varieties as Niphetos, La France, Maréchal Niel, &c., would astonish not a few non-exhibitors, and greatly raise the general reader's estimate of the staying powers and travelling abilities of individual Rose blooms.

D. T. F.

Passiflora laurifolia.—Mr. Morris, of Kew, in his paper on tropical fruits, read at a conference in connection with the Colonial and Indian Exhibition, referred to the fruits of this Passiflora as among the choicest and most refreshing of the tropical Poma. They are called Water Lemon, or Pomme d'Or, in Jamaica, where they are highly prized as a dessert fruit. The species, which is now flowering in the Palm house at Kew, is distinguished from all other cultivated Passion-flowers by its dark green Laurel-like leaves, and, when in flower, by the russet-red colour of the short reflexed petals, and the double series of erect filiform corona rays, which are coloured a rich violet with white bands. The fruit is egg-shaped, 3 inches long, and purplish brown when ripe, so that it resembles the fruit of the well-known P. edulis, the Sweet Cup of Jamaica, and cultivated in a few gardens in England for the sweet, watery juice of its berries. English-grown fruits of these Passifloras, as well as of the Granadilla (P. quadrangularis) are usually mawkish, and relished only when well sugared or in other ways rendered palatable, and no doubt this inferiority, as compared with the delicious lusciousness of the fruits of Passifloras produced in the tropics, is partly explained by the absence of intense and continual sunlight. In tropical countries the parched palate, too, must often find refreshment and delight in what would not be though much of in this country.

GARDEN IN THE HOUSE.

FLOWERS FOR HARVEST FESTIVALS.

HARVEST festivals having become general all over the country, and flowers forming as they do such an important feature in connection with them, reference to some of the most suitable for the decoration of churches and other buildings may be useful. Anyone who has been much engaged in this kind of work will, I think, agree with me that where large quantities of flowers are wanted a certain space of ground should be set apart specially for their production as cutting them from beds or borders causes sad disfigurement. It will be readily understood that in order to make conspicuous decorations rather large flowers are necessary. The Dahlia is perhaps as valuable as any for such purposes, especially the large show and double Pompon varieties. Single ones also come in admirably for positions more immediately under the eye. The large double sorts are indispensable for the decoration of lofty buildings, as the blossoms are bold in character and embrace many striking colours. Of the latter the most useful perhaps are yellows, whites, and scarlets, large numbers of which should be provided. Tasteful arrangements may be made with the flowers of Pompons, especially in the case of crowns or monograms. Some good lilacs and fiery reds work in well with a judicious mixture of greenery. The annual Asters are also indispensable for this class of decorations, as they last in good condition for a long time. The most showy, on account of their large size, is the Chrysanthemum section. These produce very large flowers, which are most useful where masses of colour are required. They may be pulled up intact out of the ground, or cut off just above the soil, and the whole plant may be used with good effect if desired, or the individual blooms may be used in any way where wanted. The Victoria is another grand class for forming masses of colour, as are also the quilled varieties, but the latter are generally preferred for mottoes or devices, as they possess better form and outline than the others. Asters for this purpose need not be raised in heat. If the seed is sown on a warm border in the middle of April, and the plants are brought on under hand-lights, they will be well in flower by the middle of August, which is as soon as they are generally wanted. They require to be grown in an open position where the ground is thoroughly rich, and in order to obtain large flowers the plants must stand 15 inches apart each way, and receive an abundance of water in dry weather.

HOLLYHOCKS are also valuable for decorative purposes; few other flowers, indeed, are so stately in their bearing, and the larger the building to be decorated the more will they be appreciated, as whole stems may, if desired, be used, or the stems may be cut into lengths. The individual flowers may also be removed from the stem, and used for devices or other purposes. The flowering portion of the stem I, however, look upon as being the most valuable, as, if the plants have been well grown, there will be ample foliage associated with the blooms to set them off to advantage. There is, too, such a wide range of colour amongst the flowers, and they are so thickly set on the stem, that no list of blooms for indoor decoration would be complete which did not include them. The best way in which to grow Hollyhocks is to sow seed of them in the open ground in July or early in August, and, if the plants are well attended to, they will be strong enough to plant out early the following spring, and will flower grandly at the end of the summer, but they require to be planted in rich, well-prepared ground, and to be well watered in dry weather.

GLADIOLI of the gandavensis section are undoubtedly amongst the most brilliant of all flowers for

church decoration that blossom late in the year. The colours are not only bright, but they are also varied, and there is no other plant with which I am acquainted that lasts so long after it is cut. The flower-spikes are admirably suited for suspending in bunches if desired, and also for mixing with other subjects. The most reliable way in which to get and maintain a stock of these flowers is to raise one's own corms, which may be readily done from seed. Plants thus raised will flower strongly the third year, and a little seed sown every year will keep up the stock. The next best plan is to buy seedling bulbs of a flowering size, as these invariably do better than named sorts, which are reproduced by offsets. Gladioli must be planted in deep well manured soil, and they should have a change of ground every year. Hyacinthus candicans, although not a striking plant, has tall flower-spikes, towards the tops of which hang numbers of white bell-shaped flowers, admirably suited for mixing with other things, and, owing to the length of the stems, the operator, with the aid of these, will be able to break up what might have been a flat or monotonous surface. Being a hardy plant, and indifferent about soil, anybody can grow it. Three or four-year-old bulbs, if planted in good soil, will push up flower-stems 4 feet in height.

Harpalium rigidum, when used in sufficient quantities, is a very showy plant for indoor decoration. Its bright orange-coloured florets and black disc render its flowers very conspicuous, and as its stems reach a height of 4 feet, they may be used with striking effect in large or small quantities. With plenty of greenery as a background, and a large handful of the stems tied together at the bottom, and the ends encircled with damp green Moss to keep the flowers fresh, a bright bit of colour can be produced for filling up recesses or angles in rooms. No plant is more easy to grow than this, and it will thrive in almost any kind of soil; its only fault is that its roots cannot well be confined to any particular spot; they have an awkward way of running beneath the surface, and sending up shoots next season some distance away from the old stool. The best way in which to grow it for indoor decoration is to plant a mass of it in some position where its spreading proclivities do not interfere with other subjects. Hydrangeas are hardy flowering shrubs, the blossoms of which come just in time to be useful, and where good-sized plants exist they afford large quantities of them. The common Hydrangea is perhaps the freest flowerer, but H. paniculata and Thomas Hogg are both desirable sorts, the last-named producing white flowers. These plants, when well grown, bear large heads of flowers, which are conspicuous in decorative arrangements when used in sufficient quantities. They are not quite hardy in all parts of the country, but in all doubtful situations they should be planted pretty close to a wall facing the south or west, and be allowed to grow away from it in their own way. Chrysanthemum Leucanthemum thrives anywhere, and its flowers last long in good condition, *i.e.*, if the stems are tied up in damp Moss. Large armfuls of this may be cut from a few strong plants, which, if they get plenty of sun and air, will grow in any odd corner. Its florets are pure white and the disc yellow.

Michaelmas Daisies are not, as a whole, particularly showy, but they produce flowers so freely on long stems, that they will be found useful where decorations are carried out on an extensive scale. Amellus has violet-purple coloured flowers that are large and showy. Sunflowers are indispensable in decorations for large buildings, and they are so easily grown that I need not say more about them. Zinnias, too, are useful where there are tables to decorate, as both in form and colour the flowers are good. In neat devices I have always found Sweet Peas to be much valued; but in order to have them in quantities so late in the summer they require special treatment. The seed should be sown about the middle of May in a trench prepared for it as for Celery. During summer they must be well watered, if the weather is dry, and be supported by sticks in the usual way. The seed-pods that succeed the first flowers must in all cases be cut off as soon as they appear, as their production exhausts the plants and stops their flowering.—*Field.*

Yuccas and Ivy for balcony culture.—One of the balconies in Portman Square is now a picture of freshness and leaf beauty, even amid dust and smoke; the baleony railings are covered with gracefully drooping Ivies; three or four plants of Yucca recurvata, too, in ornamental vases, break the formal line of the trellis below and give a finishing touch to the whole arrangement—one of the best of the kind, by-the-by, that I have seen for some time. —H. B.

PLANTS IN ROOMS.

We have many plants that are well adapted for use as permanent ornaments for apartments, although there are but few in general employed for that purpose at present. Among the plants best adapted for the permanent decoration of apartments we may mention Ivy, Palms, hard-leaved Ferns, such as Cyrtomium or Niphobolus, and many of the more vigorous-growing American Aloes or Agaves. The common India-rubber, Ficus elastica, is also invaluable for indoor decoration, as are also many of the Yuccas. For the temporary decoration of saloons, drawing-rooms, or reception-rooms, we have a much larger variety of plants at our disposal. Many of the Palms and Ferns generally cultivated in stoves may be gradually inured to a cooler temperature before removal, and can then be used during mild weather without much injury. Flowering or foliage plants, judiciously arranged, are always attractive as indoor ornaments. Hard-leaved plants, as Palms, Ficus, Cycads, and Aralias, are specially adapted for indoor culture or for temporary groups, and can easily be cleaned and refreshed by occasional spongings with clean tepid water. Dust and gas, and excessive aridity in the atmosphere are always, more or less, injurious to all plants, but those we have named will stand better than most others under these unfavourable conditions. We have still much to learn with regard to the indoor uses of plants, and, in this respect, might do worse than imitate the Parisians, or inhabitants of North Germany, many of whom make room and window gardening contribute much towards the comforts and attractions of home. B.

NOTES OF THE WEEK.

Alocasia Sanderiana.—Not only is this plant one of the most distinct and effective of the genus, but it has the additional recommendation of doing well in a lower temperature than that required by most of the family. It is very effective even in a young state.

Griffinia hyacinthina.—On this very beautiful old-fashioned plant the variety splendens, now flowering in Mr. Bull's nursery, is a great advance, both in size of flower and in the intense richness of its amethystine petals. It is a plant well deserving more extended cultivation than it generally receives, blooming, as it does, at a season when flowers are somewhat scarce.

Lilium auratum at the National Art Treasures Exhibition, Folkestone.—We have here a fine specimen of Lilium auratum, kindly lent by Mr. J. Lonsdale, of Sandgate. It is the produce of one bulb, bought nineteen years ago, and never since disturbed. It is in a tub, and is bearing 45 spikes, on which in a few days there will be 315 fully-developed flowers. Last year it bore 275 flowers.—Henry King.

Crotons at Holloway.—Crotons are often too heavily shaded; as seen in the Victoria Nursery, they are most brilliant—fountains and pillars of gold and fire. Here they are staged close to the glass, and therefore fully exposed to the sun. They are never shaded, and those whose Crotons are without colour should adopt this system. It will soon produce a marked difference in their appearance.

Lilium tigrinum Leopoldi.—This form is so much better than the ordinary Tiger Lily, that when placed side by side, the latter suffers greatly by the comparison. Its flowers are larger, and the spots are more conspicuous and richer in colour; the plants, too, retain their leaves better, a matter of importance when grown in pots. Large masses of this variety form at present quite a prominent feature in Mr. Bull's nursery at Chelsea.

A graceful basket Grass.—Ophiopogon intermedius is one of the most graceful plants with which we are acquainted for decorating hanging baskets, or for edgings to borders or stages in stoves; its soft, green, crispate leaves render it very effective. It is not readily crushed or broken, and it affords a pleasing contrast to plants having brightly coloured flowers. For such purposes Mr. Bull uses it with excellent effect.

Eucharis Mastersi.—This elegant species, placed in commerce this season by Mr. Bull, undoubtedly rivals in beauty the older and well known E. amazonica, not on account of its size, for its flowers are smaller than those of amazonica, but from its greater adaptability for button-hole bouquets and shoulder sprays. The flowers, which are of the purest white, are delicately fragrant, and have a refined appearance, just suiting them for the purpose indicated.

Haplocarpa Leichtlini.—Some flowers of this plant have reached us from Mr. Ware, of Tottenham, and we think them extremely pretty. The plant is a Composite, with flowers as large as those of a Doronicum, bright yellow inside and stained with purple outside. They are produced singly on stalks nearly a foot high. The leaves are deeply cut, and their under surfaces are quite white. We have no experience of its hardiness, but we imagine that it is quite hardy, judging by the specimens before us.

Exhibition at Dresden.—A great international horticultural exhibition, of which the King of Saxony is a patron, is announced to take place at Dresden during the second week of May next year. It will be held in one of the fine old royal parks close to the city. The schedule embraces 392 classes, and about £1000 are offered in prizes, which number about 1000. Special invitations are given to foreign exhibitors, so as to make the show as international as possible.

Passiflora vitifolia is a beautiful climber for a warm greenhouse, surpassing all other Passion-flowers in the brilliant scarlet of its large graceful blooms. In a cool house, where, for instance, P. cærulea would be at home, this species would not thrive, nor yet would it in a stove; but on the roof of a Cattleya house, in a warm conservatory, or on the end of a vinery it grows and flowers well. It must have plenty of sunlight too, and, of course, a rich soil with liberal allowances of water in summer. It may now be seen in flower at Kew.

Chrysanthemum atratum.—Mr. E. G. Loder has sent us a photograph of this plant growing in his garden at Floore, Weedon. The specimen is 3 feet 8 inches high and as much across, and bears 670 flowers, each 4 inches in diameter. They are white with yellow centres; in fact, very similar to those of Leucanthemum maximum, to which the species is nearly allied. It is a native of Central Europe, and is also known as C. ceratophylloides. We intend to have an engraving made from the photograph.

Crimson Cactus Dahlia.—Mr. Hartland, of Cork, sends us flowers of a very fine double Dahlia, which, as regards shape, is only comparable with the Cactus Dahlia (Juarezi), though in reality quite different. The flowers, which measure about 5 inches across, are of a glowing crimson, and the florets shine with a satiny lustre. It must be an extremely effective sort in the border. Mr. Hartland sends for comparison one called Cochineal, which is not only much smaller and inferior in shape, but duller in colour. He believes that his large crimson Dahlia has existed in Ireland for many years.

Gloxinias at Heatherset.—This collection when we saw it a few days ago was very fine. Imagine a thousand plants, each bearing from seven to fourteen flowers, and some idea of the effect produced by them may be formed. They are only in 3-inch pots, but the blooms in some instances measured upwards of 2 inches in diameter. The kinds included erect French spotted kinds, English erect forms of every variety and shade of colour, and selfs rich and, in some instances, new in colour. A badly shaped flower amongst them was an exception.

Aristolochia elegans.—This lovely climbing plant, to which allusion was made last week, is not so robust as to require much curtailment in order to keep it within bounds; on the contrary, it thrives admirably even as a pot plant. Its shoots are slender, its leaves medium sized, green above and slightly glaucous beneath, and from their bases hang in profusion flowers of singular beauty. They are deep velvety purple—in short, nearly black, and mottled with creamy white, the throat being golden coloured. Owing to its neat habit, this is a plant which can be grown by everybody, whilst the fact of its blooms being destitute of any evil odours which most of the species possess renders it all the more welcome.

Begonia gracilis is a beautiful cool house plant, and should be grown even in gardens where the large-flowered tuberous-rooted kinds are in favour, for, although like these it has a tuberous rootstock, annual stems, fleshy green leaves and large flowers, it differs in several particulars, whilst in habit it is, as its name

denotes, graceful. From the rootstock several erect, unbranched stems are developed, and these when about 2 feet high bear from the axils of the leaves two-flowered racemes, a male and female flower springing from each cup-like pair of green bracts at the top of the peduncle; their colour is a beautiful crystal rose, and they are 1½ inches across. Along with the flowers, and produced in the subtending bracts, are clusters of tiny bulbils, which may be taken off and preserved as seed till spring, or they may be sown at once and the pots kept in a cool place till winter is over. Easily grown, for it thrives only when kept in a cool house or frame, easily wintered, and propagated without any trouble, this Mexican Begonia should become a popular garden plant. It is sometimes known as B. Martiana, B. diversifolia and B. annulata. The soil it thrives best in is sandy peat and leaf-mould.

Pancratium speciosum is a magnificent plant, and is almost as easy to grow as an Aspidistra. Its large heads of pure white flowers are not equalled by any other stove bulb, even Eucharis being its inferior in this respect. Either planted out in a rich border or in large pots it grows well and never fails to flower. It likes shade, that is, it may be grown under Palms and such like tall plants without suffering in any way. In addition to the size and beauty of the flowers they have a most fragrant odour. Altogether, this plant deserves to be placed in the very first position among useful stove-flowering bulbs.

Spiræa callosa alba.—If this is a white form of Spiræa callosa, it differs from the type in many other particulars besides the colour of the bloom, but, whether the above is its proper classification or not, it is a most beautiful flowering shrub at this season of the year, and under anything like favourable conditions it will continue to bloom till frosts set in. I had last year some not very large plants here in bloom from July till October—surely a long enough period. This Spiræa forms a low dense-growing bush, with flattened clusters of pure white flowers, that are produced so freely as to almost cover the upper portion of the plant. The delicate character of the flowers fits them for employment in a cut state if gathered just before they expand.

Shropshire Horticultural Society.—The annual summer show of this society was held in the Quarry Grounds, Shrewsbury, on August 18 and 19. The exhibits were more numerous than at any previous show, there being no fewer than 900 different subjects staged in the cottagers' tent alone. Fruit, too, was very extensively shown, and formed, perhaps, the most striking feature of the exhibition. The receipts at the gate were very satisfactory; on the second day, when the charges of admission were the popular ones of 1s. and 6d., no less than £115 was taken. The very handsome prizes of £25, £20, and £15 for plants, as well as £10 for Grapes, and £10 for a collection of fruit, provoked keen competition. During the last half-dozen years the society has given upwards of £1430 to Shrewsbury institutions out of its surplus funds.—Cambrian.

Aristolochia tricaudata and **A. ornithocephala** are now flowering freely at Kew, and are remarkable in structure as well as in odour. The former has flowers singularly like those of a Chimæroid Masdevallia; the saucer-shaped limb with three drooping tails, each 6 inches long, the tawny brown-red colour, and the position of the flowers being not unlike what one sees in Masdevallias. The Kew specimen, which stands in the Victoria house, is a shrub 4 feet high, with arching branches from which the flowers hang singly from the leaf axils. A. ornithocephala, now called brasiliensis, is a very large-flowered kind and climbs half way up the roof of the Palm house, where its blooms would be passed by unobserved were it not for their disagreeable smell.

A long-winded name.—Most of us think it sufficient to have to master two long and unfamiliar Latin words as the name for each kind of plant that we grow, but what is to be thought of this string of words fastened on to such a pale-faced innocent little plant as the white-flowered Anthurium, viz., Anthurium Scherzerianum album maximum flavescens? One wants to take breath in the middle of such a sentence. Possibly some of our nurserymen imagine that a new plant with an imposing name like this will surely attract attention. One of the good works of the great Linnæus was to abolish names of the above kind for binomial ones, that is, a generic and a specific name, but it would appear that we are being led back to the pre-Linnean period, or why should such a name be catalogued as the above? We will not mention the title of the periodical in which this name appears, but it is a respectable Continental one.

Aster Townshendi.—To many, and even those who grow collections of hardy plants, this Aster is a stranger, yet it has been known in botanic gardens for years. It is only lately that nurserymen seem to have discovered it, as being something worth their notice. It is really a beautiful plant, and we are glad to see that Mr. Ware, of Tottenham, thinks highly of it. Judging by the specimens he has sent to us, it succeeds admirably at Tottenham, and we presume it has proved itself perfectly hardy there. It may be best described as being in the way of A. Amellus, but its colour is a bright purple, and the florets are narrower and more numerous. It may be at once recognised by the bristly involucre. It grows a foot or more high, and is floriferous.

Montbretia crocosmæflora.—The New Plant and Bulb Company send us from Colchester a series of so-called varieties of this plant, all with different names, but we fail to find any difference amongst them in a cut state, though perhaps they may be distinct in growth. There are six named sorts, all with flowers of a bright orange-red, except one called Etoile de Feu, which has much darker flowers than the others. It seems a pity to multiply names in this way. The Continental raisers, however, are responsible for it. The names of the sorts sent are Etoile de Feu, aurea, elegans, Bouquet Parfait, pyramidalis, and Grebe d'Or. From the same nursery also come spikes of Watsonia Meriana, a showy Cape bulb with bright orange-scarlet flowers; likewise Antholyza Cunonia, with curiously shaped scarlet flowers.

The Butterfly Flower (Asclepias tuberosa).—This is one of the prettiest and most interesting of August hardy flowers, though it is not often that one sees it grown or flowered well. It is a hardy perennial, growing about a foot high in tufts, each stem carrying three or more dense clusters of orange-scarlet flowers of curious shape. The flowers are intermixed with the foliage, and as the clusters expand from below upwards, the plant remains some weeks in bloom. It is reputedly a difficult plant to manage, but in rich and moderately stiff soil it succeeds famously, particularly after warm and dry summers, which suit it admirably. In Mr. Ware's nursery at Tottenham it thrives to perfection, and is now covered with blooms, some specimens of which he sends us for our table.

Aquilegia Skinneri.—We have received flowers of this rarely seen Columbine from Mr. Hartland, of Cork, who states that he has a bed of it in full flower for the second time this season. To those who do not know the plant it may be best described as being similar to A. californica (truncata), and may probably be only a southern form of that species. The flowers measure 2½ inches long, including the stamens, which protrude half an inch or more. The sepals are greenish yellow, and the petals bright orange-red tipped with greenish yellow. They are spurred in the usual way. The flower-stems grow from 1½ feet to 2 feet high, and produce an abundance of flowers on slender stalks. It is a most elegant and pretty plant, and if it could be kept pure, *i.e.*, not hybridised, it would find many admirers. It comes from Guatemala, where Mr. Skinner found it in the mountain districts; hence it is almost, if not quite, hardy in England, and it seems perfectly so in Ireland.

National Chrysanthemum Society's catalogue.—About six months ago we intimated that a sub-committee had been appointed to revise the official catalogue published by this society. That work has now been done, and the result is a handy book of 36 pages—a considerable improvement upon the former edition. The varieties enumerated and described are divided into ten sections in the following manner: 1, Incurved varieties; 2, other incurved varieties not so generally cultivated as the preceding; 3, Japanese varieties; 4, other Japanese varieties not so generally cultivated as the preceding; 5, reflexed varieties; 6, large Anemone varieties; 7, large hybrid Anemone varieties; 8, Pompon Anemones; 9, Pompons; 10, summer and early autumn varieties. The type used for the varietal names is clear and distinct, and the descriptions of all the leading kinds are more fully set forth than hitherto. Considerable pains seem to have also been taken to ensure orthographical accuracy. A noticeable feature of this catalogue is the addition of the raisers' names in the leading sections; while the synonyms have been so treated that the grower will be sure to find a flower under any name which it may happen to bear.

Disa grandiflora.—From Straffan House, Kildare, Mr. Bedford has sent us some fine specimens of three distinct forms of this grand plant. Of these the finest is that named superba, which has sepals of the most vivid scarlet imaginable and the shell-like labellum of a yellowish-white ground veined and pencilled with crimson. The second variety is named violascens, so called on account of the distinctly violet tinge with which the whole flower is suffused. The sepals are more crimson than those of superba and the lips are tinted with rose. The third variety has broader sepals than usual, and these are tipped with pale yellow. Lovelier or more distinct varieties of Disa than these we have not seen, and as their stems are over 2 feet high, they have a fine appearance. Mr. Bedford states that this year there is at Straffan a group of Disa carrying no fewer than 156 spikes! Such a striking display as this is rarely seen, even among Orchids. The fact shows that Disa culture is well understood at Straffan.

Trees and Shrubs.

THE WHITE ALDER.

(Clethra alnifolia.)

What is known as the White Alder of the United States is a valuable shrub, as it flowers at this season. The Clethras resemble each other so closely, that C. alnifolia may be taken as the type of them all. It forms a rather loose-growing deciduous shrub, with neat foliage of a pleasing shade of green and spikes of pure white blossoms. The individual blooms are about one-third of an inch in diameter, and being borne in densely packed spikes from 3 inches to 5 inches long, they form a goodly display when at their best, and where favourably situated will last in bloom a long time. There are several varieties or species to be met with in different lists, the most distinct of which is, perhaps, C. acuminata, but that only differs in the leaves being more pointed than in the other form. Another feature is the pleasing fragrance of the blossoms. The Clethras are natives of the swampy districts of North America, and consequently succeed best in a cool, moist, and rather shaded position—indeed, conditions such as the hardy Azaleas and many other Ericaceæ delight in. The White Alder is rather an uncommon shrub in gardens, yet it was introduced as long ago as the early years of the last century, and in many places there are spots where it might be successfully grown. It is quite hardy, and another point to bear in mind regarding it is that the Clethras, differing widely from many of their allies, do not form a dense mass of roots (indeed, they are rather sparing in this respect), and consequently need considerable care in removal. Though the North American kinds are all closely allied, there is a species very widely removed from any of these, and that is the evergreen C. arborea, a native of Madeira, which consequently needs the protection of a greenhouse in this country. It forms a low-growing tree, suggesting an affinity to the Arbutus, and bears spikes of deliciously scented Lily of the Valley-like flowers. For large conservatories it is well suited, the dark green foliage being attractive at all seasons, while the floral display occurs about July and August. H. P.

Clematis coccinea.—There seems to be a diversity of opinion as regards the merits of this plant.

After a considerable experience of it, I am convinced that individual plants vary greatly as to the attractiveness of their blossoms, some being not worthy of comparison with others. Among the finest forms that have come under my observation is the large plant at the Coombe Wood Nursery, and a specimen that flowered a season or two ago in the temperate house at Kew. Such as these would commend the scarlet Clematis to all, but the washed-out flowers that I have occasionally seen would as surely condemn it. A lesson to be learnt from this is, in buying a plant, purchase it if possible when in flower, or at all events go where a good strain exists.—Alpha.

VERONICA ANDERSONI.

This shrubby Speedwell is one of the most useful plants in cultivation, either for window, conservatory, or outdoor decoration. It requires no special care, is evergreen, ornamental in leaf, and beautiful when in flower. It is perhaps best described as a hardy greenhouse or cool conservatory plant, though it is not by any means so tender as most others grown in these structures, and it will stand with impunity several degrees of frost. In the warmer parts of England it is treated as an outdoor plant or shrub, and it will survive a mild winter in many favourable parts of Scotland. I have seen some specimens of it from 10 feet to 20 feet in diameter and 8 feet high, grown in exposed positions in the Isle of Wight, where they are also extensively used in shrubbery borders and for centres to large flower-beds. In Ireland, many fine specimens of V. Andersoni are grown out of doors, but there the climate is more favourable for such plants than it is with us. When allowed to grow too vigorously out of doors they soon assume a straggling habit, but when judiciously thinned in spring, and otherwise treated so as to produce moderate growth, they flower and stand vicissitudes of weather better than plants that receive more liberal treatment. Should any doubt, however, exist as to their wintering safely, they may be covered with a mat, or protected by means of a thin thatch of Broom interwoven in a network of rope-yarn, dried Fern, Asparagus straw, Pea or Bean haulm, or other material of that kind during frosty weather, and uncovered throughout the day, and altogether in mild weather. A mulching of leaves, Cocoa-nut fibre, or litter ought also to be placed over their roots, for by this precaution their roots are often saved when their shoots are entirely destroyed, and they break again in spring and form good fresh plants. Out-of-door plants, if left uncut, bloom from July onwards, but if pruned hard in spring, they form a large quantity of young wood that flowers late, and is often too soft to safely withstand our ordinary winters. Wherever plants of this Speedwell are grown, the sub-soil should be open and porous, permitting a ready escape of all moisture; for, if otherwise, a sickly constitution and soft watery unripe growths will inevitably be the result.

Pot culture.—This Veronica forms one of our most accommodating pot plants, and thrives well in a good sandy loam enriched with decayed manure. Pots about 6 inches or 8 inches in diameter are quite large enough for it, and it enjoys abundance of water from the time it starts into growth until it ceases flowering, when the supply should be gradually lessened, though never entirely withheld. In this stage the plants are available for conservatory decoration, or for parlour or window ornaments. For windows, indeed, it is one of the best of plants, for its glossy green leaves, if sponged now and then, always look fresh and green, and its longevity and floriferous character, under such circumstances, are also recommendations not to be overlooked.

It is seen to best advantage when planted out in some good soil in a cool conservatory or winter garden. Thus circumstanced, it grows so quickly that annual thinning and pruning of the shoots are essential. Here they continue to flower very late in the year, and, being under protection, their blooms always perfect themselves, and are extremely serviceable where cut flowers are in demand. In cutting, remove the flower-spikes only; for if the points of the shoots are sacrificed, the plants are checked; if left undisturbed, they will bloom, grow, and flower almost incessantly.

For bedding-out.—Young plants of this Speedwell make good bedding plants, especially the variegated-leaved sort, which has precisely the same kind of habit as the green-leaved kind, and which is more effective than that sort in the flower garden, in which it makes a good substitute for variegated Pelargoniums. As a vase plant the variegated variety is also most effective, especially when associated with Creeping Jenny, Tropæolums, or Ivy-leaved Pelargoniums, and the plants of it used, both for bedding purposes and for vase decoration, should be lifted and potted in October, and placed in a pit or greenhouse during winter.

This Speedwell may be increased readily by means of cuttings of the young shoots slipped off in spring with, if possible, a heel attached to them. Remove the two base leaves and cut the heel cleanly with a sharp knife, then insert them in silver sand or half sand and half sifted leaf soil, in a brisk heat. Here they must remain for a few weeks till rooted, when they should be lifted and potted into 3-inch pots, and, as they advance in size, they should be shifted as required, until they occupy 6-inch pots. Those who have no artificial heat, such as is afforded by hot-water pipes or a manure bed, should not attempt to propagate this Veronica till July, when the young stubby growths may be selected and treated like those of Verbenas, that is, struck in a cold frame. Care ought to be exercised in choosing the shoots; the points of the strongest young growths have rudimentary flower-trusses visible at every joint; consequently, such growths as do not possess these are the most serviceable for producing young plants.

W.

CLADRASTIS AMURENSIS.

The Yellow Wood of the United States (C. tinctoria) has been long known in this country, but the C. amurensis is of comparatively recent introduction, and can be still classed with the more rare trees and shrubs. It forms a low-growing, much-branched tree or large shrub, with stout leathery pinnate leaves of a dull green colour. The flowers are borne about the latter half of July or beginning of August in erect, densely-packed spikes. The individual blooms are small and of a whitish hue, their most prominent feature being the profusion in which they are borne, for even a small specimen not more than 6 feet high will, during the blooming season, be quite studded over with its erect spikes of bloom. It appears to hold its own, and flowers well even in hot, dry soils; indeed, a specimen I recently saw under such conditions was so covered with bloom, as to suggest the idea that perhaps such treatment had induced extra floriferousness. It is a native of North-eastern Asia, from which district many plants have been introduced by the Russian botanists, the Cladrastis among the number. This latter is also known as Maakia amurensis. The better-known kind, C. tinctoria, is a native of North America, and, according to Loudon, was introduced in 1812. It was at that time regarded as a Virgilia, under the name of V. lutea, another of its synonyms being V. tinctoria. It forms a much-branched tree 20 feet or 30 feet high, and bears a profusion of pure white blossoms about the same time as the first-mentioned species. The flowers are more showy than those of C. amurensis, from which they differ in being larger, of a purer white, and borne in drooping instead of erect racemes. The rich yellow of its decaying leaves forms a very attractive feature in autumn. The North American Yellow Wood is best suited in a rather warm and dry soil, as the wood is then well ripened and a good display of flowers is the result. T.

The Guelder Rose (Viburnum Opulus).—The sterile form of this Viburnum is well known as one of the finest of all flowering shrubs, while the typical species that produces but a few barren blossoms towards the outside of the cluster of small fertile blooms, and is consequently far less showy than its variety, compensates for this by an autumnal display of fruits, which are bright red in colour, and borne in such profusion as to render a plant of it a very attractive object at the present time. The fact of its berries being now ripe would, indeed, point out that towards the latter part of the summer their brightness would claim recognition. The glowing red colour of the decaying leaves forms a prominent feature of this shrub in autumn. The Guelder Rose (especially the sterile form) is, like the Lilac and Flowering Currant, everybody's shrub, for it will thrive under widely different treatment, though the conditions most favourable to its full development are a fairly good holding soil in not too dry a situation. It possesses the great merit of being thoroughly hardy.—H. P.

Elæagnus hortensis.—This South European shrub forms a conspicuous feature in the landscape from the bright silvery hue of its foliage, which is still more noticeable when the long slender shoots are stirred by the summer's breeze. The under surfaces of the leaves are by far the brightest, so that when moved by the wind an everchanging effect is produced. It will grow well even in light sandy soils; indeed, the foliage is then brighter than when in a damper spot. Many of the Japanese species of Elæagnus are evergreen, but this is deciduous, though the leaves are retained well into the autumn. The fruits are not freely produced, and even when borne their brownish colour does not render them so conspicuous as those of a nearly allied genus, viz., Hippophæ rhamnoides, whose bright orange-coloured berries are borne in the greatest profusion; indeed, when in a thriving condition the twigs are often densely packed for about a foot with these berries, and being terminated by the current year's shoots, that retain their silvery leaves well on into the winter, have a very pleasing effect. Though it will thrive well inland, the Sea Buckthorn, as this Hippophae is called, forms a good seaside plant.—T.

The Mountain Ash.—This popular tree already makes a goodly show with its berries, not only under the most favourable conditions, but also when in wild and exposed spots, and as a direct contrast to that, even in the smoke of towns, where in many cases the coral-red berries serve to lighten up some otherwise dull and sombre spot. The Mountain Ash, indeed, is well worthy the attention of planters for ornament, as it is perfectly hardy, by no means particular as to soil or situation, and is very handsome in foliage, flower, and fruit, as well as in the general contour of the specimen. In spring just as the young foliage is developed, and the tree studded with clusters of white blossoms, it arrests attention as a most ornamental object, while, as above mentioned, this is surpassed in autumn when the fruit is ripe. There is also a variety with yellow berries, which is somewhat uncommon, but none the less valuable from an ornamental point of view. Besides the above noted qualities the wood of the Mountain Ash or Rowan is fine-grained, hard, and may be used for a variety of purposes.—Alpha.

The Oak in the landscape.—The colour of the Oak in the landscape, says an artist, admits of a great variety of tints induced by change of season, from the tender and emerald hues of spring to the deeper bloom of summer, and the rich and glowing tints of autumn. An astonishing diversity of colour is effected by accidental circumstances, dependent on the different aspects of morning, noon, and evening; on sun and on shade; on the colours of the sky and the clouds; on the clearness or haziness of the atmosphere, and its consequent powers of refraction; on opposition of colour; on the situation of the spectator; and on many other contingencies, all independent of the local colour of the object, yet all strongly affecting it. It is quite impossible, therefore, to give in any written description, with tolerable conciseness, sufficient instruction for selecting the colours necessary to depict objects so constantly varying in their hues. A few simple tints on the palette and an hour's study in the forest will be more instructive than a volume of remarks.

THE MONTEREY CYPRESS AT HOME.

Few of us who take any interest in trees have not seen beautiful specimens of this tree in British gardens. It grows freely throughout our country generally, but is especially good in seashore and mild districts both in England and Ireland. Nevertheless, though so free, it is not a really hardy subject. In some districts we have seen it killed in very severe winters, though plants are always worth planting for their youthful grace. Mr. Faunce de Laune, of Sparsted Court, Kent, who has lately visited California, showed us some fine photographs of this Cypress in its native home, and we selected for engraving one of the most characteristic of them, which we now produce. One of the most picturesque scenes on the beautiful Pacific shore of North America is that where these trees grow wild at Monterey. The moist, but genial, climate of that shore affords conditions that only certain parts of our own country fulfil in some degree, and therefore, though this is a beautiful garden tree, we never look forward to it as being one of great value for our country. Still, few trees present in their native homes a more beautiful aspect.

The Monterey Cypress (Cupressus macrocarpa) at home on the Pacific coast. Engraved for The Garden from a photograph sent by Mr. Faunce de Laune.

Abelia rupestris.—This extremely pretty shrub continues in bloom for three or four months in succession, and that, too, at a time when flowering shrubs are by no means plentiful, viz., from July onwards. It forms a low, much-branched bush, furnished with deep green glossy leaves and slender, drooping shoots, towards the points of which the flowers are produced in clusters. Its blooms, which are tubular, are about an inch long, and white tinged with pink. They are also agreeably scented. Besides forming an effective little bush in the open ground, this Abelia is a desirable rockwork plant; its somewhat drooping shoots are seen to advantage overhanging a rocky ledge, or in some similar position; while as a plant for covering low walls it is well suited, sufficient protection being thus afforded for it even in the severest of winters. Cuttings made of the half-ripened shoots strike root readily if kept close and shaded till they become established. This Abelia was introduced by Fortune many years ago, but it has never become popular. Besides it there are other species, amongst which the best known are uniflora, triflora, and floribunda.—H. P.

THE HIMALAYAN FIR.

(ABIES SMITHIANA.)

This handsome Spruce, introduced to us about the beginning of the present century, is one of the most distinct, constant, and beautiful of the genus, inasmuch as its gracefully pyramidal habit is rendered strikingly beautiful by the slender terminal and lateral branchlets being pendulous to, perhaps, a greater extent than those of any other Conifer, not even excepting its near rival, the Deodar. It is freely distributed throughout the mountains of Northern India, China, and Japan at elevations ranging from 6000 feet to 12,000 feet, and where it attains heights varying from 100 feet to fully 150 feet, and 15 feet or 20 feet in circumference of stem. The branches spread horizontally, the laterals being very numerous, slender, and drooping, and densely clothed with rigid, incurved, sharply mucronate, deep green leaves from 1½ inches to 2 inches in length. The cones are nearly cylindrical, 5½ inches long, 1¾ inches in diameter at the thickest part, with broad, entire, rather thick, shining brown scales. The seeds are brownish-black, small and light, nearly 25,000 being contained in a pound weight.

Since its introduction this Spruce has been widely spread over the country as an ornamental tree, proving itself thoroughly hardy in most districts, although, in common with many other Conifers, it commences to grow before spring frosts are past, and forms a remarkably handsome lawn or park specimen of neat, conical habit, and well furnished with bright green pendulous branchlets. A rather moist, sandy loam and not too exposed situation are the chief requirements of this Himalayan Fir—at least under these conditions by far the finest specimens have been produced in this country. For wind-swept districts it does not seem at all adapted, unless, indeed, good shelter obtained by other large masses of trees is provided. Near the base of the Snowdon range of mountains, at an altitude of 600 feet, I have seen this Spruce thriving luxuriantly where planted in sheltered woodland glades, as well as when placed singly for ornament on the lawn and grounds, but in all these cases it was particularly noticeable how well the prevailing winds were guarded against by well-arranged woods and screens. Several fine trees of this Spruce are to be seen in the grounds adjacent to Penrhyn Castle, notably one on either side of the front approach leading from the principal entrance, and in which the fine drooping habit is well shown off. Both these trees exceed 50 feet in height, that on the northern side having a trunk-diameter of 2 feet 3 inches at a yard from the ground, and with a spread of branches 25 feet in diameter, the lower ones of which almost rest on the ground. These trees are in excellent health, as the well-furnished stems and abundance of dark green foliage amply testify, and, judging from their present rate of growth, will in years to come, should no accident befall them, be amongst the finest specimens of their kind on the estate. The soil is rather damp, fibry loam with a porous subsoil, and the aspect north-eastern. Cones have been borne in quantity, usually every second season, for the past ten years, but owing to the absence of male flowers the seeds are of no value for reproductive purposes. They ripen in February of the following year after being produced and then fall to the ground, so that in the case of this Spruce it is not necessary to pull the cones from off the trees, as, owing to the compactly arranged scales, the seeds do not come out when the cones are shed.

Another fine tree that also bears cones in abundance stands on the lawn near the entrance to the kitchen garden and within a few yards of the drive. As in the trees just described, the fine drooping spray is, in the one in question, shown off to perfection, and being backed up with tall shrubs on the gently rising ground, the peculiar habit of growth is distinctly observable. As a woodland tree we have also some experience with this Himalayan Fir, for in the formation of a plantation twenty-eight years ago alongside the London and North-Western Railway, between Bangor and Aber Stations, numbers of these trees were planted out experimentally, more, however, as contrast trees than for their ultimate value as timber-producers. As plenty of room was at all times allowed, these have grown into fine clean specimens of about 40 feet in height, and well branched for about three-fourths their length. When thinning the wood in which they occur some eight years ago, I must own that I was as agreeably surprised with the quality of the wood of this Spruce as I was disappointed with that of the Weymouth Pine (Pinus Strobus), for the former was sound, clean, and heavy, while that of the latter was core-rotten in almost every case; indeed, it was with difficulty that I procured sufficient as a sample of the wood grown on this estate.

In its native country the timber is but little thought of, being extremely soft, though clean and easily worked, but very perishable. Sir J. D. Hooker, in his "Himalayan Journals," says that this Spruce "has white wood employed for posts and beams."

I suppose it can hardly be that the quality of wood grown in Britain is superior to that in its native country, yet my observations and notes on that produced at Penrhyn certainly lead me to believe that, as far as appearance goes, it seems quite equal to wood of the common Spruce, but weightier in trees of equal age. The soil in the above woodland where this tree was planted experimentally is gravelly loam, of by no means the best quality, but such as retains moisture even during prolonged drought.

When planted in dry, sandy soil, in too exposed situations or too confined positions, I have always noticed that the growth is slow, the foliage thin, and the whole tree wanting in that distinct and beautiful appearance which is so characteristic of it when suitably placed both as regards soil and site. It is readily propagated by seed, by cuttings or by grafting, but as seed is now readily obtained and at a cheap rate, this method of raising young stock should alone be resorted to, as cuttings or even grafted plants are never so satisfactory, the disinclination to form a permanent leading shoot being always observable. A. D. Webster.

Large Eastern Plane.—Sir John Ogilvy, of Kempshott Park, Basingstoke, writes to us as follows regarding a fine specimen of this Plane: "I think I once mentioned to you that the largest Oriental Plane I had ever seen was at Charlton Park, Malmesbury, the seat of the Earl of Suffolk. I have since seen the tree again, and it may interest you to hear that at 3 feet from the ground it measures 17 feet in circumference, that it has a beautiful clean stem of many feet, and a splendid head. I mention all this, as I do not think I am wrong in the belief that, like myself, you are a lover of fine trees."

SHORT NOTES.—TREES AND SHRUBS.

Dracæna australis.—This seems to thrive in the grounds at Netley Fort, and we understand that some of the Australian Tree Ferns are to have a fair trial in the wooded glades there. Good specimens of these have a charming appearance in a garden.—W. H. G.

Hardiness of Japanese Maples.—Of this I have had further proof. The effect of frost-bite is often not visible till summer, but none of my plants has suffered; on the contrary, they are growing vigorously on stiff loam.—Otto Forster, *Lochenhof*.

White Beam Tree (Pyrus Aria).—Some fine examples of this tree may be seen in the grounds of Netley Fort, Southampton; the snowy whiteness of the under surfaces of the leaves contrasts strikingly with the dark green of the upper portions, especially when rippled by the wind.—H. G.

AUTUMN-FLOWERING SHRUBS.

A few additions may with advantage be made to the list of autumn-flowering shrubs given in The Garden (p. 141), the most important of which I take to be the following: Aralia spinosa—this is a stout-growing shrub, which quickly reaches a height of a dozen feet and produces suckers so freely as to soon form a large mass. Its huge triangular leaves are much divided, and the whole plant has a stately and subtropical aspect. It is, however, on account of its flowering properties that I have noted it here. The blooms are terminal and borne in large pyramidal much-branching panicles. Though the flowers are individually but small and greenish white in colour, yet they are borne in such huge clusters as to have a most imposing appearance, especially when the foliage is in good condition. This Aralia possesses the merit of being readily increased by means of suckers, that may often be detached with a few fibres adhering to them, while cuttings made of the roots quickly form plants; indeed, having occasion last year to remove a specimen of this Aralia, I was astonished at the number of young plants that sprang up from pieces of the severed roots that had been left in the ground. Desmodium penduliflorum must also be included amongst autumn-flowering plants, as it will often flower till cut off by frost. The stems die nearly to the ground after flowering, but a number of stout buds at the base break away freely in spring, and quickly develop into long slender wand-like shoots, the upper part of which is terminated by great numbers of closely packed Pea-shaped rosy purple blossoms. A single specimen of this Desmodium forms, when in bloom, a most beautiful object; it is, however, sometimes injured by early autumn frosts unless placed in a sheltered position. Closely allied to it is Lespedeza bicolor, which about the end of August or beginning of September becomes quite a mass of bright purplish blossoms. It forms a round bush a yard or so high, and though when in bloom very attractive, it lacks the graceful character of the Desmodium. Hydrangea paniculata grandiflora must be included in any selection of shrubs that flower during the latter part of the summer and in autumn. It is a plant that succeeds best under liberal treatment, and if, in planting a mass or clump of it, a fair amount of manure be incorporated with the soil, its effects will be visible in the size and profusion of the blooms, as well as in the deeper tint of the foliage. Its large heads of creamy white blossoms acquire a distinct reddish hue before they decay, particularly when fully exposed to sunshine. Clerodendron trichotomum is interesting as being a hardy representative of a family chiefly consisting of tender plants, and valuable from its autumn-flowering propensities. It forms a free, bold-growing bush, furnished with large rough heart-shaped leaves and panicles of white blossoms. Its most conspicuous feature, however, is its bright-coloured calyx, which in the species under notice is of a reddish hue. It is an effective shrub from a foliage point of view alone, but it should not be planted in too exposed a position, as the wind is apt not only to disfigure the leaves, but also to break off some of the weaker branches. It is a native of Japan, and may be increased to almost any extent by means of root cuttings; indeed, I had once occasion to remove an established specimen of it, and, as in the case of the Aralia, quite a crop of young plants sprang up from small pieces of the roots. Leycesteria formosa is also a pretty flowering shrub at this season, and the showy plume-like blossoms of the Tamarisk are often in good condition till quite the end of the summer. Darwin's Barberry will frequently give an autumnal crop of bloom, as, indeed, will some other shrubs at times. Spiræa ariæfolia, included in the list above alluded to of autumn or late summer-flowering shrubs, must be, I think, a misprint for S. Lindleyana, which blooms after the flowers of S. ariæfolia are all over. The latest flowering Spiræa with me, however, is the small S. callosa alba, which flowers sometimes till the end of October. The Wych Hazel, that bears its curiously shaped blossoms on leafless branches, flowers about the end of November. Many kinds of Ceanothuses, too, bloom beautifully in the autumn, one of the best of which just now is the hybrid variety called Gloire de Versailles. T.

FRUIT GARDEN.

DWARF APPLE TREES *v.* STANDARDS.

The question is continually being asked, What can I plant to induce my land to pay a fair rent? Well, I should not hesitate long. Whether I had one acre to plant or one thousand, I should plant Apples of the very best kinds grown. While we hesitate to plant a few acres from fear of not being able to dispose of them, American and colonial growers are planting thousands of acres specially for shipment to Europe. Now there can be no question as to the soil and climate of Britain being specially favourable for the production of first-class Apples. It has been proved over and over again at our autumnal fruit shows that our home growers can hold their ground against all comers as regards quality. Now, the first question that crops up when planting is proposed is, Will it pay? My own experience is that landlords could not do better than encourage the planting of Apple orchards. But for occupiers to do so without long security of tenure would be folly. No class of the community works harder than growers for market, but their energy is restricted to crops the benefits of which they can realise. I have myself seen cases of ruined fortunes through occupiers being compelled to give up possession before their trees had repaid half the cost of planting. It is to owners of land, therefore, we must look to do the planting, at least for some time.

Happily, we have some notable examples in fruit-growing counties of the possibility of landowners improving their estates by planting orchards, and if a correct return of the yearly sales of orchard crops was kept and published, I feel sure that in many counties where orchards are now but seldom met with they would soon become plentiful, for where laid down with Grass the whole of the feed is got for nothing, as well as a good percentage on outlay and expenses. Why should Kent and a few other counties monopolise the Apple growing of the kingdom? Surely there are other soils and situations quite as favourable as Kent for Apples, and if one were going to supply our large markets it matters little where we reside; the main thing would be to get land of good quality where rents were low. In Sussex there are some grand situations for orchards. In fact, all the southern parts of the kingdom are full of most eligible positions for Apple growing. It is a mistake to suppose that only deep, rich soils will produce Apples to pay. If the question was timber growing, there would be no doubt as to strength and depth of soil being required; but as to Apples, I have proved to my own satisfaction that there are a good many ways in which they may be profitably grown, and a good many forms of tree besides 6-foot-stem standards; productive though the latter may be in the fertile valleys of Kent, we have no use for them here, for the closer we keep our Apples to the ground the better. In the light warm soils of the south coast our dwarf bush Apples are most fruitful; they make short-jointed wood, which gets thoroughly ripened, and, therefore, they hardly ever fail to produce a crop, this year being no exception. The dwarfs this season are loaded, but the old and, as a rule, neglected orchard trees are very thin in the way of fruit. These dwarfs, however, belong to the popular free-bearing kinds that have gained a reputation during the past few years for freedom and certainty of cropping. The ground around their roots is well cultivated and enriched, and I feel sure that for shallow soils dwarf Apples are the ones to plant. It is useless to expect fine fruit from any kind of tree if its roots cannot find sufficient food, and that cannot be had if bush fruits, such as Currants or Gooseberries, grow

close up to their stems, the roots of both Apple trees and bush fruits struggling for the mastery. Under such circumstances small imperfectly developed fruit in both cases is the result.

If I were starting an Apple orchard that for quantity and quality per acre would beat anything yet attempted on a large scale, I would have the soil well trenched, plant dwarf bushes 10 feet apart each way, and, beyond a row or two of Potatoes for the first three years, I would take no other crop whatever from the ground. I am convinced that if first-class Apples are required, they must have no competitors; a row of Currant bushes will take more nutriment from the soil than the Apples, and the loss by the latter will be more than the gain by the Currants. I have carefully noted the returns from bush trees that have a clear run of good soil for their roots, and that get enriched with manure in the shape of mulching every year, the old dressings being forked in, and I can safely say that if Apples do not pay for undisturbed possession of the soil, they will not do so in partnership with any other fruit. The best form of tree to plant is one year-old maidens; they are now sold cheaply by the hundred or thousand, and if planted in November, can be cut down to any desired height the following March. The saving of expense in planting maidens in lieu of bushes ready formed will be considerable, and as they will occupy but little space the first year, Potatoes might be cultivated between them with success, but exhausting green crops should be avoided. I feel sure that if one requires Apples free from blemish and of full size, the trees must never suffer from lack of nutriment. After the third year the bushes will occupy all the ground profitably, and must be kept shortened in annually, so as to allow ample space to work amongst them. The produce of bush Apple trees is of the best quality, being fully exposed on all sides to sun and air. The trees, too, are easily accessible for purposes of pruning, thinning the crop, or gathering the fruit, and if our home growers would maintain their position in our markets they must be prepared to grow the very best fruit that can be produced. As to varieties, that matter must be regulated by the object in view, *i.e.*, whether it is intended to send the produce to market direct from the tree, or to store it for sale at a later period. There appears to me to be a good opening for anyone who would grow the best late sorts to compete with foreign grown Apples in the early spring months.

Gosport. JAMES GROOM.

Bush Apple trees.—Almost every year the bush trees which were planted several years ago in the kitchen garden at Maiden-Erleigh produce good crops; though full of fruit last year, nearly all seem to be bearing well again this season. Nearly all the best kinds grown are there, and their fruits bid fair to be very fine and handsome. All the trees are on the broad-leaved Paradise stock, and are annually well mulched with manure. Trees of this kind are, without doubt, very profitable. They stand at ample distances apart on the margins of the cross walks, and, therefore, do not interfere at all with the cropping. A few dozens of such trees are of great value in a garden where room for them can be found. —A. D.

SHORT NOTES.—FRUIT.

Cold district Strawberries.—In many gardens in Lancashire I have found, without exception, that the so-called Duc de Malakoff has been Vicomtesse Héricart de Thury. And I fancy that is the kind, judging by description, to which Mr. Bird alludes in THE GARDEN last week (p. 161).—JAMES SMITH, *Waterdale, St. Helens.*

Peaches.—These are abundant in the garden here this year. We are now gathering from open walls Alexander and Early Beatrice; they both ripened at the same time to the day, and both are growing within a few yards of each other. Alexander is certainly much the larger of the two and beautifully coloured. Hale's Early will soon follow; we find it, as near as possible, a fortnight later than either of the kinds just named. The next to follow will be Dr. Hogg, an excellent Peach and one which should be in every collection, and, of course, the main crop follows. We have found nothing to surpass Sea Eagle as a September Peach. It comes in well between Bellegarde and Late Admirable, and Salwey ends the season.—G. HARRIS, *Singleton, Swansea.*

VINERIES IN AUTUMN.

It must not be supposed that now when Grapes are ripe or have reached the ripening stage they may be neglected with impunity; on the contrary, much more depends upon the autumn treatment of the Vines than many are perhaps aware. A heavy crop of Grapes—and most of us rarely fail to tax the full strength of the Vines—proves most exhausting to them, and but for their capacity to recoup their strength before the foliage falls, failures would be even much more sudden and general than they are now. Those who will take the trouble to examine their Vine borders soon after the crops of Grapes are perfected will find that the roots are then most active. If they are not, then the Vines are in a poor plight, and nothing short of lifting the principal portion of the roots and relaying them in fresh compost will restore them to good health and vigour. Hundreds of Vine borders require this radical treatment, but in many cases this would have been unnecessary if they had not been neglected in the autumn. At this time of year the inside borders of early houses especially cannot well be overdone with moisture and manure. Much more, in fact, may be given with safety than would be safe or beneficial early in the season. It would really seem that a crop of Grapes is very frequently principally the result of the Vines' power of storing up food during the autumn previous, as it is very certain many Vines form very few fresh feeding fibres till after the Grapes are matured. It follows, if we neglect them in the autumn, the crops the next season will fall off in value at a corresponding rate. Sometimes it happens that roots ramble away in search of moisture and food, and finding this they do not so soon collapse. Unfortunately, it is usually outside of the house where the roots find a feeding ground which may or may not be suitable to them. The consequence is the expensive inside border is comparatively useless, and in time the roots that have rambled away get into a badly drained subsoil, shanking, imperfectly ripened wood, and other evils being the natural result. It is not a very great amount of water and liquid manure that an inside or an outside border in a dry season requires after all, and no one need be frightened or misled by growers, most successful as these may be, who give statistics of the weight of water annually applied to a border. Many thousands of gallons of water may sometimes be necessary, but not if the borders were prevented from becoming unduly dry. It may be gratifying to some cultivators to see the water running freely from the drains, but I hold that so much water passing through a border is wasteful in various ways and altogether uncalled for. At no time ought a border to become dust-dry, that being both injurious to the Vines and the reverse of economical. A hundred gallons of water applied before the borders are dry will do more good than a thousand gallons on a dry border. My plan is to anticipate dryness, and in this manner a very small quantity of water suffices. Liquid manure is simply thrown away on a dry border; if necessary, I would moisten the soil with clear water, after which it would be in a fit condition to absorb the manure. We give liquid manure any time before the Grapes are ripe, and again much stronger in this instance after they are cleared from the Vines. At one time we were able to command plenty of farmyard liquid manure, than which there is nothing better; now we have to depend upon artificials, such as sulphate of ammonia and kainit, two parts of the latter to one of sulphate, applied at the rate of 2 ozs. to 3 gallons of water. We also find an occasional surfacing of Thomson's Vine manure to be highly beneficial. A friend of mine, Mr. Gibson, of Draycot Manor, Wilts, speaks most favourably of Jensen's fish manure, this attracting the roots to the surface, and apparently greatly benefiting the Vines. Another successful cultivator, Mr. R. Phillips, practising near Gravesend, in Kent, annually gives his Vines an autumn dressing of night soil, this very powerful and excellent manure being washed in with copious supplies of rain water. The result speaks well for the efficacy of the manure, as the crops that I have seen at different times were exceptionally heavy, the bunches being above the average size and well finished. I could give several more instances of the value of good autumn attention, if more were needed, to indicate the necessity for liberal treatment at that time of year. All the time the leaves are fresh and green root-action is, or ought to be, going on briskly, and there are very few borders that are sufficiently rich to support the Vines without occasional supplies of manure of some kind. Many attach too much importance to the value of turfy loam for a border. For the first season or two this may contain all that the Vines require, but according to my experience it is soon exhausted, and is not long capable of sustaining heavy crops without extraneous assistance. Besides, it does not hold moisture nearly to such an extent as a compost more rich in humus does, and consequently a border composed principally, or, let us say, entirely, of turfy loam requires more water and manure than a richer mixture.

THE GROWTH ABOVE GROUND must also be equally well attended to if success is to be made sure. A plentiful supply of red spider or thrips is bound to impoverish the Vines, absorbing sap that ought to be expended in the formation of plump buds and the spread of the roots, and they should, therefore, be exterminated as much as possible. A coating of flowers of sulphur effectually checks red spider, and as soon as the Vines are cleared of bunches they should be attended to. We place a good handful of the sulphur in a muslin bag, and well work it through into about three gallons of soft water, in which manner it mixes well and can be readily distributed over the foliage with a syringe. If one application is insufficient, another should be given after the first has dried. Red spiders can make no progress where sulphur abounds, and are soon rendered harmless. Thrips may be destroyed by occasional fumigations, care being taken not to injure the foliage with the hot fumes, and a decoction of soft soap and tobacco water, or soft soap and Quassia chips, answers equally as well. Some growers unhesitatingly syringe their Vines in the autumn with paraffin and water, applied at the rate of 2 oz. to a gallon of water, in which a small lump of soft soap has been dissolved. This has to be kept constantly stirred to prevent the oil from collecting on the top, the usual plan being to discharge one syringeful on to the foliage and the next back into the can. Sulphur may be distributed over the Vines before the bunches are all cut, as it may be washed off them by the aid of water running strongly from a tap or pump without disturbing the bloom. In the case of thrips-infested Vines, no insecticide must be applied till the bunches are cut, or they are bound to be disfigured, but the fumigation will not long affect them, the skins of the berries not being porous or absorbent. Much may be done with the sponge if the insects are not allowed to spread all over the house before the attempt is made to destroy them. Mealy bug is not very injurious to the foliage, this most objectionable insect seemingly preferring to effect a lodgment in the centre of the bunches, which it quickly spoils. Hand-picking is a good remedy, and a good force of water will sometimes clean bunches, after they are cut, sufficiently well for the table. At the same time we should much prefer to keep unattacked, mealy bug being the nastiest pest that can get on Vines or any other plant. Mildew once established in a vinery is very difficult to eradicate, and I have known instances where a wholesale clearance of the house was necessary before it could be stamped out. The border and Vines were cleared out, the woodwork painted, and the walls whitewashed, and after that a fresh start was made with the best of results. It is a very insidious disease, and the present season is very favourable to its spread. Where it is not so badly established as to necessitate a wholesale clearance I should advise that the borders be examined, and if found very dry, as they probably are, be given a good soaking with clear

water, followed with liquid manure. A little fire-heat should also be turned on, and abundance of air given whenever the weather permits. In addition, the affected parts should be syringed frequently with a mixture prepared as follows: Take a pound of powdered quicklime and a pound of flowers of sulphur, mixing them together with sufficient water to form a paste, after which a gallon of soft water should be added, and the whole boiled in an iron saucepan or kettle for twenty minutes. When cool and settled, pour off the clear portion of it and store it in a bottle for future use. About one-quarter of a pint to three gallons of soft water is usually sufficient, but it may be used stronger if necessary. This solution was long ago recommended to me for the extinction of mildew on Roses, but it is equally valuable for mildew-infested Vines and also for Peach trees.

Ripening the wood.—It will, I think, be generally admitted that the best bunches are produced on the most perfectly ripened wood, and it should therefore be everybody's aim to ripen the growth to the best of their ability. Not only do we get the most compact bunches, as well as a greater number to select from, on the least pithy wood, but well ripened canes are the most durable, and are especially desirable for laying the foundation of serviceable rods. Overgrown sappy rods will do well for a time, but they are very liable to come to a standstill in after years, and, owing to the excessive amount of pith formed in the early stages of growth, are almost certain to contract, thus rupturing the sap-vessels, an evil very frequently followed by shanking. Anyway, whether I am right or wrong in my opinion on this point, we may safely assert that it is a decided advantage to ensure well-ripened wood. The state of the border, or rather the roots, has much to do with the perfect ripening of the young growth, as when Vines are rooting in a cold or unsuitable soil no amount of firing, sunshine, or air will have the desired effect. Very badly-ripened wood is a sure sign that the border requires to be seen to and the roots brought up into better soil. At the same time much may be done above ground. Plenty of air both at the top and bottom both night and day, and fire-heat in dull or wet weather, greatly assist in the ripening of both the crop and the wood, this being especially necessary where the vineries are situated in a valley. Here, for instance, we experience the greatest difficulty in one vinery, both as regards keeping the Grapes and also in ripening the wood, the house having been built very many years and in the lowest part of the garden, or nearly on a level with a piece of water. Our plan is to heat the flues in dull weather, giving plenty of air and the Vines plenty of room; but it is over the flues where we get the best bunches, and it is there they keep best. At no time do we encourage the growth of much superfluous foliage, and in the autumn especially all sub-laterals are kept closely pinched out. In this way plenty of light and air plays about the foliage and wood, and other conditions being also favourable, good crops are the result. It is no economy to be unduly sparing of the fire-heat, not only in the early houses, but especially in the houses where Alicantes, Lady Downes, Muscat of Alexandria, Gros Colmar, Golden Queen, Mrs. Pince, and other heat-loving sorts are being ripened off. Without plenty of fire-heat none of these will form much saccharine matter, even in our presumably favoured neighbourhood, and without this they keep badly. The black sorts colour well without fire-heat, but flavour is also wanted, and that we must have, or uncomplimentary remarks might be heard. Fire-heat without a good circulation of air is harmful. What is wanted is plenty of dry air, and if this is not ensured the wood ripens indifferently, and the Grapes also keep badly. Wasps, luckily, are very scarce indeed hereabouts—never more so perhaps at this time of year, and no steps are thought necessary to keep them out of the vineries. When they are very troublesome, we were at one time obliged to cover all the openings both at the top and bottom of the house with canvas, but this, although it keeps the wasps out of the house, also greatly interferes with the free circulation of air to such an extent as to cause "sweating," the warm moist air inside of the house condensing on the cold berries. If this is allowed to happen many times it soon damages the skins of the berries, and then it is a case of good-bye to the crop. Those muslin bags we often see enclosing bunches of Grapes are especially to be avoided. Better let the wasps have their fling than lose the crops wholesale by rotting. Not merely is it necessary to open all the ventilators as much as possible in warm weather, but the doors should also be set open, birds being kept out by nets. Wasps, what few there are, may easily be kept down by the use of Davis's Improved Wasp Destroyer. Last season we placed for trial a few drops of this mixture on berries partly eaten by wasps, and the effect was simply marvellous. It soon attracts any there are in the house and stupifies them. Their death struggles and peculiar hum would appear to scare away the rest—at any rate I have no other explanation to offer for the strange disappearance of our wasps. It reads rather like a testimonial to a quack medicine, but there are plenty beside myself who can give similar experience, as it is no new thing in the west of England.

W. I. M.

Somerset.

APPLES AND APPLE ORCHARDS.

As the past two seasons have given us good crops of Apples, and as the trees are in many cases this year only carrying light crops, I think we ought to turn the lesson thus taught us to some useful account. Except that the trees have become exhausted through the production of two or three continuous heavy crops, there is nothing particular—at least, so far as Somerset is concerned—to which the present season's comparative failure can be attributed. The weather during the time when the trees were in bloom was not particularly unfavourable, although cold; but we have known the trees to pass through a much more critical period and yet mature good crops. It is, therefore, clear that the trees have become exhausted, and that Nature is asserting her right by giving them a rest in order to recruit their strength. Where the orchard is large and the crop heavy, it is almost impracticable to thin the fruit so as to reduce the strain upon the tree; but in gardens where the trees are but few the case is different. It is quite practicable in that case to thin the fruit on bush or pyramid trees, and also on cordons and espaliers, and where thinning is systematically done every year, there is much greater certainty of getting annually a crop. We have proved this to be so in the case of pyramid trees on which this attention has been bestowed; they have borne regularly for these past eight years, not always full crops, but they have never failed altogether, especially those that are pretty reliable bearers. As to sure bearing Apples, did anyone ever know either the old or the new form of Hawthornden to be quite destitute of fruit after the trees had reached a bearing size? I do not remember such a circumstance, although I have known both sorts for more than thirty years; almost as much may be said in favour of Lord Suffield and Cellini, both of which are well known to bear more or less every year. I do not claim for these sorts any superior merits in other respects, but for culinary purposes they are very useful in furnishing a supply of fruit from August up to Christmas. Emperor Alexander is another sort which has borne regularly with us for several years past. The trees are growing in a large bush form about 10 feet in height; the branches have all the young growth cut back to a spur every autumn, and the roots are pruned when we find that the growth is getting too strong. This is a culinary Apple in use in December, and it is very large and showy. Keswick Codlin is another autumn Apple that bears pretty regularly, as do also the Dutch and Manks Codlins. Flower of Kent is a very reliable sort for use in January. Prince Albert (Lane's) is likewise a most useful Apple and a trustworthy bearing sort. It keeps well until March. There are not many reliable bearers amongst dessert kinds. Ribston Pippin, Kirg of the Pippins, and Cox's Orange Pippin are the best; Reinette du Canada and Margil are the next best bearers. Amongst culinary kinds there are several which, although not bearing regularly full crops every year, yet bear pretty regularly, notably Cox's Pomona, Court of Wick, Jolly Beggar, and Alfriston. The last is one of the largest and best of culinary Apples.

With regard to the selection of sorts to plant in orchards, it is necessary to pay more attention than has hitherto been done to the character of the situation, *i.e.*, whether it is exposed or sheltered. Only close-growing sorts are suitable for exposed positions. Mop-headed trees, as they are commonly called, of which the Forge Apple and Tom Putt are types, are the best to choose for orchards that are much exposed to wind. They do not reach a great height, and the branches naturally grow so closely together that wind has comparatively little power over them. Many would probably be surprised at the amount of loss that a rough night's wind often causes in the end of September in some of the Apple orchards in the western counties where choice fruit is grown. I have known high wind to destroy as much fruit in a few hours as would have half-paid the rent of a 10-acre orchard. The sorts chiefly grown in this instance were the Blenheim Orange, but, unfortunately, the site is exposed on all sides but the north, and is somewhat elevated, which renders this sort of Apple wholly unsuitable for the position. Equally bad is it to plant low-growing or spreading varieties in the most sheltered places, which should be kept for large open-headed trees, that produce the largest and best fruit. Large open-headed trees are apt to start away from the stem with some half dozen main branches, which, if left unpruned, continue to increase in length and only form a few intermediate branches. The consequence is, wind has full power over every branch. This condition might have been easily altered if, after the tree had been planted two years, all the branches had been cut back to within 2 feet or 3 feet of the stem, according to their number. This would have induced the branches so dealt with to push out three or four laterals, thus giving a sufficient number of branches to form the groundwork of a well-furnished head. It is quite necessary to head some trees back about the fifth or sixth year after planting—*i.e.*, if a well-balanced head is desired, and desired it should be, for it is not encouraging to see the best fruits down under one's feet when we go out to gather them. I do not expect that losses from wind can be altogether prevented, but I am satisfied that a judicious selection of suitable forms of trees for particular sites, and careful pruning on the lines suggested, will do much to mitigate the evil.

J. C. C.

Farleigh Prolific Damson.—This remarkable Damson is producing on standard trees a grand crop here this season. Now that the fruits have coloured they are seen so densely set upon the branches as to excite wonder how they can carry them. Such a crop can hardly be looked for every year, but it is worthy of note that no other Damson fruits so freely or is so hardy. Now that real heavy cropping has set in, I think it is very probable that similar results will follow in alternate years. The trees would be helped here by receiving a thorough soaking of rain. The soil is very dry, and it is marvellous that, under such circumstances, good growth and a heavy crop should be so well sustained.—A. D.

Ripening the wood of fruit trees.—This is an important matter just now, and though it is in a great measure dependent on the sunshine we get, yet a good deal may be done to help the process. All surplus summer growth should be cut away at once, in order to give the sun a chance to reach every bud on the tree to enable it to perfect its development so that it may bear good fruit. In the case of wall trees that have been mulched, the manure may be raked off now to let the sun into the border. Warming up the roots a bit at this season has a great influence on the ripening of the wood and buds. There has been lately an abundance of rain, so that it is not likely that even late Peaches will need any moisture beyond what will come to them naturally after this date. Figs are ripening well on walls and the crop

is a full one; therefore every shoot and leaf not required should be removed. Though Apricots have not borne much fruit, the trees are healthy, and there is a good prospect for next year. There has been less branch-dying this season than usual, at least so far as I have observed. I think if cultivators could be contented with moderate progress from the first, and in good seasons thinned off more of the fruit than they do, there would be less branch-failing and less gumming. When young trees are planted in rich soil, perhaps loosely packed in the borders, they make wood more rapidly than is consistent with a long and healthy life.—E. Hobday.

Flower Garden.

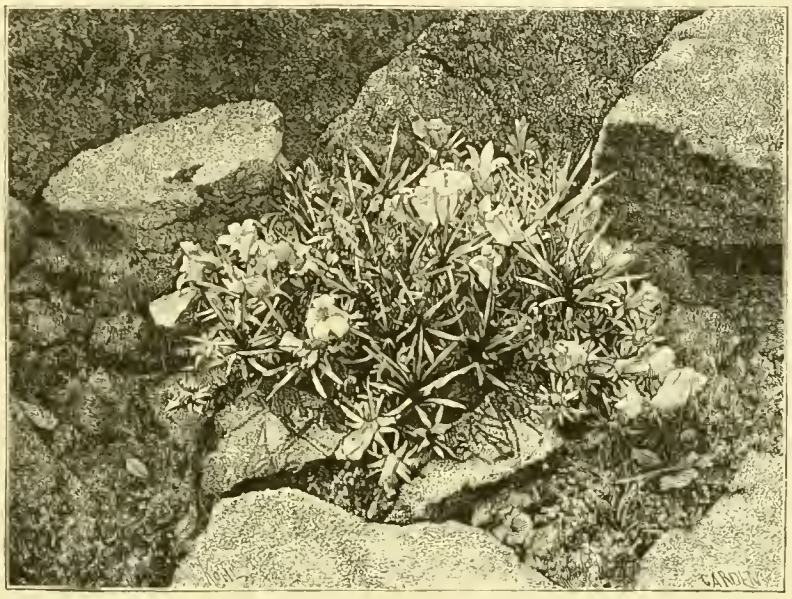
CARNATIONS AND PICOTEES IN 1886.

I do not remember a year in which these have been so fine or popular as they have been this season. Raising these plants from seed is now a very common and successful practice, and excellent varieties are obtained in that way. Seedlings grow luxuriantly and bloom most profusely, and when these qualities are combined with well formed blooms they become the most valuable of all border plants in July and August. The old crimson Clove has always been a great favourite of ours; use it as one may, it is a charming flower. I have had several white Cloves sent to me as "excellent companions to the old crimson," but not one of them developed the same sized blooms, while they were also deficient in texture and, above all, fragrance. One of the very best Carnations which I have ever grown in the open air is The Governor. It is a second Souvenir de la Malmaison in colour and size, but it grows more freely and blossoms far more profusely than that kind under any condition. I am not in favour of growing those varieties which require a great deal of coaxing to produce one or two startling blooms and no more; on the contrary, my favourites are the cut-and-come-again class, which during the season produce multitudes of serviceable blooms for every-day decoration. Probably we may be deficient of some kinds noted in this way, but apart from our collection I have had opportunities of inspecting many others this season, and the following selection will, I think, give satisfaction, viz., Magnum Bonum, bright scarlet; Celia, bright pink; The Bride, pure white; Florence, a beautiful buff; Beauty of Whitby, excellent scarlet; General Stewart, dark crimson; Masterpiece (new), rich crimson; and Countess of Ellesmere, pale pink, spotted with crimson. Amongst Picotees, Goldfinder is especially good, being a fine barred yellow. It was generally remarked the other day that Carnations and Picotees at the Shrewsbury show were of very high merit. The best stands of each were exhibited by Mr. Hans Niemand, of Birmingham, amongst whose flowers were Carnation Yum-yum, yellow, with a pink tip; W. P. Milner, pure white; Mephistopheles, scarlet; The Mikado, a very dark kind; Mrs. G. Hawtry, fine yellow; and Mary Morris, grand pink. Of Picotees, the most conspicuous were Mrs. Rayner, Lady Carington, Dr. Abercrombie, Louisa, Picturata, Dr. Epps, and Lucy. The competition for gentlemen's button-hole flowers at the same show was very keen. The first prize was awarded—rightly, in my opinion—to three beautiful Carnation blooms, backed up with a spray of their own Grass. A pretty Carnation or Picotee never fails to please as a button-hole flower, and for this purpose it is impossible to have them too good or plentiful. J. Muir.

Margam Park, Port Talbot.

COMMON HYDRANGEA.

Where this succeeds well the help it gives in making a show at this time of year is very considerable. It is essentially a wood or wild garden plant, although during summer it requires all the sun that it can possibly get. It should also be planted with the view of obtaining as large an amount of overhead shelter in winter as possible, and in places where undergrowth is plentiful this will be readily obtained. The soil in which it grows should be rich and well drained, otherwise the chances of success in our climate will be diminished. This Hydrangea in a wood is just now a perfect picture, its large trusses of pink and blue flowers making a display not soon to be forgotten. The first or second year after the cutting stage is perhaps the best as regards abundance of flower. Cuttings taken off about the end of July or August and inserted singly in pots and kept in cool frames make nice sturdy plants for the following year, when they may be planted out. A good top-dressing or mulching, or some loose material helps them during the early summer, and keeps the ground moist round their roots. K.



A silvery Harebell (Edraianthus Pumilio). Engraved for "The English Flower Garden" from a photograph.

EDRAIANTHUS PUMILIO.

A brilliant little alpine with flowers that look large in proportion to the plant. The little closely-set tufts of glaucous foliage look sharp and thorny like a Prickly Thrift, but prove of a milder nature on closer acquaintance. The flowers are of a full rich purple colour.

Allium pulchellum.—This is just now at its best, and a brave show it is making on the top of a low rockery. In large patches it makes a handsome display. Amongst the latest introductions in the way of Alliums we have a few really desirable kinds, such as A. macranthum, a species resembling pulchellum, larger, however, and much deeper in colour, with protruding style and anthers, and much broader pointed leaves. It seems to be quite hardy on a southern exposure. A. giganteum, a large Turkestan species, bearing a head of purplish flowers as large as one's hand, is a great acquisition, and will do much to make this class of plants popular. A. pedemontanum grandiflorum is the finest dwarf Allium we have yet seen. It is a great improvement on the type, and would, we think, make a charming pot plant. The flowers are much larger than those of the type, whitish streaked, and more of them in a head. A. pulchellum flavum is also a handsome yellow kind, and worth growing in company with any of the above. Most of these do well on dry banks, and flourish where other vegetation would find some difficulty in keeping alive.—K.

Monarda didyma.—This looks quite out of place in an ordinary dry exposed border, and so does Iris Kæmpferi under the same conditions. Both should have good rich soil and be placed close to water where the roots can have abundance of moisture, and where they may receive a good share of the mid-day sun. In such a position the Monarda shoots up 4 feet or 5 feet high and produces large heads of showy scarlet flowers. It requires no attention other than planting it out and then letting it alone, unless stock is required, when it may be divided to almost any extent. Another good plant for such a position as that above indicated is Lychnis chalcedonica. The single and double scarlet as well as single and double white mixed together make a fine display; all of them are increased readily by root division, which may be done in autumn after flowering is over. They prefer a peaty soil as close to the water's edge as possible without being actually in it.—D.

Echinops.—Where plenty of room, either in a bed or border, can be devoted to plants belonging to this genus, any extra labour bestowed upon them will be well repaid by a display such as we have at present. There seems to be about six or seven species of Echinops in cultivation altogether, not more than three of which, with their varieties, will be found worth troubling about. They have in the garden exactly the same effect as that produced by Eryngiums, such as E. alpinum, Oliverianum, &c., with the additional advantage of being available two rows or so farther back. Echinops ruthenicus when well grown often attains a height of 4 feet or 5 feet. Its leaves are much cut and spiny, and the stems terminate in large spherical steel-blue heads of flowers. The variety called in gardens grandis is more robust than the type, and has heads twice the size of those of that kind, but paler in colour and not so striking. E. sphærocephalus, which in good rich soil grows about 6 feet high or more in height, makes an excellent plant for placing at the back of a mixed border, or as a single specimen with a good, dark background. E. giganteus of gardens, which is probably a robust form of this species, has larger greyish white flower-heads; bannaticus, which is dwarfer, has steel-blue heads, and is useful in borders or for edging shrubberies. —K.

Transplanting white Lilies.—The beginning of September is the best season for transplanting white Lilies, *i.e.*, Lilium candidum, for the purpose of increasing one's stock of it. The bulbs can then be singled out without injury. They should be divided and sorted into sizes, giving the largest bulbs the most space. We have generally obtained the thickest stems and largest flowers from two-year transplanted bulbs. Even small bulbs will flower the second year if well treated. Two years ago I planted a number of bulblets, obtained from the stems of the double Tiger Lily, and most of them have flowered during the present summer, but their propagation and culture, as a rule, are very easy. —E. H.

Hybrid Lobelias.—Among the most showy of all autumn-flowering perennials must be included tall-growing Lobelias, the best known of which is ignea,

or Queen Victoria, for the plants usually grown under these two names differ but slightly, if at all, from each other. There are some other recognised sorts closely related to the above, but, horticulturally speaking, one of this class is sufficient, as differences amongst them are but slight. Great numbers of hybrid kinds have, however, been raised within the last few years, the result of crossing the above with L. syphilitica. Of these the following are especially worthy of mention, viz., Jason, bluish lilac; Nizza, a charming shade of crimson-purple; Amethyst, purplish blue; Queen of Whites, white; Vesuvius, deep crimson, with a violet shade; Stromboli, bright purple; Orion, cerise-scarlet; and Firefly, very bright crimson. When to these are added one of the Queen Victoria class, with its red stems and foliage, combined with intensely glowing blossoms, a selection is formed that at this season of the year will be welcome. Lobelias of this class prefer a good open soil, that is, especially during the growing season and at least fairly moist; indeed they will flourish in quite swampy spots; but, under such circumstances, are very liable to perish in winter. A little ashes, or Cocoa-nut refuse, around the crowns will ensure their safety during winter. At Mr. Bull's where we saw them the other day, they are grown in pots.—H. P.

A FEW USEFUL HERBACEOUS PLANTS.

I believe that great good would be done to the lovers of herbaceous plants if from time to time growers in different parts of the country would notice plants that have done well with them, or indicate those which seem to them unworthy of cultivation. Especially is this the case after a severe winter such as we have passed through, which has done much to test the hardiness of many plants about which doubts have been expressed; but the term "hardiness" is a comparative one, and few people take into account the many causes that tend to injure plants in winter, or how very opposed to ordinary notions are the real facts of the case. To most people's minds the very name of Torquay, for example, suggests the idea of a soft, relaxing climate, where everything must do well; but I met a friend the other day, a true horticulturist, who told me that for three weeks last winter, or rather early spring, the thermometer was down to 12° of frost at night and 3° by day without any variation, and when vast numbers of plants perished; on the other hand, when one writes about Scotland, the idea immediately presents itself of cold, dull, cheerless skies and severe frosts and snowstorms, and doubtless of many parts of Scotland this is true, but there are parts of Scotland where things will flourish which the winter would kill in the south of England, and where others grow with a luxuriance we in vain attempt to equal here. So again with S. Wales. The magnificent Himalayan Rhododendrons which adorn such places as Mrs. Vivian's at Swansea or Mr. Llewellyn's at Penllergare cannot be approached in the Surrey grounds so famous for their American plants. Then Cornwall, so early in sending its vegetables to London, and with a climate mild enough to induce invalids to try its influence, is fatal to the well-being of many plants, owing to its moisture and the consequent succulent character of the growth; while Lapagerias flourish and bloom out of doors there Roses run all to wood. It must also be borne in mind that where a climate is ordinarily mild and moist frost is far more injurious than in a climate whose temperature is generally colder and drier. Probably no part of England suffers more than the midlands, and plants which are hardy there may be pretty well relied upon in most parts of the country. My own county, Kent, is a favoured one, and although in this south-eastern part we are not as warm as some people imagine, yet our drier atmosphere, and in some districts our cretaceous soil, give us many advantages, and this must be taken into account when I mention hardy plants.

I consider an herbaceous plant useful when it is good for cutting for indoor decoration, either in vases or as bouquets, and there can be nothing, I think, more desirable for this purpose. With these and some annuals one is quite independent of a greenhouse; indeed, I feel convinced that a vase tastefully set out with these will be by the generality of people much preferred of one of exotics. There is such variety of form as well as of colour, that their value is at once recognised. I do not pretend to say that these are novelties, for many are very old plants, but they are none the worse for that, and those who have not grown them will be, I am sure, glad to have them brought under their notice.

Aquilegias.—Of these there are many very beautiful forms; probably the most striking are chrysantha and cærulea, the former a very beautiful plant with its pure bright yellow flowers and long spurs. Two hybrids raised by Mr. Douglas and sent out by Messrs. Veitch some years ago are also very beautiful. There is no flower which more readily hybridises than this, and anyone who grows a number in his garden will bear witness to the difficulty of keeping any species true. This has in another way its advantages, and as the seed germinates very freely, I am in the habit of allowing the plants to scatter their seeds, and from these seedling plants I have a number of the most varied colours, and they come in excellently for mixing with other flowers, being very light and graceful.

Achillea Ptarmica fl.-pl.—This is probably the whitest flower in growth. There is not a shade of green or flesh colour, which so often takes off from the whiteness of many flowers, to be found in it. When once established it requires to be kept in check, as it will run everywhere; it is very useful for cutting, for, although the flowers are double, they are not heavy.

Asperula odorata.—The common sweet Woodruff will grow anywhere, under shrubs or in any situation for which it may be required. In early spring it comes in very useful for cuttings; its small white flowers mix admirably with other more showy things, and its fragrance, like new-mown hay, is very agreeable.

Bocconia cordata.—A stately plant with white flowers, which succeeds anywhere. It has very striking cordate leaves, and throws up a number of flowering stems. It is well adapted for placing in large vases, or the side branches can be cut off for smaller ones.

Anemone japonica Honorine Jobert.—There is no need to dilate upon the extreme beauty and usefulness of this plant, and yet it might seem as if it were a novelty, for amongst the plants which are to be distributed to Fellows of the Royal Horticultural Society I found it mentioned. What a privilege to be a Fellow when such rare and new plants are to be had for the asking! I have heard some people find a difficulty in growing it. I think this can be only from excessive bad management. With me it is quite a weed, and has to be kept in check.

Buphthalmum salicifolium.—A very free-flowering and pretty plant; its very bright yellow blossoms are freely produced, and are very enduring when cut. There is some confusion about another species, which is coarser. I find in Mr. Paul's list it is said to be synonymous with Telekia speciosa. Is this the same as that which I find in other catalogues as T. speciosissima?

Dodecatheon Meadia.—When properly treated this becomes a very vigorous plant, and its fine spikes of quaint blooms are generally much admired. It delights in a cool, moist place, and when well established is a grand spring-flowering plant.

Doronicum austriacum.—A most useful early spring-flowering plant with yellow blossoms. It is very free and perfectly hardy. There is another member of the family sometimes called plantagineum excelsum, and sometimes Harpur-Crewe, as it originated with that ardent florist; it is more stately and has larger flowers. Austriacum is a capital plant for growing in pots to bloom early, its bright yellow flowers being very striking.

Epimedium pinnatum.—An exceedingly pretty plant, resembling somewhat a small Dendrobe. Its foliage, too, is very pretty, although this is apt to get disfigured in cold weather. It is not a showy plant in the border, as the spikes of bloom hide themselves under the foliage; but as an early spring-blooming plant it has few to rival it in quaint beauty.

Erigeron speciosus (syn., Stenactis speciosa).—A very pretty plant, with flowers of a peculiar silver-grey colour, very easy of cultivation, and most useful for cutting and mixing with flowers of gayer colours. It will grow almost anywhere in the garden.

Galega officinalis and G. alba.—Very old-fashioned and showy plants, the one with blue, the other with white pea-shaped flowers, which are very useful for cutting. Very free flowering and easily grown, it is one of the old plants that one often finds in cottage gardens.

Geum coccineum and G. montanum are both easily grown and useful plants, one with scarlet, the other with yellow flowers. Both are very easily grown in any border in the garden, and are well adapted for vases.

Gypsophila paniculata.—One of the most useful plants we have for cutting. Its flowers are very minute, but they are produced abundantly in large panicles, and when placed in vases add greatly to the lightness of the arrangement. It is very much used by the bouquetists in Paris, but not so much here; indeed, I have very rarely seen it grown in English gardens, although I cannot understand why this is, as it is very easily grown. The roots are said to get hollow and bad with age, but the plant which I have, which is some 3 feet through, has been in its present position for years. It has also, from its name, supposed to be only adapted for cretaceous soils; but I have it growing where there is not an atom of chalk or lime in the soil, and it is apparently one of those plants which accommodate themselves to various soils, no matter what may have been their natural habitat. It is a plant which all ladies rejoice to have when arranging flowers.

Hesperis matronalis fl.-pl., the old Rocket of our gardens, is a very excellent and sweet-scented plant. The true white is rather scarce. There is another plant which has an amount of flesh colour in it which is not so good. Although Rockets are of easy cultivation, they require to be divided every year, and rejoice in a bright, sunny aspect.

Inula glandulosa.—A very beautiful plant; the flowers are of a beautiful soft yellow, and hang like golden tassels on the plant. It is exceedingly hardy, and it has the advantage of blooming a second time if the flowering stems be cut down. I have it now blooming abundantly (end of August) after having given me a fine head of bloom in the spring, and no one, I am sure, can pass the plant without noticing it. I am surprised to find it absent from some catalogues where many things far inferior to it are lauded to the skies.

Lupinus polyphyllus.—Where large spikes of flowers are wanted for decoration, there can be nothing better than this fine old border plant in both the blue and white varieties, and once established there is no fear of its being lost.

Malva moschata alba.—One of our native plants, very hardy and free; the white of the flowers is very pure, and it stands very well in water after being cut, although the papery character of its petals would rather lead one to an opposite opinion; like the preceding, it is, when once established, pretty sure of holding its ground.

Papaver nudicaule (the Iceland Poppy).—There are three varieties of this—yellow, white, and orange—all perfectly hardy, and all flowering freely and distributing their seed in all directions when they are mixed together in the garden.

Platycodon grandiflorum (sometimes known as Campanula grandiflora).—A very beautiful plant, flowering in August; its large lovely blue flowers are produced on the tips of the flowering stems rather sparingly, but they make up in size and depth of colour for this, and there is not one of the family I think more attractive.

Statice latifolia.—Very free, being covered entirely with small lavender, lilac and white flowers; it is one of the most useful plants for late blooming, as it mixes so well, on account of its lightness and elegance, with other flowers.

Of course there is an abundance of other flowers which I have not noticed—Asters, Delphiniums, Campanulas, &c., but these have seemed to me worthy of special notice in the one aspect, viz., plants valuable for cutting, and if other growers of herbaceous plants would follow it up, I for one should be very grateful, and I think others would be also. Delta.

Symphyandra pendula.—This is one of the finest plants in the way of a Campanula that we have seen for a long time. It is quite distinct from the better-known S. Wanneri, the latter having mauve flowers, very slightly lobed, and rarely opening in a perfect way; S. pendula is a much more floriferous species, being literally laden with large pure white bellflowers, sufficient, indeed, to weigh down the branches, and suggesting a position on a projecting ledge on a level with the eye. This species appears to be more perennial than the other, forming woody stems likely to stand. It is, however, easily raised from seeds, which ripen freely in ordinary summers. Campanula Rosani is just now at its best, but seems to lose much of its character when growing in the ordinary border. In sunny Italy, of which we believe it is a native, it hangs from the rocks, forming great patches of pretty blue white-eyed flowers. It wants good soil, otherwise it commences flowering when very dwarf, and thus its gracefulness of form becomes quite lost.—K.

Plants for permanent beds.—Would you kindly suggest any arrangement of plants suitable for permanent beds in a flower garden? The exposure is good and the soil deep; it suits Rhododendrons and Azaleas specially well. The place is high—a little over 500 feet above the sea.—Carlotta.

*** The fact that your soil suits Rhododendrons and Azaleas shows it to be a suitable one for Lilies of every description, and what a wealth of permanent flowers there is in these alone! Pæonies, too, would do better in a deep peaty soil, well enriched with manure, than in any other; and the same is true of Christmas Roses, Delphiniums, Japanese Anemones, and Tritomas, not to mention what I may term the hardy evergreen section of flowering plants, such as Heaths, Menziesias, Veronicas, and as carpeting plants the evergreen Sedums and Saxifrages. Then, again, we get beauty of form, which should always be associated with flowering plants, in such things as Yucca recurva, the variegated Retinosporas, Phormiums, and Euonymuses, every one of which is at home in your description of soil. As tall flowers for the centres of beds, there are the varied forms of Spiræas, from the common white Meadow-sweet to the rich purple-flowered S. palmata. Helianthuses (Sunflowers), too, might be planted in variety, and Asters (Michaelmas Daisies) the same; Hyacinthus candicans and Gladioli, if your soil is well drained, will also prove permanent flowering plants, *i.e.*, they will winter in the beds without injury. With regard to arrangement, local conditions, surroundings, and size of bed are the most important points to be considered, and obviously size must decide the numbers or variety of plants to be used. Perhaps the greatest difficulty will be to restrict the species or variety of plants within appropriate limits. Be it remembered that numbers alone do not constitute beauty nor effectiveness; they lie in selection, combined with artistic arrangement.—W. W.

Gentiana asclepiadea.—This still retains its character of queen of the autumn Gentians. Just now it is flowering in the greatest profusion, and on the rockery at Kew, where it has been planted pretty extensively, it forms one of its chief attractions. The largest clump is planted in a dampish, shady position, which seems to suit it perfectly. The plants in this clump are much more robust than any planted in exposed places. Seed is by far the best way of increasing it, as when the old stools are disturbed they take some time to recover; while seeds sown in a sheltered spot in the open air as soon as gathered begin flowering the second year, and in three or four years, such a rapid grower is it, large clumps are formed. The white variety planted by itself makes a charming mass, but when seen mixed with the blue the effect is still better. G. affinis, though inferior to asclepiadea, is also a desirable plant, and owing to its dwarf habit suitable for places for which the other would not be suitable. Seed appears to be the only means of increasing this species; it forms large succulent roots resembling those of G. lutea and others.—H.

NOTES ON HARDY PLANTS.

Saxifraga aromatica.—The beauty of some plants is only revealed to us on the closest acquaintance with them, and this is one of them—not that it is otherwise undesirable, for it is much above the average of its class as regards neatness and distinct form and good white flowers. But it is when you begin to handle this Saxifrage and remember its pleasant name that its good properties become known. Its herbage, both dead and living, gives off a fragrant odour when pressed, and one cannot but feel a sort of satisfaction that this or that descriptive name is in harmony with the plant's character. This Saxifrage may be introduced into the most select collections of alpines. It is a neat and steady grower; it has a clean and attractive appearance all the year round; the flowers are few, but clear white, and the leaves form themselves into little rosettes of a pale green-yellowish tint. The present is a good time to divide it; though two-year-old pieces are not more than 6 inches or 8 inches across, they may be made into four. The persistent old herbage which thickly besets the stems under the green leaves should not be taken off on any account, for in doing so the stems would be pretty sure to have their skins removed, and this kind is not like many that will grow if they touch the ground; indeed, a small mistake may kill it when being divided.

Acantholimon venustum is a rock garden gem. The bristling grey-green tufts of short Grass-like foliage are compacted together much in the same manner as in the better-known species glumaceum, but I question if it ever grows into such large masses. The pretty arched spikes are notable for the way in which they bend and touch the ground with their points, and also for their sered appearance just before the bright flowers push forth. Many who have not had experience with this plant would not expect such large and brilliant blossoms, or indeed any, perhaps, from the chaffy-looking stalks, but would be more likely to suppose that the flowering stage was over. I find this plant to do admirably in a fine loam with plenty of leaf mould. It is also partial to the moister parts of rockwork, say on the sunny side of a big stone and close to it, the stone acting as a miniature water-shed. Some have tried it in dryish positions, but under such conditions I have found it to starve. Slips taken in early summer make nice plants, which, however, are as well or better if kept in a cold frame for the first winter and set in the open in spring. The slips are certain, but slow rooters if set firmly round the sides of small pots and kept just moist; they need not be set in a frame, for the plant hates heat.

Dianthus Seguieri is a glorious Pink when seen in the form of good-sized specimens in full bloom. Its lateness also gives it an extra value, its blooming period taking us well into that of the Carnations, with the brightest of which it vies successfully as regards effect. Though the flowers are comparatively small, they are borne on tall stems 1 foot or 15 inches high, and in large quantities. The well expanded character and bright crimson colour of the flowers are the chief features of this Pink, but there is something about the flowers which induces one to closely examine and admire them. The stems hold them perfectly erect, the petals neatly overlap and form a flower nearly an inch across and as flat as a shilling. Their brightness of colour is a little subdued by their soft, hairy surroundings. This plant may be increased by means of underground shoots. It differs from many Pinks in being best when left alone for several years together. From the fact that it makes its grass late and in the heyday of slug ravages, great care should be taken to dress the surface freely and frequently all around the plant with wood ashes in a white and dry state. This is all the more needful, seeing that the plant has to remain in the same position for several years.

Stipa pennata.—At present the fleecy masses of awns on a number of very strong plants of this Grass constitute quite a feature in the garden. I have mentioned it before in these columns in connection with Carnations, and I would again urge that the two be planted as near neighbours, for, seen either closely or a little distance off, the animated Feather Grass lends a charm to the Carnations which hang heavily on their supports. This Grass, like many others, is better for being divided and replanted in fresh soil after a few years, and the time to do it is as soon as the awns have dropped off or in spring, when new growth is just pushing. I should prefer to do it in August, as then one secures an established plant with plenty of good long roots before the cold sets in.

Gillenia stipulacea.—This is hardly less elegant than G. trifoliata. It may not have so many, or quite so large flowers, but they are much in the same way, and charmingly set off by the handsome foliage, which assumes its ripened hues very early. The red tints of the growing parts are of themselves attractive, and almost before the flower-buds open, the lower leaves, quaintly shaped, with large stipules, begin to turn a rich brown-red. The plants grow from 18 inches to 3 feet high, according to the quality of the soil. It has a slender habit and should be sheltered from wind. It is also the better for a little side shade from the midday sun, and under such conditions it will not fail to colour its foliage in summer; but the shading should not be overdone. Longish shoots cut make good material for decoration indoors.

Saxifraga odontophylla.—This is so delicately beautiful, as to suggest that it should be taken indoors and made secure from rains and mud splashes. It may not be much known yet, but seekers after hardy gems should make a note of it. It belongs to the same section as the well-known rotundifolia, if you class the Saxifrages by their leaves, but it is without the coarseness and luxuriance of that kind, and otherwise totally different from it. Its flowers rather remind one of those of the Megasea section as regards form; they are large, erect, and somewhat bell-shaped, but instead of a thick fleshy scape they are borne on leafy stems and in spare panicles. Each flower is nearly an inch across and of waxy whiteness. Their erect cups are half filled with dumpy stamens, and the large red anthers are so compacted as to form a dotty ring against the ivory-white wall, so to speak. The leaves are from 1 inch to 2 inches across, nearly round, with longish stalks, a hairy coat, stout substance, and a boldly toothed margin. This kind, too, comes into flower when the crowd of Saxifrages has gone by; therefore it richly deserves appreciation. My plant of it I have not long had, so I have not fully tested its hardiness, but I have proved it to be capable of enduring 16° of frost under somewhat dry conditions.

Sidalcea candida.—This is one of the more recent introductions, and the shortest description I can give of it is, that it is practically a miniature Hollyhock. Its erect flower-stems are in rich land about 3 feet high. The flowers, which are satiny-white, are perhaps a little flimsy, and certainly short-lived, and I fear the plant has been over-praised. Many would not care to grow it, and others would eradicate it after two years' trial, owing to the manner in which the roots run under the surface. But why not take advantage of its vigour and set it in positions where other things will not thrive? I find that it does well in shade, and it might be made to do duty among dwarf shrubs and in similar places. It is perfectly hardy, and would make a capital woodland plant.

Myrsiphyllum asparagoides.—This, I have heard, has lived out of doors all winter in the border districts. The leaves are stated to have kept fresh and good in colour without protection. This proves that the stems of this pretty evergreen twiner are possessed of some hardiness, but we could not be sure that the roots had been so severely tried, for a thick covering of leaves where they cannot be blown out of position may keep out more frost than glass or mats. I have, however, examined some 3-inch pots full of

young tubers and roots that stood unplunged in a cold frame all last winter where they were frozen through and some of the pots split. The roots were partially frost-bitten, and I should think some will die; the tops were bright and fresh on all of them, a fact which clearly showed that they were hardier than the roots. How much frost the plant would really endure out of doors we may not yet know, but these facts indicate that if the roots were deeply planted they would be as safe as many other things left out. A half sunny corner sheltered from winds might suit both its slender stems and tender tubers, and as for its beauty, especially when furnished with its highly coloured berries, praise is needless.

Chamæbatia foliosa.—From its dwarf, evergreen, and free-flowering habit this may well be used among single alpine Roses, shrubby Cinquefoils, and similar plants. It is a remarkable species in many ways; the little clusters of white Rose-like blossoms, with the calices furnished to their tips with glandular pubescence, are at once curious and pretty, and out of doors this plant is, perhaps, hardier than it has been taken to be. Lovers of the interesting might well try a plant or two of this Chamæbatia. Its beautifully cut foliage is a study; the myriads of nut-brown glands give just a slight ferrugineous effect to the olive-green leaves; a mere touch imparts a stickiness, and without a touch even the peculiar resin and petroleum-like scent is strongly smelt, whilst to handle the leaves makes one feel as if a tar brush had been handled. We sometimes speak of the inflammableness of Dictamnus Fraxinella, but this is much more so; a leaf puffs and frizzles like a chop on a gridiron. Some cuttings are making roots under a small glass, and as the fresh leaves develop the effect is charming. Never could Filmy Fern be more beautiful; indeed, it is worth while to put in cuttings of it, and to treat them under a bell-glass in a cool house for the sake of watching their development, either by the aid of a lens or with the naked eye. Besides, cuttings put well down very much resemble young Filmy Ferns in appearance. Has anyone tested its hardiness? Its habitat being the Sierra Nevada rather favours the possibility that it may prove hardy with us.

Mitchellia repens.—On the first glance at a tuft of this evergreen creeper in flower one could almost fancy somebody had been scattering twin flowers of the Myrtle or Hoya among the little veined Box-like leaves. Examined more closely, of course the similarity disappears, but the effect may be imagined; then there is the charming berry state. A more beautiful and interesting creeper than this could hardly be named for adorning rockwork. To have it with uncurled foliage and freely-grown shoots, it not only needs a moist place, but such material on the surface as will encourage new roots from the stems. Half-decayed leaves and a little loam or even sand to solidify them will do, but the main point is to fix on a little spot where moisture will naturally collect, and unless there can be found such positions the rockery can hardly be said to have been formed to meet the requirements of moisture-loving plants.

J. W.

Wigandia caracasana.—Well grown specimens of Wigandias are very effective planted out on sheltered portions of the lawn or pleasure ground during the hottest of the summer months. They are easily propagated in the spring by means of cuttings, and if the thick roots are cut off in the autumn, when the plants are taken up for removal indoors, a large proportion of them will form young plants if planted in light sandy earth, on a genial bottom heat. This species of Wigandia is a very quick grower on warm rich soils, often attaining a height of 6 feet or 7 feet in a single season. Where it does well, it is a noble sub-tropical plant, its broad foliage being of a fresh green colour, and forming a charming relief to the brilliant scarlet and yellow which are the prevailing colours of ordinary bedding plants. During the winter months, the old plants may be stored under the stage in a warm greenhouse or vinery, and these old stumps will furnish an abundant supply of cuttings in the spring. The Wigandia rarely flowers in our climate. When it does it produces a large scorpioid inflorescence at the top of a thick fleshy stem. It may be seen growing vigorously at Battersea and in the other London parks during the summer months, and there its large foliage is seen to the best advantage. A little well-rotted manure, added to the compost in which it is grown, will be found to be beneficial to it, and it requires a liberal supply of water when growing.—B.

FLORISTS' CARNATIONS OUT OF DOORS.

For the past thirty-five years, and I have no doubt for years previously, the old school florists never ceased to recommend the Carnation and Picotee as border flowers, and especially their beautiful run, self, and fancy flowers, as the latter are termed in these days. Because our old florists grew plants for exhibition and cultivated them in pots, they did not thereby mean to indicate that bizarre and flake Carnations cannot be grown on the open border. Between thirty and forty years ago many bizarre and flaked Carnations were sold and grown for border decoration, but many of them were much neglected, and in consequence their flowers became inferior in quality; layers were not made every year in order to keep up a succession of vigorous young plants as they are by the florist who grows for exhibition, and thus it came to be said that named Carnations and Picotees were not suitable for cultivation in the open air, but the inference was not a just one. Many Carnations and Picotees grown in borders thirty years ago were raised from seeds, and as good in the main as they are at the present day, but few cut flowers then for indoor decoration, and there was not that desire to possess hardy plants that there is now. Border Carnations of those days neither lacked size, symmetry, nor refinement. The fact is, bedding-out in flower gardens caused the Carnation and Picotee, and many other things equally valuable, to decline in popular estimation; and there not being much demand for seeds of them, but little good seed could be obtained. That the Carnation is deservedly popular now I admit. Talk of border Carnations and Picotees, why Mr. Dodwell blooms all his seedlings in the open ground. Let anyone pay him a visit at Oxford just now, and they will see his borders and seedling beds gay with hundreds of flowers of varied colours. Anything specially good is marked and proved in pots the following year. I called on a well-known Carnation grower at Clapham a few days ago, and, in addition to some 250 pots of choice Carnations and Picotees, he had many fine varieties in the open border flowering freely, and they had stood there all the winter. What is done at Clapham, therefore, can be done elsewhere. I have now blooming in my own garden some of Mr. Dodwell's seedlings—robust growing plants, some with self-coloured flowers, some flaked, some bizarre. Amongst these one or two varieties are marked for trial another year. Since I received them in October last they have never had the slightest protection. Therefore, it will be seen that the named Carnations and Picotees grown by florists are as thoroughly hardy and fit for border culture as any others. R. D.

Hardy Clematises as bedding plants.—Notwithstanding the success which has attended the hybridisation of this magnificent group of flowering plants, I have failed to obtain a variety possessing that remarkable floriferous continuity of bloom which we get in C. Jackmanni when used for bedding purposes. Its richness of colour, when grown in masses, imparts to the parterre a hue of purple, which is altogether captivating and lovely. My object, however, is not to eulogise the well-known merits of C. Jackmanni, but to endeavour to ascertain if there really exists amongst the mauve or light coloured varieties a suitable companion to it for bedding purposes. I was at one time inclined to believe that in Lady Bovil we had found this desirable desideratum, but lovely as the individual blooms of that kind are, I do not find it to possess continuity in the way of bloom to warrant its being successfully admitted into parterre arrangements, where it is important that uniformity in the flowering period of the various subjects should be maintained to the longest possible period, as a single failure produces an unsightly blemish. While fully admitting the marked advance that has taken place amongst Clematises owing to hybridisation, I think it important that perfect hardiness and freedom of growth should not be lost sight of in any attempt at cross-breeding, for without this the flowering period cannot be sufficiently prolonged, so as to warrant their use in flower-garden arrangements, where most assuredly, owing to the brilliance and richness of their colouring and grand proportions as regards size, they are destined to play a most desirable part. I shall, therefore, be glad for any information from any of your correspondents who may have practically tested the merits of the various sorts as to their continuity of blooming and adaptability for flower-garden embellishment.—G. W.

Garden Flora.

PLATE 559.

CHOICE HAIRBELLS.

(WITH A PLATE OF CAMPANULA TURBINATA.*)

The Hairbells, generally speaking, are such a popular class of plants both for rockwork and ordinary borders, that a few words on the merits of the choicer kinds may not be out of place in connection with the annexed plate of C. turbinata. Numerous as the Campanulas in our gardens now are, considerable numbers have not yet been introduced; many are lost to cultivation, and a few which are not quite hardy require the protection of a greenhouse during winter. Choice

Campanula Waldsteiniana.

kinds so dwarf as to be suitable only for growing on rockwork are both many and varied in habit—some, such as abietina, increase rapidly into large patches, while others, like Waldsteiniana, Lœfflingi, &c., take a long time to acquire any considerable size. The range of colour, too, amongst them is rather restricted, but they flower at such widely different periods as to make them all acceptable where space can be afforded them. A. Allioni is a plant but rarely seen, even in choice collections, although frequent importations of it are brought to this country. It is a charming Hairbell, dwarf and large-flowered, with hardly any stalk, the blooms sitting apparently on the ground. It requires plenty of room, as it runs often a long distance underground in a year. It likes a sunny position in gritty, well-

* The Campanula was drawn in Messrs. Backhouse's nursery, York, by the late Mr. Noel Humphreys. The Haberlea is from a drawing sent to us by M. Max Leichtlin, Baden-Baden.

HABERLEA RHODOPENSIS

drained soil. C. barbata, the bearded Campanula of which there are many forms, grows well on rockwork in full sunshine. C. cenisia is one of those rare kinds that require special treatment, such as that usually given to Androsace glacialis.

Campanula fragilis var.

It does well in gritty soil, mixed with a little peat and Sphagnum Moss, and the roots should be kept always moist. C. fragilis, of which we believe there is also a hairy form, is quite hardy with us, and grows freely on an old stump in a

Campanula garganica.

heap of lime rubbish. Its branches hang down and make a fine show through the summer months. It is nearly allied to isophylla—the old floribunda of gardens—which requires a similar position. C. garganica and the variety hirsuta

Campanula Raineri.

are also useful for hanging over ledges in the rock garden, as well as for pots for the decoration of the greenhouse. It is very floriferous and handsome. C. haylodgensis, said to be between pusilla and Lœflingi, is a very free-flowering sort, and a good companion to G. F. Wilson, another charming hybrid. Portenschlagiana and pulla are also very desirable, the latter a veritable gem and worthy of a place in every collection. Others, such as Tommasinii and a few varieties of rotundifolia, &c., are all good rock garden plants.

C. TURBINATA, of which the accompanying coloured plate gives an excellent idea, is considered by many to be a distinct species, but after cultivating both this and C. carpathica for several years, and seeing the intermediate forms that exist between the two extremes, we are convinced that C. turbinata is only one end of C. carpathica, the type being the other. For horticultural purposes, so far as floriferousness and compactness of habit are concerned, C. turbinata is a preferable plant to the others; for rockwork decoration it can hardly be surpassed even by C. Raineri, nestling as it does close to the rocks, and bearing in abundance very large turban-shaped flowers. It sheds its seeds freely, and there need be no lack of plants if these are allowed to germinate undisturbed. The seedlings come up in all sorts of out-of-the-way nooks, flourishing where there is hardly a vestige of soil to support growth.

HABERLEA RHODOPENSIS.—Of this we also give a coloured illustration. In every list of choice hardy alpine plants those alluded to below always find a place both on account of the ease with which they can be grown and on account of their profuseness and beauty. No one with proper accommodation for cultivating alpines will have any difficulty with these, so far as they are procurable. Ramondia and Conandron have been included, being near allies. But another, though doubtfully hardy, is Rehmannia sinensis, with flowers similar to those of the Haberlea, but requiring a sunny instead of a shady position in which to grow well. Wulfenia carinthiaca, another restricted species, and W. Amherstiana, both of which are charming alpines, do well in company with the above, as well as other Himalayan genera, too few of which are in general cultivation. Haberlea rhodopensis, here shown in a young state, in habit and manner of flowering somewhat resembles the Pyrenean Ramondia, to which indeed it is nearly related, as is also another rare and interesting plant from Japan, viz., Conandron ramondioides. The Haberlea, of which there is only one species, is said to abound on the southern declivity of the Balkan range, growing on shaded schistose rocks near the town of Kalofer. With us it is perfectly hardy, and requires exactly the same treatment as regards shade, &c., as the Ramondia. The soil should be peaty, well drained, and of a good depth, and it will be found to succeed all the better if a few pieces of soft sandstone are placed thickly round the collar of the plant; they not only assist in keeping moisture in the soil, but help to protect the roots, which may be seen matting the ground thickly at a good distance round the plant. We prefer a sloping position on which to plant it; indeed, the more perpendicular the better, as then the chances of water stagnating about it are considerably reduced and the chances of success increased. Where it is too much cramped it rarely flowers, but produces plenty of offsets—as many as half a dozen in one year. As in the case of other cultivated plants, it shows signs of improvement, the varieties robusta and grandiflora being considerably better than the type, although the colour in neither form is so pronounced as it will probably in time become if seeds instead of offsets be the means of increase. Seeds apparently soon lose their germinating power; the best plan, therefore, is to sow them in shallow pans as soon as they are gathered, placing them in a cool frame in the shade, and covering them with a slip of glass elevated a little above the pan. Plants of it generally grow about 6 inches in height and are clothed, with the exception of the flowers, with soft white hairs; the leaves, which are all radical, form rosettes close to the ground. They are from 2 inches to 3 inches long, dark green, oval, coarsely and evenly crenate, and taper into a broad, stout stalk. The flower-stems are dark purplish-brown, and carry from two to five Gloxinia like pale lilac or bluish purple

Conandron ramondioides.

flowers with a yellow speckled throat 1 inch in diameter. A short time ago a plant of it flowered beautifully on the rockery at Kew. Its flowers are produced in May and June.

RAMONDIA PYRENAICA, though an old and well-known rock plant, is too good a companion to the above to be omitted here. It is the Blew Beare's-eares with Borage leaves of Parkinson. Unlike the Haberlea, there is not much chance of increasing it by division—at least, to any extent; it is fortunately, however, very easily raised from seeds, and although plants of it can be imported from the Pyrenees in good condition, we much prefer home-grown seedlings. They appear after a time to form much stronger plants, and are certainly more amenable to our mode of cultivation than those imported. Seedlings if kindly dealt with flower the third year, and go on increasing in size. We sow the seed

as soon as gathered, and prick off the young plants as soon as possible, putting them between two small pieces of old brick which they cover with their rough leaves in a few weeks. Shade is generally recommended for this plant, and doubtless it succeeds best under such conditions, but we have seen it grow on the top of an old wall fully exposed to the sun, which in summer quite burned up the leaves. It, however, flowered well, but the blossoms were not so large as those of plants grown in the shade. It begins to flower in May, and a few straggling blooms of it may yet be seen. A plant represented to be a new species and called R. Nataliæ is being distributed, but, so far as we can judge from the scraps of it which we have seen, it is nothing but a synonym added to pyrenaica. R. p. var. serbica, a Servian variety, is quite distinct, though as a garden plant inferior to the type. The leaves are not wrinkled, as in pyrenaica; they are lobed, not crenated, and the margins are thickly covered with long shaggy brown hairs. The flowers are lilac-blue, and not so large nor so handsome as those of the ordinary kind. R. p. var. alba, which we have never seen alive, is said to be a grand plant; its flowers are as large or larger than those of the type, pure white with black stamens. This is as yet too expensive to be a common rock plant.

R. Heldreichi, also called Haberlea Heldreichi, we have never seen growing. It is very distinct, however, from all others. The leaves are covered with a white silky pubescence, resembling those of Salvia argentea in a young state, and they are entire, not lobed or crenated. Only one or two flowers, which are purplish in colour, are produced on each stem. It is a native of Greece.

Conandron ramondioides.—This is another plant that should be associated with the above. It inhabits the higher mountains of Japan, where it is found on the north side of moist rocks. In habit it somewhat resembles Haberlea, Ramondia, and Streptocarpus, and, so far as the appearance of the leaves go, in a measure Wulfenia. It grows about 6 inches in height, has shiny, glabrous, somewhat wrinkled leaves, 6 inches long by 3 inches broad, their margins being sharply, but irregularly serrated, and the stalks, or petioles, winged and serrated their whole length. The flower-stem as well as the leaves proceed from rhizomes covered with brown, shaggy hairs, not unlike the Hare's-foot Fern. The flowers, which are pale blue and white, and about a dozen in each umbel, are about the size of those of Ramondia. It thrives well in rich soil and in a position that would suit Ramondia. It flowers in June and July. It is easily increased by taking off the rhizomes and fastening them down with pegs in gritty soil. K.

Wild flowers at Shrewsbury.—When nicely arranged and shown extensively, no display of cut flowers is more interesting than that of wild flowers. The Shrewsbury Horticultural Society patronises these and offered good prizes for them in three different classes at its recent show, which brought out about forty exhibits. The way in which they were shown was very varied; the subjects employed consisted of many kinds of flowers, Grasses, Ferns, and fruits, such as Nuts, Crabs, Sloes, Mountain Ash berries, wild Solanum fruit, and berries of various other kinds. Some of the exhibits were simple, others more elaborate. The best were those in which crowding had been avoided, and where graceful wild Grasses were introduced with flowers. Altogether they were probably as much admired as the many stands of hothouse flowers close by, and I am of opinion that societies in general do not encourage this kind of decoration so much as they should do. It allows many to compete who would not otherwise have an opportunity of showing flowers or trying their hands at artistic decoration of this kind. That decorations of this kind are popular is beyond dispute. There are some who think that these prizes induce exhibitors to destroy our wild flowers and that from this cause many of the more valuable and rare sorts have been annihilated, but I do not belong to that class. For years past I have been watching these exhibits closely, and it is in a very exceptional case indeed in which anything but the most common wild flowers and Grasses of our hedgerows and fields are to be seen in their composition.—Cambrian.

WORK DONE IN WEEK ENDING AUG. 24.

August 18 to 24.

The weather has continued dry and dull except on the 20th and 21st, which days were so hot and sunny, that we again had recourse to shading the vineries in which ripe Grapes are hanging and latest Peaches; houses containing ripe fruit we shaded by tacking tiffany over the glass. Watering is still the order of the day in respect of inside Peach and Vine borders, also of wall fruits—Peaches, Pears, and Plums—on a west wall. The few dozens of Apricots that we have this season are all ripening together, but their season of use we are endeavouring to extend by gathering them before they are quite ripe and placing them on the shelves of the fruit room till they are fully so. The flavour or quality is somewhat deteriorated thereby, but our end is gained—longer supplies, which counts more than the little loss of quality in the fruit. The wood of Peaches on walls has had the final tie and nail in for the season, extra care being taken not to shade the ripening and swelling fruit by the process. Early Albert Peach we are gathering in quantity from a south wall, and Lord Napier Nectarine is ripening up on the same aspect. Jargonelle Pears have all been gathered, and a few of Beurré de l'Assomption and Williams' Bon Chrétien. All are small by reason of the drought, and I think also partly so from over-exhaustion, owing to the heavy crops of last year. We mulch and water a few of the finer kinds as often as our limited means will allow. Kirke's, Jefferson's, and Green Gage Plums are all ripening on a west wall, and protective netting from birds and wasps has been put over them, which will also prevent scorching of fruit should the sun prove exceptionally hot. Surface hoeing in kitchen garden. Earthing up we have discontinued till rain falls in quantity, that the ground may get a soaking before this work is done. Flower-garden work has been of the usual routine description at this season, viz., picking over plants—the flowering section—to keep them free of bad flowers and seed vessels that they may continue to flower the better; and the foliage section, to ensure the outline of designs being distinctly marked. Turf edgings of flower-beds are regularly cut once a week, as also are the Grass verges and edgings of walks, and the gravel is kept smooth and free of weeds. Bedding plants are now at the height of perfection, and as we trench deeply scarcely any watering is now needed, the roots of all kinds having descended sufficiently deep as to be out of harm's way from drought. With herbaceous flowering plants it is different; many of these have not been moved for three years; consequently the ground has got so full of roots that watering has become a necessity if they are to be kept in good flowering condition, and they are worthy to be so, the Phloxes, Potentillas, Sunflowers, and many others being at the present in extra good flower. Funkias, Spiræas, Pyrethrums, Delphiniums, and Pæonies having done flowering, all traces of flower-stems and bad leaves have been cut away, and by way of making the borders still more gay, we have plunged near these kinds of plants flowering plants in pots, such as Fuchsias, Pelargoniums, Campanula pyramidalis, Tea Roses, and auratum Lilies. General work has been the keeping of every place in the neatest condition, roads and walks in this respect being as great a consideration as are flower beds. Put in cuttings of Pelargoniums, Carnations, Pinks, and Roses. The runners are kept pinched off Strawberry plants in pots; they grow so fast, that this work needs to be done twice a week, and the plants are given more space as growth progresses. Overcrowding is never permitted, nor the plants to get dry; hence it is that we are never troubled with red spider or mildew, or ever experience the least difficulty in getting the crowns well matured. Other indoor work has been of the usual routine description—watering, tying Chrysanthemums, potting Primulas, Cinerarias, Bouvardias, and Gardenias.

Hants.

FRUITS UNDER GLASS.

Vines.

The principal crop of Muscats intended for hanging until Christmas will now require a gradually increasing supply of light and air, with sufficient fire-heat at night to prevent the temperature from falling much below 70°. Although it is not advisable to expose the tops of the bunches to the direct influence of the sun, perfect finish cannot be secured where it is entirely shut out; judgment must therefore be brought to bear, not only in the removal of laterals, but also in their retention and tying in where spider has injured the main foliage. The fine rains we have recently had having penetrated the external borders, covering of some kind for throwing off cold autumn storms should be provised for use when the fruit is quite ripe. Glass lights, if at command, answer best, as they do not impede the passage of sun heat and air. Shutters or sheets of corrugated iron stand next, or, lacking these, a good covering of fresh stable litter; while feeding the surface roots will absorb a great deal of moisture, to be given off to the atmosphere when the weather is bright and fine. Well-drained internal borders, on the other hand, must be kept regularly supplied with tepid water or diluted liquid for the present, and well mulched with rather dry litter or Fern to prevent evaporation, as want of water inside is one of the most common causes of shanking and the rapid spread of spider. The roots of Lady Downes, Gros Colmar, and other bottling varieties will require similar protection when the Grapes are ripe, but the laterals must be more sparingly shortened, as black Grapes always colour and keep best through the autumn months under a good canopy of healthy foliage.

Midseason houses from which the fruit has been cut, unless the roots are to be disturbed, from this time forward may be divested of all laterals, provided the main leaves are sound and capable of feeding the buds. Strong canes which it is hardly possible to over-ripen must also be cleared of laterals from the base upwards to the bud to which it is intended to prune, while those above it may be allowed more liberty until the foliage is ripe. If spider has gained possession, the hose, garden engine, or syringe applied with some force on fine evenings will soon dislodge it, and the water which falls upon the borders will keep the roots in satisfactory condition. If root-pruning in these or early houses is contemplated, now is the time to set about putting the borders in order, but instead of cutting out laterals every bit of young growth must be allowed full play until fresh root action has set in. At one time it was thought indiscreet at least to disturb the roots of Vines while they were in full leaf, but now the best Grape growers commence as soon as the last bunch is cut from the Vines, and, aided by warmth, shade, and moisture, get them thoroughly re-established in the new compost before they fall. Assuming, then, that all laterals have been allowed to grow and the roots have the run of external and internal borders, one or other may now be taken out with impunity, not unfrequently when alternate renovation is reduced to a system, without causing the Vines to flag. Caution, however, in these matters being a virtue, I would suggest keeping the house close, moist, and shaded during the performance of the work and for some little time afterwards, as flagging means loss of vital power. Despatch being the main

factor, compost, consisting of fresh fibry turf, old lime rubble, and crushed bones, should be prepared in advance, and placed conveniently near for wheeling in immediately after the old has been disposed of. Some prefer old turf, but, provided it is dry when cut and free from wireworm, the sooner it is used the more likely will it be to ferment, no small matter where quick root action is of paramount importance.

Lifting.—Having worked out the old compost with steel forks and saved every particle of root and fibre, tie them up in bundles and sling them out of harm's way, where they can be kept moist and shaded; ascertain that the drainage is satisfactory. Cover this with large thin sods of turf, Grass-side downwards, and form the foundation of the border with the roughest of the new compost, make it quite firm, to prevent much settling, and see that it is well rammed and dovetailed into the face of the old as relaying is proceeded with. If the space originally allotted to the roots is too wide, a retaining wall of turf must be built up from the drainage, always a little in advance of the filling, otherwise the compost cannot be made firm and all the points of the shortened roots will be laid with a downward tendency. The width of the new section is a matter which must be regulated by the size of the house, the width of the undisturbed border, and the condition of the roots under treatment. If abundant and healthy and a check is all that is needed, the new border may be one-third narrower than the old one; if fibreless and bad, the narrower the better, as a moiety 3 feet to 6 feet in width and well filled with fresh healthy roots is always preferable to large masses of soil in which feeding, exciting with warmth, and protecting are more difficult. Indeed, it is a question if a superabundance of crude, cold compost is not one of the most common causes of disappointment when the Grapes are passing through all the most difficult stages of their culture. When all the roots have been re-laid, a moderate supply of warm water at a temperature of 90° while settling the soil about them will most likely aid fermentation, especially if the turf is dry and the herbage has not perished. The final covering of compost may then be placed over them, firmly beaten, and covered up with fresh stable litter.

Strawberries,

Unusually late this season, will well repay a little extra attention, as good crops of forced fruit entirely depend upon plump ripe crowns with an abundance of healthy roots beneath them. In my notes some time ago I suggested a run upon small pots, as they fill quickly, and it is of no use trying to ripen the crowns until the roots have taken full possession of the compost. To promote this growth of root and crown, the plants should have sufficient room to favour the free passage of air and warmth; the stations should be kept moist, as the constant exhalation of vapour feeds the foliage, and keeps it free from spider and mildew. Water in abundance must, of course, be given to the roots, not slapdash with the hose, as is too often the practice, but carefully with the watering-pot, without wetting the foliage in hot weather; each plant will thus receive sufficient for its healthy development, and stand without further attention for at least twenty-four hours. Plants in all stages, after they are well established, must be kept free from weeds and runners, and if the surface soil is occasionally loosened with a sharp-pointed stick, the time so spent will be a decided advantage. Stimulants need not be used the first season unless the plants are decidedly weak and require a start, but a mulch of old Mushroom manure will be of service to the earliest potted plants when they have made their growth, and the pots, being small, require slight protection in hot, dry weather. As days decrease in length and nights become damp and cold, the general stock of plants will require more room and frequent turning about to prevent them from rooting through; indeed, it may be necessary to elevate them on dwarf walls or plank stages, where they can remain until the time arrives for storing.

Storing for the winter is a matter upon which many differ; some plunge the plants in cold pits, some stack them in cones, heads outward. Others prefer plunging them out in the open air where they can have full exposure to the elements. Results in a great measure depend upon the winter; if very wet, plants intended for early forcing or for fruiting late in the spring can be kept most under control in cold shallow pits, from which the lights should be removed on fine days and well tilted when heavy rain is falling. For general forcing they do quite as well when plunged in the open air—indeed, perhaps better—as the Strawberry is perfectly hardy and always fruits best after exposure to the elements through a severe winter. If proof of this assertion is wanted we have only to go back to the past winter, one of the longest and most trying on record. Open-air beds lost all their old foliage, but where they were well mulched and watered through the preceding summer's drought they started well and every crown threw up a flower-scape. Where they failed the surface roots had perished, not by frost and snow, but through lack of moisture when completing their growth. Staking does not find general favour. If the winter is wet and mild the plants take no harm, as the constant percolation of water keeps the balls moist; if, on the other hand, keen cutting winds and dry frosts, minus snow, prevail, the balls shrink from the sides of the pots and the plants become useless.

Cucumbers.

If not already disposed of, a few plants for fruiting up to Christmas should be put out without delay. A small compartment or pit to which top and bottom heat can be applied when the days become short and nights cold will suit them well, but for the present fermenting material, aided by solar heat, will be found quite sufficient. Although Cucumbers revel in a bottom-heat of 80° they quickly resent dry fire-heat, become infested with spider, and fail just when they should be in full bearing. This collapse, it must be admitted, is disheartening; but why allow it to occur when primitive measures so well understood by the old school will prevent it? Let the bottom-heat pipes be laid in cemented gutters, which can be filled with water and emptied at leisure; cover them with rough slabs and plant out on elevated hills or ridges, resting on a good layer of fermenting material or broken brickbats. Lacking the tanks, let the pipes be laid in broken bricks, rough coke, or clinkers, but on no account omit the fermenting material, as root moisture forms the key-stone of success. Another point of importance is thin planting. Many court failure by crowding their plants too much, when they become weak and require pinching before they are strong enough to bear fruit; whereas leaders being allowed to travel to the top of the trellis, side shoots regularly tied out, every leaf carefully preserved and fully exposed to the influence of light, a robust constitution capable of withstanding November fogs will be formed before the winter months set in. When free varieties, like Telegraph or that excellent sort Masters's Prolific, are treated in this way, and 4 feet to 5 feet are allowed to each plant, the base laterals generally show at the first joint. If these first fruits are wanted, it will be necessary to pinch at the joint beyond and follow up this mode of manipulation so long as the weather favours free growth. If, on the other hand, the crop is not wanted, the first shows may be removed and the laterals pinched back to the joint nearest the main stem. The best compost for early winter plants is light, turfy loam, the rougher in reason the better, a dash of soot to stimulate the roots and check worms, and a liberal admixture of old lime rubble. Manure mixed with a compost of this kind is objectionable, as it forces a growth at the outset which the plants cannot sustain, whilst the best of all stimulants, warm diluted liquid or guano water, can be given when they require assistance. Cleanliness in the house and freedom from insects are imperative; the walls, therefore, should be frequently limewashed, the glass washed, and the atmosphere sweetened by the introduction of thin sprinklings of fresh virgin loam. Prevention being better than cure, good culture will keep down spider without the aid of direct syringing, and an occasional puff from Bloxham's handy little fumigator will secure immunity from aphides. Fruit and plant growers who have not used this blower will do well to give it a trial, for it fills up a want which has long been felt: moreover, it is neat and cheap, and cannot possibly injure the most delicate foliage.

Cucumbers from cuttings.—Where a really good strain has been tested, the end of this month is a good time to perpetuate it by putting in cuttings. The plants, it is hardly necessary to say, should be clean and healthy, and a strong bottom heat in a close, moist pit is one of the chief essentials, as the cuttings should never flag. The plan I adopt is as follows: Having secured a few very small clean pots and beaten the fine soil out of a sod of light fibry loam, the pots and fibre are laid where they can become warm. The tips with one or two leaves are then taken off the plants just below a joint, but the base leaf is not removed; they are then folded in a piece of the fibre, care being observed that they are not bruised, and forced rather tightly into the pots. A little dry silver sand sprinkled over the surface and watered in finishes the operation. The pots are then plunged in a bottom heat of 85° to 90°, covered with bell-glasses, and shaded with a sheet of paper. In eight days they are rooted, when a little air is given by tilting the glasses; this is gradually increased, and eventually the glasses are removed altogether, when the young plants are potted on and treated as ordinary seedlings. This mode of propagating Cucumbers is by no means new, as I raised all my stock of Lord Kenyon's Favourite, a shy seeder, from cuttings more than forty years ago. Plants so raised are firmer and more fibry than seedlings; hence their value for winter culture, as they are never touched by canker.

Plums and Cherries.

All portable trees from which the fruit has been gathered will now do best in the open air. If potted a fortnight or three weeks ago, they will be making new roots, which must not be checked by sudden exposure to the drying influence of the sun or want of water, neither must they be deluged, as the second extreme is perhaps more injurious than the first. Therefore in order to steer clear of extremes and still maintain a happy medium, let them be plunged to the rims, well watered and mulched with short stable manure. Syringe well on fine evenings and repeat the watering when the roots actually require it. Permanent trees trained on trellises may also have full exposure to the elements, that is, if the lights can be taken off the house, otherwise every door and ventilator must be thrown wide open and the roots heavily mulched to reduce the necessity for giving much water. If root-pruning or top-dressing is still in arrear, this work should be completed before the leaves fall, but the wood and buds being ripe, it will not be necessary to keep the lights over the trees, as has been advised in previous papers. Young trees generally require a check; old ones need stimulating. The first can be secured by careful lifting and relaying the roots in pure loam and lime rubble; the second by the removal of all inert soil and making up with compost enriched with bone dust and heavy mulching. If very weak, an occasional soaking through the autumn months with generous liquid will help the buds and tell favourably when they burst into flower.

W. Coleman.

Eastnor Castle, Ledbury.

Asparagus plumosus from seed. — The plant distributed under the name of A. plumosus nanus, although extremely beautiful, has proved anything but dwarf; on the contrary, it is strong and vigorous. There is, however, a form of this plant in the gardens at Heatherset, Streatham, which is truly dwarf. It was obtained from home-grown seeds, and has all the beautiful plume-like aspect

of its parent, but it is not scandent in habit, plants of it four and five years old not being higher than 2 feet. This form would appear to be a valuable acquisition.—W. H. G.

NOTES FROM FRANCE.

American Grapes *v.* Phylloxera.—The restoration of vineyards destroyed by the Phylloxera in the wine-making districts of France by means of American Grapes has been going on for some time, and although opinions are much divided and many good growers are doubtful as to the permanent benefit of the work, the results up to the present are of a sufficiently satisfactory nature to warrant the optimist view which some good authorities hold in this matter. In Herault about 111,200 acres were planted in 1885 with American Vines, principally the Riparia. The demand for these American Grapes is yearly increasing, and as, in addition to their Phylloxera-resisting properties, the French growers are becoming better acquainted with the means of combatting the other enemies of the Vine, the future is now looked forward to with hopefulness by them. Only time can prove whether or not in this way Phylloxera-infested vineyards may be restored to their normal fertility; suffice it for the present that plenty of good wine was made last year in districts which, through the attacks of the most formidable foe that the Vine grower has ever had to encounter, have for some time been, so far as Grape culture is concerned, quite barren. In the environs of Montpellier about as much as 3,300,000 gallons of wine were made last autumn, and a writer in a French gardening paper says that it did his heart good to see the joy with which the small growers there exhibited specimens of their produce.

New race of hardy Azaleas.—M. Rosseel, of Ghent, has had the happy idea of crossing Azalea mollis with some of the best hybrid Rhododendrons, and, judging by the specimens exhibited by him at the late flower show at that town, our gardens are likely to be endowed with a race of fine flowering shrubs. These new hybrids are likely to prove of great decorative value. In appearance they come nearer to the Azalea than to the male parents, but the leaves are stouter and the wood is of greater substance. The flowers are arranged in medium sized heads and open well. In colour they are lilac and pale rose. It is said that they force remarkably well, and can easily be brought into bloom in January. If this statement is correct, they will be in great demand for conservatory decoration early in the year. The fact that they are mules, all efforts at seeding them up to the present having been fruitless is good proof of their hybrid origin. It is, however, possible that some of the plants raised in this way may prove fertile. These new hybrids remind me of a race of Rhododendrons said to be of hybrid origin with which I was acquainted some twenty years ago. They were tall of growth, with long lanceolate leaves, and the flowers exhibited tints such as are not to be found among hardy hybrid Rhododendrons. Cream colour, rich orange, golden yellow (one kind I remember was called aureum) were the prevailing hues; but there were some bronzy yellow flowers of great beauty, and quite distinct in colour from anything I know. These were raised by a Mr. Smith, a florist, I believe, in the neighbourhood of London, and were supposed to be hybrids between the hardy Azalea and the Rhododendron. The stock came into the hands of Messrs. T. Jackson & Son, of Kingston-on-Thames, but no attempt was made to propagate them, as they were not sufficiently hardy for the open air. Although they flowered freely I never knew them to bear seeds. I have often wondered whether any of them are still in cultivation; they would be well worth looking up, their distinctness and great beauty rendering them so suitable for the decoration of large conservatories.

A giant Oak.—The trunk of an Oak is now lying on the banks of the Seine near the Pont de la Concorde at Paris which has a curious history. So long ago as 1874, at a time when prolonged drought had reduced the waters of the Rhone to an unusually low level, a boatman perceived near the village of Tenne, in the district of La Balme, the branch of a tree projecting from the surface of the river. Struck by its unusual proportions, he made an examination, which caused him to form the conclusion that a tree of giant size must be embedded in the bottom of the river. He made known the result of his observations, but the Rhone rose again to its former level, and it was not until eleven years had passed, and that unusual drought again caused the waters to sink, that the matter could be seen to by competent authorities. No time was lost, but it took five months' unremitting labour to free the trunk from some 40 feet of sand and gravel which formed the accumulation of ages. It was eventually raised on the bank of the river, and a boat being built for the express purpose of transporting it was brought to where it now lies. The most remarkable feature of this tree is the length and symmetry of the trunk, which measures about 100 feet, and of which the circumference is but little less at the topmost portion than near the base. At the junction of the roots with the soil the circumference of the trunk is about 35 feet. In girth this Oak is, I believe, exceeded by some existing trees, but so far as I am aware there is no recorded instance of one having a trunk so long and of such uniform regularity. How long this remarkable Oak laid in the bed of the Rhone can only be a matter of conjecture, but we are justified in assuming that its growth was made at a period when the climatal conditions of that region differed from those that prevail there at the present time. It is probable that we shall one day see this remnant of a remote past in this country, as it is about to make a tour of Europe in the boat used for its transport, and which is so constructed as to allow of its free passage through all navigable waters.

Chicory.—Much greater attention is paid to this salad in France than with us, large quantities of it being brought into the Paris markets through the winter and spring. In spring it is sown on gentle hotbeds, the young growths being cut much as we do Mustard and Cress, and through the winter the blanched shoots, commonly known as Barbe de Capucin, are largely consumed. Chicory is credited with many good qualities in France, and is universally considered to be one of the best blood-purifiers known. We in England prefer the milder flavour of Endive, which has also a more enticing appearance, but those who care much for salads should certainly include Chicory in their list of ingredients. It imparts a piquancy which no other salad is able to do. Chicory likes warmth when making its growth in summer, and should therefore be planted or sown in a sunny position. The better the roots are matured the more freely will they start into growth when placed in warmth. A good plan is to lift the roots in November and lay them in by the heels so that they can be easily got at when needed. The seed should not be sown in warm localities at least before May, as if sown early it is apt to run to seed, in which case the roots have no substance.

Spiræa japonica fol. purpureis.—This is a dark-leaved variety of S. japonica, which originated as a chance seedling in the nursery of the Messrs. Transon, at Orleans. The foliage, when growing in the open or in a cool house, is of a purple hue, but this, under the influence of heat, changes to a bronzy tint, which harmonises beautifully with the snowy white of the flowers. As this variety has come from seed, there is every prospect of its remaining true to character.

Genista Andreana.—This name has been given by M. Carrière to a variety of the common Broom which was discovered growing amongst the type in Normandy. It is, of course, but a seminal variation of Genista tinctoria, but is quite as distinct and far more beautiful than some of the family which rank as distinct species. Instead of the flowers being uniformly yellow, the wings are rich velvety crimson, marked with gold at the edges and base. This forms a charming contrast of colour, and the whole appearance of the plant is highly pleasing. I have no doubt that this Broom will become a favourite. J. C. B.

SCHOOL GARDENS.

The proposal to establish gardens in connection with elementary schools for the purpose of training lads in the art of gardening is not a new one, and has often been discussed. Theoretically, the proposal is admirable, but practically, most difficult to realise. Beyond needlework and cookery for girls, both of which constitute purely technical, though domestic, subjects, the educational code takes little note of anything else, except what may be termed literary subjects, the object being as far as possible to afford children whilst young opportunities to acquire knowledge which can hardly be obtained later in life. Learning to read, write, calculate, and similar work of hand and brain combined is not difficult to acquire whilst the mind is untrammelled by other considerations. Of course it may be pleaded that one object in providing instruction in practical gardening is to afford some relief to the mental labour involved in elementary learning. Girls get needlework and cookery, although the latter in a too limited degree. Boys have the variations of drawing and music. These diverse elements in both boys' and girls' ordinary school curricula are ordinarily available, because capable of being utilised at no great cost and within ordinary buildings. Gardening, on the other hand, needs something more than teachers; it needs land, and land is both costly and difficult to obtain. In towns, for instance, the price is practically prohibitory. It is, indeed, difficult enough to secure a limited area for playgrounds, which are absolutely indispensable. But it may be said that land is abundant enough in the country, and few rural schools need be without a garden for boys. That is true, and if our elementary schools were universally the property of the nation, and absolutely controlled by the Education Department, much might be done which is now, in the chaotic condition of school ownership, impossible. School Boards are so afraid of incurring expenses, that they dare not go outside the present requirements of the educational code, even if willing. Voluntary managers of schools are, as a rule, living from hand to mouth, and keeping down cost to the lowest point, that the detested School Board may be kept at bay. Thus it happens that on every hand circumstances prevent our having gardens in connection with schools. If we teach school children gardening, we shall, assuming that the prime difficulty of obtaining land has been surmounted, have to instruct their teachers in the art first, and our training colleges have neither provision nor adaptability for such work. Still further, if gardening is taught, so also must be elementary agriculture, and in localities where other vocations largely prevail, those, of course, would have to be taught also. Therefore we cannot move in the direction suggested without proceeding further, and establishing a system of technical schools in which children can be instructed in trades of all kinds after their years of elementary school probation are over. We have already in our midst such schools, but, so far, these are not available for children belonging to the better class of our poor. Industrial schools and large district pauper schools give trade training largely, the former, of course, specially so. Thus at the Middlesex industrial schools, where some 800 boys are always under control, some are trained to be agriculturists, a good knowledge of gardening being included; others are taught painting, carpentering, smith's-work, shoemaking, and tailoring. If we could give all our elementary schoolboys after they had passed the sixth standard in the normal school a further term of three years in some training school, the opportunity would then offer, with the aid of practical gardeners and ample land at their disposal, to turn out youths who would be well grounded in elementary gardening; and even though their after lives might turn in other direc-

tions, their early knowledge of garden work thus obtained would prove serviceable to them. In the course of some twenty years hence we may, perhaps, face this question in a practical way.

A. D.

GENTIANA VERNA.

The little vernal Gentian represented by the annexed engraving, and which is found so plentifully on the Pyrenees, is also a native of Britain. It is found in North-west Yorkshire, in upper Teesdale, and also in several localities in Ireland; indeed it is from the latter sources that a large percentage of the plants grown in gardens is derived. It is gathered and frequently sold for a penny a clump. Notwithstanding its cheapness, however, it is not so frequently met with in our gardens as it should be, especially in the south. Indeed, when under cultivation, it not unfrequently happens that in a few years, three or four at the most, not a vestige of it is to be seen. This is not only so in the case of G. verna, but also in that of others, such as G. brachyphylla, bavarica, and alpina. The heat experienced during summer, and the absence of a cool bottom for the roots may in a great measure be the cause of failure, but something also depends on growers not taking the trouble to raise their stock from seed. Many instances we have seen of seed shed by the parent plants growing and forming tufts on mossy limestone long after the old plants were dead. As a last resource, where failure has been frequent, a bed should be tried well filled with large pieces of limestone and soil well mixed with old lime rubbish, the whole kept thoroughly watered until the plants have had a fair start. This treatment also applies to G. acaulis, alpina, and brachyphylla. The latter is nothing more than a small form of G. verna. G. bavarica we succeed well with in a bog in gritty peaty soil, although it flowers very poorly. After planting any of the Gentians just named, they should be disturbed as little as possible. If increase is wanted it can be effected by means of stolons, which often run a good distance from the old tufts. G. verna flowers in May and June, and its glorious blue blossoms well repay the grower for any extra trouble bestowed on its cultivation.

K.

Gentiana verna.

The Wedding-flower.—This is what is known botanically as Iris or Moræa Robinsoniana, the giant Iris of Lord Howe's Island, and one of the most disappointing garden plants ever introduced into English collections. Many have tried, and perhaps a few are even yet trying, to induce it to flower, but, so far, no one in Europe has yet succeeded. We began to suspect that there was some condition peculiar to Lord Howe's Island and essential to the flowering of this Iris, till we learned that in the Hakgala experimental gardens in Ceylon plants of it had been raised and flowered in about a year from seeds produced from Australia. This is what Mr. Nock says of the Hakgala plants: "Planted round a pond are several interesting plants, among them being the Wedding-flower, a gigantic Iris. One flower-spike contains from 120 to 200 blooms, which come out a few at a time, but only last twenty-four hours; the plant is in flower for several months." Hakgala is at a high elevation in Ceylon, the temperature being perhaps somewhat similar to that of Italy. Many interesting plants are growing there, amongst them being the splendid Tree Fern found only in Ceylon, viz., Alsophila crinita, of which several fine specimens may be seen at Kew. In Ceylon, however high up, the sunlight must be much more intense than anything we get; still, the Wedding-flower may not really require all this light to make it flower. What does it want that we fail to give it here?—B.

KITCHEN GARDEN.

CUCUMBERS TO FRUIT IN FEBRUARY.

Cucumbers at Christmas are now no more a novelty than Blackberries in September, but Cucumbers for use with salmon in February, about which a correspondent desires information, test the most experienced grower's skill, as the plants have to be grown up to the fruiting stage under the most trying climatic conditions. The principal factors in successful winter culture are snug, compact span or lean-to pits, well sheltered from the north and east, light, airy, efficiently supplied with pipes for giving top and bottom heat, and fully exposed to the south. Dry fire-heat being one of the rocks on which many come to grief, the most perfect pits are those to which underground moisture can be supplied at pleasure, either through cemented tanks filled with water, or from fermenting material placed over the hot-water pipes. Tanks, however, are not absolutely necessary, as I have none, and yet I am never without a good supply of winter fruit through the first and most trying quarter of the year. As your correspondent does not say what convenience he has, I will assume that he is satisfied with his structure and describe as briefly as possible my own detailed management.

Sowing the seeds. — Continuous growth throughout the winter being imperative, the seeds should not be sown too early, and yet the plants should be forward enough for putting out and becoming thoroughly established before bad weather sets in. If at hand, a one-light frame, resting on a slight hotbed made of fermenting materials, will be found the most suitable nursery, as the young plants can be kept close to the glass where they will remain stout, and stocky, and free from insects until the fruiting house is ready for them. The proper time to put in the seeds is the first week in September, either in small pots filled with light, rich soil, and plunged to half their depth in a bottom heat of 80°, or on small squares of turf placed on the surface of the bed. In either case they must be transferred to 4-inch pots as soon as the first rough leaf is formed and kept close to the glass, where they can be slightly shaded from bright sunshine. Let the balls be quite moist at the time of shifting, and water sparingly for a day or two, but keep the sides of the frame and the surface of the bed well syringed, and take off the chink of air in time for the frame to run up to a temperature of 90°. When thoroughly rooted, give more air and less shade, place a stick to each plant, and raise the frame if more head room is required. If by this time the house is not ready for planting, a second shift into 8-inch pots will be necessary, but this, if possible, should be avoided, as frequent potting checks the plants, and, independently of loss of time, they do not always escape with perfect foliage. The loss of a leaf or two to some may appear a very small matter, and so it is in the spring, but plants intended for winter work should retain every leaf, as injury to one near the base is not unfrequently the stepping-stone to canker.

The fruiting house or pit.—Having thoroughly cleansed and lime-washed the walls, washed and repaired the glass, the next thing to be decided upon is the mode of culture. Some grow their plants in large pots, others plant them out on hills or ridges. I grow them in both ways, and find each system has its advantages and disadvantages. Of the two, planting out, unless he is a good plantsman, may be the safest and most simple mode for a new beginner. Assuming, then, that the bottom heat pipes will maintain a temperature of 80° and that tanks have not been constructed, some means must be provised for keeping their roots away from their parching influence. The simplest and cheapest way is embedding them in clean broken brickbats, coke, or other materials which will absorb and give off moisture. With these, broken rather fine at the top, the pipes should be just covered, and full heat turned on for some days before the pit is planted. Another plan is the formation of a hot-air chamber by covering, without touching the pipes, with Oak slabs, slate flags, or rough timber capable of carrying the compost. The covering complete, good fermenting material, not less than 14 inches in depth, must be placed evenly over it, and on the top of this thin sods, Grass side downwards, to prevent the roots from entering the decaying manure. The cones, or a longitudinal ridge of compost rising 18 inches, will then complete the preparations for planting.

Compost.—If light, rich, fibry turf, free from wireworm, can be obtained from an old sheep pasture, the addition of one-fifth of its bulk of old lime rubble and a dash of soot will form a sustaining staple which will not readily become sour or adhesive. The turf, chopped or broken with the hand, must be used in a rough state, and placed rather firmly in position to get thoroughly warmed through before the plants are turned out. If heavier soil is used, then the addition of a little rough peat, burnt earth, the fine sifted out, and charcoal may be added with advantage, the free passage of water being an important matter. The cones or ridges, it must be borne in mind, should not be made too near the top-heat pipes, as strong fire heat affects the foliage and fosters spider; neither should they be made wide at the base, as the plants always grow best when the roots reach the sides. If the stems cannot be kept well away from the pipes thin boards placed in front of them will throw off the dry heat and prevent the generation of steam when syringing follows sharp firing. I have not mentioned manure, as I neither use nor approve of it; better enrich poor soils with bone-dust, and feed with liquid when the plants are in bearing. Lacking bone-dust, a little very old cow manure rubbed through a sieve and mixed with a few handfuls of soot is the best substitute, but I do not press its use, as worms will follow animal manures.

Planting.—The distance which Cucumbers should be planted from each other requires careful consideration, for many fail through placing the plants too close to each other. If a single plant were placed in the centre of a pit and trained on the extension principle, the inexperienced might succeed, where under crowding he would fail. No one, however, thinks of trusting to a single plant;

the depth of trellis, therefore, must be taken into account. If less than 6 feet I would place the plants that distance apart; if 9 feet, then they might be 4 feet from each other. Closer they should not be, as they would soon interlace and require thinning, when cutting back would be disastrous. Having well watered the plants and placed a stout, neat stick in each station, with its point resting on the flooring of the chamber to prevent the possibility of sinking and strangling the shoots when they reach and are tied to the trellis, which, by the way, should be 16 inches from the glass, turn out the plants, slightly loosen the balls to set the coiling roots at liberty, and pack firmly with warm compost. Syringe the walls, floors, and dew the foliage, but defer watering for twenty-four hours; also avoid shading, unless the plants show signs of suffering. But little, if any, top ventilation will be necessary, as Cucumbers revel in an air temperature of 90°, but the front lights may have a chink on hot days, or, better still, brick ventilators on a level with the pipes may be kept constantly open. If pot culture is decided upon, the pots, 16 inches in diameter, must be clean, well crocked, and placed on solid pedestals or inverted pots to favour the renovation of the fermenting material without disturbing them, as strangling is one of the most common causes of collapse and canker.

Training.—Tie each plant loosely to its stick, pinch every side shoot at the first leaf until they reach the trellis, train the leaders upwards, and defer stopping until they reach the top of the house. Tie out the side laterals horizontally, beginning at the lowest wire, and pinch them also at the first joint unless fruit is wanted, when in every case they must be pinched at the next beyond the "show." It is, however, better to divest them of all male and female flowers until December and then allow a few fruits to set and swell. Cutting, always in a young state, will then commence about Christmas, when the plants being thoroughly established, they will keep on bearing throughout the season.

General treatment.—Syringe the house twice a day, but avoid wetting the foliage in winter, at least if it can be kept free from spider, and fumigate on the appearance of the first green fly. Let the temperature range from 68° at night to 80° by day through October, from 66° to 78° afterwards, but always run up to the maximum under gleams of sunshine. If the pit is, or can be, fitted with blinds, economise fire heat and keep in moisture by running them down at night and during snowstorms, as rapid radiation and sudden lowering of the temperature is one of the most common causes of mildew and loss of the old foliage. As the days decrease in length and growth becomes languid, pinching for a time must be suspended, the house, including the glass, kept scrupulously clean and free from all decaying matter, and the atmosphere sweet by light surfacings with pure loam and charcoal.

Top-dressing.—While keeping the plants in good growth, grossness at the outset must be avoided, as immense leaves formed during early autumn not unfrequently perish when overtaken by winter. The compost I have named will not force this undesirable growth, neither will it sustain them when they commence bearing. Steps, therefore, must be taken for keeping them regularly supplied with root food as often as the surface roots protrude, little and often. That recommended for forming the hills, with a plentiful supply of bone dust, the best and safest stimulant, thoroughly incorporated will answer well through the winter. A good supply prepared early in the autumn and placed in a dry shed where it can be covered with fresh stable litter will not only last a long time, it will also be improved by keeping, as the ammonia from the litter and the slowly decaying bones will penetrate the lumps of loam and old lime rubble. A little of this after being properly warmed should be packed firmly all over the hills as often as the white hungry roots creep through the last dressing; but, much as the Cucumber enjoys earthing up the stem in summer, its application should be performed with caution during winter.

Watering.—Successful culture cannot long be carried on where watering is neglected or imperfectly performed. Planted as it were on a suspended cradle, with hot-water pipes beneath, not only have the requirements of the plants to be supplied, but water in sufficient quantity to keep every part of the bed in a growing state and the hot-air chamber charged with vapour must be given from time to time, otherwise they will soon get wrong past recovery. Watering, then, must not only be frequent, but copious, as there is no possibility of the roots becoming too wet, whilst dribblets deceive the eye and lay the foundation for attacks of spider and mildew. Soft water, pure and simple, at the air temperature should be given once or twice a week until the plants come into bearing, when clear diluted liquid, soot water, and occasionally a dash of guano must be regularly supplied. W. Coleman.

Eastnor Castle, Ledbury.

Hackwood Park Tomato.—I have sent you a sample of this Tomato grown in a small span-roofed house on poles placed in the centre of the bed. This being my first trial with this sort, may I ask you if Tomatoes are usually grown to the size of the largest one herewith sent?—M. C. Windom, *The Lodge, Teddington.*

*** Splendid in colour and beautifully grown, but the kind is not a pretty one, the largest fruits being, like New Zealand, at present in a state of eruption. The very largest is doubled and folded back on itself, and all round its vast waist there are a series of small brown craters—the dried results of its efforts to grow far bigger than ever Nature meant a Tomato to do. It measures 15 inches in circumference; only the smallest fruits are free from these ugly imperfections. We regret much that people raise such varieties and call them "improvements." The worship of size and monstrosities is carried to an excess in our gardens, and ought to be controlled. In the case of the Tomato, excellent in its ordinary forms, gross imperfections are paraded as "valuable novelties," to say little of the eating qualities, but coarse fruits of Tomatoes have useless cores and other parts to cut away, and are as bad for the cook as they are in appearance.—Ed.

Potato disease.—The atmospheric conditions which have during the last ten days or more prevailed here in Surrey appear to have had very disastrous effects on the Potato crop. Breadths of Potatoes which a week ago looked remarkably healthy and vigorous unmistakably show the dire effects of the fungus. The early crops are of course out of danger, the drought having had the effect of ripening them off somewhat prematurely, but the yield of sound tubers in the case of late varieties will be much under the average. A proof of the virulence with which the Peronospora has attacked the haulm is afforded by the condition of the Magnum Bonum, which here for the first time is now affected, and to all appearance as badly as other kinds. In this Potato we have hitherto considered that we possessed the means of warding off a Potato famine, but if that fails us we shall be as badly off as we were a few years ago. A year or so ago I was told that it got black-hearted in many soils; but up to the present it has been excellent in quality on our light loam. As the White Elephant is coming so much into favour, it will be interesting to note its behaviour under the same conditions as the Magnum Bonum. It is evident that this latter is no longer disease-proof, and we need another to take its place.—J. C. B.

SHORT NOTES.—KITCHEN.

Prolific Potato.—I planted 1 lb. of Queen of Potatoes on May 10, and to my surprise when I dug them on August 11 the produce was 62 lbs.; they were all sound and good and nearly all large in size.—J. W. Mills, *Minterne.*

Pickling Cucumbers (*Amateur*).—Make choice of those which are small and not too old, put them in jars and pour over them a brine made of two-thirds of water and one-third of vinegar, with salt in the proportion of 1 lb. to three pints of liquid. Put the brine on the fire till the salt is melted, let it stand to settle, and before you use it pour it off clear. When you wish to use the Cucumbers, take the rind off and dress them in the same way as fresh Cucumbers.

Late Peas.—My latest Pea this season is Veitch's Perfection, the produce of a third sowing. Ne Plus Ultra has been wonderfully good in flavour and very prolific, but it is mildewed. Huntingdonian I shall not grow again here; it has turned out most miserably; the pods are small and the Peas anything but good in flavour. In the south I have seen it do remarkably well. House's Marrow, a local variety, is a good Pea, large, prolific, and rich in flavour. It is in the style of Ne Plus Ultra. It is now bearing a second crop nearly as good as the first. I am strongly in favour of mulching and watering late Peas; such treatment helps them to withstand the weather, and in a dry season prevents mildew from attacking them so quickly as it otherwise might do. As regards mid-season Peas, many came in out of place. As respects succession, I sowed Advancer, Marvel, Champion of England, Prizetaker, and Dr. M'Lean, and, with the exception of Advancer, all came in together, though sown a week to ten days apart. Marvel did not answer my expectations at all. King of the Marrows is a good Pea, and did remarkably well, as did also Telephone and Stratagem, both remarkably fine Peas.—W. A. Cook, *Holme Wood, Peterborough.*

Indoor Garden.

CYCLAMENS AND THEIR CULTURE.

Cyclamens are the most beautiful of all winter-flowering greenhouse plants. Their purity of colour and singularity of form make them universal favourites, and the early season at which they come into bloom invests them with additional interest. As a rule, I like the bloom which I obtain from plants of the first and second year best; but those of one or two years older produce flowers in greater abundance than younger plants. I have among my Cyclamens many distinct colours, such as pure white, crimson, carmine, lilac, salmon, and rose. These and other colours in good Cyclamens should always be in themselves pure and unspotted, "not beautifully spotted and striped," as some describe plants at exhibitions, such spots and stripes being entirely the result of keeping the plants in cold, damp houses. To obviate such defects, maintain a continual, though slight artificial, heat in the house in which your Cyclamens are growing, and, at the same time, allow a free current of air, regulating it as to amount according to the state of the weather. This prevents that damp and stagnant atmosphere so much dreaded by all good Cyclamen growers. About the 1st of March we begin fertilising the flowers, placing such plants as are retained for that purpose in a house apart from the others; and in furtherance of this end we select equal numbers of all the colours, omitting any possessing the least deficiency in size, form, or purity, and adopting flowers only that are perfectly uniform in shape, with broad blunt petals, each averaging about 1½ inches in length, and having a well defined base. The foliage, too, should be finely marked, and the plants should possess strong constitutions and quick-growing properties.

Some contend that Cyclamens may be successfully raised from seed, and bloomed in nine or ten months in 4½-inch pots; but this I feel certain cannot be done. To have good plants, the seed should be sown in December, in a temperature of 50°, and the young plants should be pricked off in spring into 4½-inch pots, placing ten in each pot; and when big enough, they should be potted singly in 3-inch pots. When these are well-filled with roots, which will be by the end of June, they should be potted into 4½-inch pots, in which they will flower the following spring. After this shift they should be placed in a cool, sunless house, and well watered both at root and overhead. All stimulants, in the way of manure or guano water, should be avoided, and nothing used except pure soft water, otherwise the flower-stalks become drawn and weak, and the strength of the plant

gets expended in the production of foliage. By this treatment, strong blooming plants may be obtained by March, a period of fifteen months from the time of seed-sowing; and in less time than that I find it impossible to obtain well-flowered plants. Some assert that they can grow good Cyclamens in Cucumber beds, but, judging from my own experience, such is impracticable. I always find it best to allow them some two months in which to germinate, then to keep them cool, and to bring them on gently. By this treatment they do not grow so quickly at top, but they form large bulbs underneath, and that much quicker than they otherwise would do were they subjected to a higher temperature.

Much has been written respecting the compost best adapted for Cyclamens; some recommend a little peat, others a little decomposed cow manure, mixed with the soil employed for them, and this latter I have myself recommended, but I now find that its effects are more injurious than beneficial, inasmuch as it serves to breed worms and other insects that prove hurtful to the plants. Finding such to be the case, for the last four years I have used nothing but two-year-old rotted turf and good leaf-mould in equal quantities, with a liberal admixture of silver sand. In potting, I keep the bulbs about three-fourths out of the soil, carefully avoiding the old plan of placing them under the surface, so that the flowers may come up clean, without danger of damping or rotting off. As regards two-year-old bulbs, it is customary with many to dry them off in winter in by-places, keeping them without water until every root has become dead; consequently the leaves die. When it is wished to start them, they are repotted and watered, which is all but labour lost. Some of the bulbs push freely, but others break but feebly, drag out a miserable existence, and, after a time, die. I generally find it best to keep old plants in cold frames during their period of rest, and sufficiently damp to keep the roots in a healthy condition. Most of the plants shed their foliage, and those that do not, continue to grow throughout the season, and are the earliest to bloom. Much has been said about growing Cyclamens close to the glass; but, where they form a part only of plants that are benefited by such treatment, it is impossible to supply all with such a position; therefore, amateur growers will be pleased to know that such is not absolutely necessary. The stages in our houses are from 6 feet to 8 feet from the glass, and I find no difference whatever between those grown on these and others grown nearer the glass. In the case of amateurs who generally grow Cyclamens along with miscellaneous plants, they should, however, select a stage as near the glass as possible, and in a cool or sunless part of the house.

Should the plants become infested with insects, I find it best to dip them two or three times in a mixture of soft soap and water, and when thus cleansed, they pass through their blooming season unharmed. By a free use of the syringe, I manage to keep them free from red spider and thrips. J. D.

Permanent shade for glass houses.—The best permanent shade for plant houses is linseed oil and sugar of lead, in the proportion of about a teaspoonful of the lead to a quart of oil; but the exact tint must be governed by the amount of shade required. Therefore apply the lead gradually, and prove it upon a few pieces of waste glass until you get the tint desired. The *modus operandi* is this: first wash the glass thoroughly clean, and then (having previously prepared the oil and lead), on a dry clear morning, take the oil and paint as thinly as possible over the glass with an ordinary paint-brush; then follow with what the painters call a dust-brush, loose and quite dry, and, dabbing it gently on the oiled portion, impart a frosted or ground-glass appearance to it. An ordinary garden labourer, with a little practice, will do this very nicely. This shading will stand very well for a season, and if in the autumn it is desired to remove it, that may be readily done by washing with strong pearlash water. For some plants, such as Camellias, Oranges, and other strong-foliaged things, it is questionable whether it is desirable to remove the shading. Many years ago, when there was a good deal of discussion about scorching by foreign, sheet, and other inferior kinds of glass, the late Mr. Pince, of Exeter, wrote thus to a friend: "I made short work of the scorching; I painted the glass all over with white lead paint, and I found where the paint was the thickest the plants (Camellias) did the best." There has been a good deal of misdirection about the light necessary for plants. We bring them from all parts of the world, and, without giving a thought as to whether their native habitat may be under the shade of larger vegetation or in open positions, we place them in bright full light, and then grumble because they do not grow as we could wish them to do.—A.

DOUBLE-FLOWERED GARDENIAS.

Of the many fine plants for which we are indebted to Fortune the Gardenia named after him must, I think, be pronounced to be the finest; for to size, purity, and doubleness of the white Camellia this plant adds the delicious aroma for which the whole tribe of Gardenias is so much prized. The great market growers, who cultivate Gardenias by thousands for supplying bouquet-makers at Covent Garden, grow them principally by means of the heat of fermenting materials. The general plan is to have a pit filled with spent hops from the brewers' or tan for the bottom heat, and then linings of stable manure around the sides of the pit. The plants in the growing season delight in a brisk, moist temperature—indeed, from the commencement until near the maturation of the growth they will grow in a vapour bath strongly impregnated with ammonia; but to mature the wood and set the flower-buds it is necessary that they be exposed to a drier atmosphere and a free circulation of air. Cuttings of the Gardenia strike with the utmost freedom in a close, moist temperature, with some bottom heat. Though heat from fermenting material is the most suitable for the cultivation of this tribe of plants, it must not be supposed that they will not grow in ordinary plant stoves. I have plants so treated now of G. Fortunei, G. florida, and G. florida intermedia. During the growing season they are placed in the closest part of the stove, and are well supplied with manure water. When the growth is complete and the flower-buds forming, they are exposed to full air, and for months I keep them in a cool house with Camellias. When we want bloom they will be removed to a forcing house, and there remain to make their growth. As a forcing plant, to come into bloom in March and afterwards, I know nothing so valuable as Gardenias. They are universal favourites with all who know them, and will ever remain so. The only drawback is that insect pests of every kind have a great affection for them. Mealy bug, white and brown scale, thrips, and red spider, each grow fat and multiply upon them. The best remedy for these pests is to lay the plants upon their sides, and then syringe them when in a dormant state with water heated to 120°; then follow with a dressing of some of the insecticides, of which we have now so many, and the visitation will be subdued, if not eradicated. The kind mostly grown for market purposes is G. radicans. It is a dwarf, free-blooming species, and, carefully managed, flowers most profusely. It is known by the name of Cape Jasmine. P.

Lilium auratum platyphyllum.—Some varieties of this Lily are immeasurably superior to others; for instance, weak drooping flowers with thin, poorly coloured petals are not worthy of being classed with large cup-shaped blooms richly spotted and barred with gold, and borne on good stout stalks. One of the best amongst the varieties is platyphyllum, a kind which can be readily distinguished in all stages of growth. The bulbs do not vary from those of ordinary auratum, but as soon as the shoots push above ground, it will be observed that they are much thicker than those of the type, while the leaves are much wider and larger. It also attains a greater height, and the flowers are massive and handsome in shape. They differ from each other somewhat in colour, some being almost white, while others have the golden band well defined, and are spotted to some extent, but not densely. This Lily within the last year or two has become tolerably common.—H. P.

LUCULIA GRATISSIMA.

This is one of the most beautiful winter-flowering conservatory plants in cultivation, forming, when planted out in about equal portions of turfy loam and fibrous peat, large bushes 6 or more feet in diameter, and filling the house with delicious fragrance in November and December. Some years ago I had charge of a conservatory, in which several large plants of Luculia were growing beautifully in the borders; for although it is rare to meet with a really good specimen in a pot, yet when planted out in good soil in a well-drained border, it grows as freely as a Willow. The great thing is to prune well back after flowering; if this is not done, the plant rambles up, soon gets naked at the bottom, and does not flower well. It often makes 2 feet or 3 feet of wood in one season, and the flowers are borne at the ends of the shoots; therefore it is important to facilitate the ripening of the wood as much as possible by exposure to light and by reducing the supply of water during this month and September. The Luculia also makes a grand plant for covering the back wall of a conservatory, and there is scarcely any limit to the space which it will cover. Liquid manure made from soot, and given clear during the flowering and growing period, adds to the strength and beauty of its flowers, and imparts a rich dark green tint to its foliage. The syringe should be used frequently to keep the foliage clean. About the same treatment that suits Camellias for blooming about Christmas will also suit the Luculia. A really good specimen of this Luculia in a pot is, as I have said, not often met with, and the reason probably is because the plant is usually encouraged to flower before a good foundation has been laid for the future specimen. And until it is well established in a good-sized pot, it seems rather impatient of being cut back; plants are, therefore, allowed to flower without being subjected to cutting, and it is somewhat difficult afterwards to induce the plant to become bushy. In commencing to form a specimen, begin with a young healthy plant, keep it growing in what is called an intermediate house, and persistently pinch or rub out the leading buds till a good foundation for the future specimen is formed. Do not allow it to flower till this object has been attained, and the plant will be longer lived in consequence. When potting is necessary, give a liberal shift. What is known among plant growers as "the one-shift system" is well adapted for the Luculia, but then special care is required in watering and the drainage must be perfect. Although when making its growth the Luculia delights in liberal supplies of water, anything in the shape of stagnation at the root produces ill health, from which there is little or no recovery. The best soil for pot culture is two-thirds turfy loam and one-third fibry peat, with a dash of fine charcoal. The soil should be well broken up and rubbed through a coarse sieve without extracting the fibre. Pot firmly; loose potting encourages rapid growth, but this is often inimical to the formation of a good specimen. It may be propagated by cuttings made of the young side shoots taken off with a heel, and placed under a bell-glass in a cool situation till callused, then plunged in a mild bottom heat. It may also be increased by means of layers. E. H.

Marie Louise Violet in frames.—This Violet is not a success with us in the open air; our winters are too cold for it, but it succeeds very well in frames. We usually plant it in frames from which early Melons have been cut. There is always a little heat left in the manure, which greatly encourages the Violets;

no extra preparation is required. The soil is levelled down, and the Violets which have been specially prepared for the purpose, having sturdy foliage and strong buds, are planted 9 inches apart. The soil is pressed firmly about them, a good soaking of water is given to settle the soil, and the lights are kept off till cold weather sets in, but the bed is not allowed to be deluged with cold rain at any time.—E. H.

ORCHIDS.

CULTURAL NOTES FOR SEPTEMBER.

The late Mr. Spyers was one of the best of Orchid growers, but on one point of culture, that relating to the potting of cool Orchids, I never could quite agree with him. Spyers would insist upon re-potting them in February or March, or he would leave them alone until September. I do not say that these are not the best months; probably they are; but I have re-potted cool Orchids, hundreds of them, in June, and many in all the intervening months between March and September. A very congenial temperature can be kept up during September, and those who have plants requiring re-potting would do well to have them seen to at once. Spyers used two-thirds of Sphagnum Moss to one of good fibrous peat. I mix the two in nearly equal proportions, but I always have a potful of clean washed and chopped Sphagnum at hand to add a further quantity if necessary, as I like to place the Sphagnum in more liberal proportions on the surface. The last plants of Odontoglossum vexillarium are not yet out of bloom; consequently they have not been repotted, but we will finish them by the end of the first week in September. They do not require any rest whatever after flowering; as a rule, they will be found to have made some young growth before the flowers fade, and that pushes on rapidly after the plants are repotted. If a few of the old leaves show decay-spots in places, the inexperienced cultivator need not be alarmed. It is better if they do not, but the growths are about the same in each case. As soon as cold, dull weather sets in these and the pretty, but capricious, O. Phalænopsis should be removed to the coolest part of the Cattleya house; we place the last named close to the glass at the cool end. Some of the Masdevallias should also be wintered in the Cattleya house. Those that remain in the cool house, but at the warmest end, are M. Lindeni, M. Harryana, M. Veitchiana, and M. ignea. I have never ventured to repot or break up specimens of any Masdevallias at this time of the year, but Spyers considered this a good, if not the best, time for such work. I have generally done it in February. Another good Orchid cultivator told me that a knife or any other cutting instrument never ought to be used to divide the plants. It ought to be done carefully with the fingers. If a knife is used, the plants, I am told, always die. I have never used a knife, so cannot speak from experience, but I have parted many with the fingers, and never had a single failure. We have quite a colony of plants of that most handsome of all Masdevallias, M. Harryana, that have been grown from a few little bits of the original importation. We only part the plants when it can be done easily. Nearly all the Masdevallias may be propagated in this way; some species grow much more freely than others. Some of our largest specimens, both of Masdevallias and Odontoglossums, had been grown and potted on from one pot to another for ten years or more until they showed signs of declining vigour. These plants had every particle of potting material removed, and the roots of some of them were washed. They were then placed in smaller pots. I cannot say that they improved much the first year; in fact some of them went the other way, but after the second year they did well.

In a few weeks the earliest specimens of Oncidium macranthum will be showing their spikes, and so fond of these and of the young roots formed freely outside the potting soil are slugs, that they must be constantly watched, even after we take the precaution to place the plants on inverted pots in a vessel of water. We had a fine spike in flower during the last four weeks, but the flowers have how faded, and the plant looks as if a whole season of rest would be desirable. This species becomes very much exhausted through flowering if the plants are not in a very vigorous condition. It is a good plan to give a plant a season of rest sometimes; especially if it has flowered well two or three years in succession. We give them a rest by preventing their flowering for one year. The Cattleya or Mexican house must not now be so much shaded. Cattleyas of the Trianæ section have completed their growth, and must be kept drier at the roots, as well as receive more light and air; but C. Mossiæ and Mendeli have not yet formed their bulbs, and require more heat and moisture with exposure to as much light as possible. While the nights are warm, the ventilators must be open at the top as well as at the bottom of the house. If the plants receive the right treatment as regards ventilation, atmospheric moisture, and watering, they will not be so liable to be attacked by thrips. Green fly has been troublesome in all our houses this year, and as fumigating is not quite safe, dipping and washing the plants with soapy and tobacco water have taken up much time. Cattleya Gaskelliana and C. Dowiana are now either in flower, or have passed out of bloom. C. gigas, Sanderiana, and imperialis, all varieties of the same species, have also flowered some time ago; they must be kept rather dry at the roots. If they receive an over-supply of water, or indeed if the compost is kept anything like moist, they will start into growth, which would not ripen this year and would prevent next season's growth being strong enough to flower. Calanthe veratrifolia, a well-known evergreen species, is now growing from the base, and if the plants require re-potting they should be seen to at once. We will re-pot ours, using nothing but good turfy loam, a little leaf mould, some decayed manure, and sand if necessary, just enough to keep the compost open. The thick fleshy roots of these Calanthes are easily injured by careless handling, and the plants receive a check they do not very soon get over. The compost must be kept moist all the year round. The new species C. vestita oculata gigantea has also started to grow, and must be re-potted in the same way as the others. It does not look as if it required any season of rest, as the growths have started well and the old leaves are yet green. This plant has now been introduced in quantity and may be purchased at a cheap rate. It seems to have been introduced from Borneo and requires the warmest house, while C. veratrifolia does best in the intermediate section.

The whole of the Dendrobiums are now in the warmest house we have, and they show their appreciation of the extra heat and moisture by making clean, strong, and healthy growths. It does seem that if we can get our Orchids to grow freely, by maintaining the right state of heat and moisture, they are not liable to be attacked by red spider, thrips, or any other parasites. More than any other Orchids the Dendrobiums require a decided period of rest after their rapid summer and autumn growth. We endeavour to let them go to rest by a gradual decline in the temperature after the middle of September, and some of them, such as D. nobile, D. Wardianum, D. crassinode, D. Falconeri, &c., are kept quite dry and in a warm greenhouse temperature all through the winter, a plant or two of each species being taken into the warm houses at intervals of three or four weeks. The plants ought to be marked "early, mid-season, and late," so that the early forced plants this season may also be forced earliest next season. We have some of each species flowering well into May, and plants of D. nobile in June; the first of them are in about Christmas. Probably there are no more valuable Orchids for cultivation in every garden than these Dendrobes, the best of which is D. nobile. Jas. Douglas.

Miltonia spectabilis is one of the best species of a genus peculiarly rich in good garden plants, and it is one of the easiest Orchids to cultivate, growing freely in a moist, warm greenhouse if fastened on to a raft with a few bits of peat and Sphagnum amongst its creeping rhizomes. Like many other popular species of Orchids, it is now represented in gardens by numerous varieties, which are, however, usually catalogued as distinct species. Two of the best of these are now in flower at Kew, viz., the varieties virginalis and Moreliana, the former having pure white sepals and petals and the large tongue-like labellum of two shades of purple, the darker being about the base, veins of the same dark shade running out into the paler purple of the margins. Moreliana has very large flowers with broad overlapping petals and sepals and a broad labellum, the whole being coloured a deep vinous purple, except the marginal portion of the lip, which is paler. We should call this variety, as represented at Kew, what is known in gardens as atrorubens. Give Miltonias plenty of water and a sweet atmosphere and they will grow healthily and flower annually. They cannot thrive with coddling, nor do they grow as well when planted in pots as when in baskets or on rafts.

Aerides Rohanianum is a beautiful species belonging to the same group as A. quinquevulnerum and A. odoratum, but distinct from all its allies. It is a recently introduced kind, and has only lately been flowered in English collections. There is a plant of it now bearing a stout spike of flowers in the Kew collection, the flowers extending up about a foot of the spike and forming a beautiful compact inflorescence. The sepals and petals are white with the faintest rosy tint; their texture is firm, though wax-like, and they are slightly reflexed; the labellum is horn-shaped, the point turned upwards in front, whilst the three lobes or laciniæ bend inwards at the top and form a hood over the column; the colour of the labellum is sulphur-yellow, with a few tiny dots of rose towards the tip of the horn. Inside the spur of the lip are two small horns, of which Professor Reichenbach says: "I never before saw such curious bodies in any Aerides among the hundreds and hundreds of flowers I have had under my eyes." The species is apparently a free grower, requiring intermediate treatment; it is certainly distinct and beautiful, which cannot be said of all the recently introduced and much lauded Aerides.

Dendrobium Phalænopsis was exhibited by the Kew authorities at South Kensington last Tuesday, and we are glad to see that so beautiful a species is likely to become a popular garden plant because of its good constitution, which, unfortunately, is not the case with the majority of Orchids from the Australian tropics, and especially with the Dendrobiums. D. Phalænopsis was introduced through Kew from the island of Timor, but it is also found in North Australia and New Guinea. The pseudo-bulbs are stout, about 15 inches long, narrowed to a point from whence starts the curved raceme, which is a foot long, and bears five flowers, each 2½ inches across; the sepals and petals are broad and coloured pale purple or magenta, and the lip is deep red-purple with a blotch of maroon in the throat. This Dendrobium may take rank with D. Williamsi, recently exhibited at South Kensington, as a beautiful new species, and although it is not so distinct as that kind, it is apparently a long way superior in being more amenable to garden culture than D. Williamsi has proved to be. New Guinea is the land of promise just now to Orchid growers and collectors, and if it contains many such beautiful plants as the two Dendrobes here mentioned, it will be worth exploring in the interests of the gardening world.

Masdevallia Davisi stands out distinctly amongst the hosts of Masdevallias in cultivation because of the clear bright lemon-yellow of its flowers, for, if we except the insignificant-flowered kinds, there is no other pure yellow-flowered species that could rank as a desirable garden Orchid. Apparently M. Davisi is rare, for we have not seen it lately in the collections we have visited except at Kew, where a healthy little plant is now in

flower. The leaves are thick, leathery, dark green, 8 inches long and erect, and the scapes bear each a flower about as large as that of M. Lindeni. We have an approach to yellow in some of the forms of M. ignea, but these are never nearer than orange. A beautiful quartette of Masdevallias would be the above for yellow, M. Harryana for crimson, M. Veitchiana for scarlet, and M. tovarensis for white flowers. In a small collection these four would represent the cream of the genus; whilst those remarkable in form might be represented by M. Chimæra or M. bella, M. Shuttleworthi, M. macrura, and M. Wageneriana. Here is a selection which we recommend to beginners in Orchid culture who have not yet made up their minds anent Masdevallias.

Cattleya Gaskelliana (*R. Owen*).—We consider the flower you send to be a fine form of C. Gaskelliana, which is very distinct from C. Sanderiana. The former more resembles the autumn-flowering C. labiata, but being always earlier in flowering cannot be confused with it. Your variety is remarkable for the fine broad lip, which is more highly coloured than usual. The shape of the flower, too, is good, the sepals being broad and held out firmly.

Aerides odoratum virens.—Under this name a wonderfully fine spike of an Aerides has been sent to us by Mr. Simpkins, from Mr. Measures' collection, at Cambridge Lodge, Camberwell New Road. It is by far the finest spike of A. odoratum we have seen. It measures 17 inches in length, and 13 inches of it are thickly covered with flowers, larger and finer in every way than usual. Their colour is white and wax-like, the sepals and lips being tipped with deep rose-purple. It looks more like A. Lawrenciæ or Sanderianum than any Aerides we have seen. Mr. Measures has two plants of this Aerides bearing five such spikes as that sent.

Orchids at Selborne.—This is not the time to see many Orchids in flower, but there is promise of a fine display later on. Amongst the best things which we noticed here were a richly coloured form of Cypripedium œnanthum superbum, the grand C. euryandrum, Stonei, Sedeni, and several others; also a finely marked variety of Vanda suavis, the rare Miltonia bicolor, Masdevallia Winniana and Davisi, the pure white Brassavola nodosa, a plant far too much neglected; the fine old Cattleya violacea, and a very deeply coloured form of C. Dayana. There were also a very fine marked form of the old and little-known Galeandra Baueri, and the curious Lælia xanthina; these are all late summer or autumn bloomers.

Cattleya velutina.—A twin-flowered spike of this new Cattleya has been sent to us from Mr. Measures' garden, at Camberwell. It is not showy compared with other Cattleyas, but pretty and interesting on account of its being so different from them. The flowers measure about 4 inches across the outspread sepals, which are rather narrow; they are broadest in the middle and wavy edged. Their ground colour is yellowish brown, spotted with chocolate. The lobe of the lip is 1 inch broad, white, heavily pencilled and veined with purplish violet; it is quite white on the upper part, with a dash of yellow in the throat. The flower is sweetly scented—an additional charm. In growth it so much resembles the less valuable C. bicolor, that the two plants are often confused when out of bloom.

Trichopilia suavis.—This beautiful plant is a native of Central America—a rich field from which many of our most valuable Orchids have been derived. It is one of the commonest species in cultivation, and may be purchased for a few shillings; it flowers very profusely in March and April, and is of extremely easy culture. There are several varieties of this plant in cultivation, varying in the size of the flowers and in the depth or brightness of the rosy blotches with which its snow-white lip is profusely adorned. The flowers are borne, two or three together, on a short drooping scape; and, in large well-grown specimens, their effect is very beautiful, as they frequently form a perfect wreath all round the base of the pseudo-bulbs. Good specimens often bear upwards of a hundred flowers, and as they last a considerable time (often six weeks) in perfection, they are of additional interest. The flowers are very useful for cutting, either for dinner-table decoration or for the drawing-room vase, as they sparkle very brilliantly under artificial light, and look very fresh and attractive when neatly backed by foliage or Fern fronds. This plant, together with its allies, grows well in a compost of fibrous peat and Sphagnum, care being taken to elevate it on a little hillock above the rim of the pot, or rather pan, in which it should be grown. All the Trichopilias do best in an intermediate house. They require plenty of water when growing and a decided season of rest.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 21.

THE large and excellent show of cottagers' and artisans' garden produce was the chief feature at South Kensington on Tuesday last, and, added to this, there was a good display of flowers, which lit up the conservatory with colour. The Gladioli from Langport were never shown finer, and the Roses from Waltham Cross and Cheshunt were almost as fine as in mid-July, while the glow of autumn hardy flowers, such as Dahlias and other composites, was seen on all sides. The new plants submitted to the committee were comparatively few, the following being those to which first-class certificates were awarded, and these, as may be observed, were all florists' flowers:—

DAHLIA MR. ROSE.—A single variety with peculiarly coloured flowers, the ground colour being rosy lilac, spotted and flaked with crimson. Exhibited by Messrs. Cannell and Sons, Swanley.

DAHLIA YELLOW CONSTANCE.—A yellow form of the white double Cactus-like Dahlia named Constance. It was certificated as a decorative variety, whatever that may mean. Shown by Mr. Ware, Hale Farm Nursery, Tottenham.

DAHLIA MISS LIMAKER.—A single variety having large and finely shaped blooms of a vivid carmine, with a yellowish centre. From Mr. Ware.

DAHLIA AMOS PERRY.—A single variety, a good deal like the original Paragon, but finer. The broad florets are of a rich plum-purple, edged with crimson. From Mr. Ware.

GLADIOLUS VOLTAIRE.—One of the Lemoine's race of hybrids, and a very fine sort. The flowers are above the usual size, finely shaped, and of a bright magenta-rose.

GLADIOLUS LADY MACFARREN, pale blush, prettily flaked on the petals. Lord Ashbourne, vivid crimson, one of the brightest of all. Prince Edward of Saxe-Weimar, salmon-pink, flaked with bright rose. Lady Salisbury, blush, flaked with crimson. Empress of India, pale purple and flaked. All these were exhibited by the raisers, Messrs. Kelway, of Langport, Somerset, and we need hardly say all were perfect examples of first rate Gladioli. All had fine, large and perfectly shaped blooms and tall massive spikes. They were selected from a large number of new seedling varieties shown in the Langport collection.

Among other exhibits shown the following were worthy of note: Mr. Crowley's gardener (Mr. King) showed from Waddon House an uncommonly fine example of Chrysanthemum Madame Desgrange, the flowers of which were pure white and nearly 5 inches across. Not less remarkable were some huge blooms of African Marigolds, lemon and orange-tinted, from Mr. R. Dean, of Ealing; the blooms were 4 inches and 5 inches across, forming dense globular heads. Mr. Eckford, of Borreatton Park, sent a series of named seedling Sweet Peas; how far they differed from older kinds could not be seen without actual comparison, but there was a brilliant carmine among them which seemed new to us, and there was also an excellent pure white. Orchids were scarce, but these included the magnificent Cattleya gigas Hardyana, which is remarkable for its large flowers and splendidly coloured lips, the tint being an indescribable shade of magenta. This variety could scarcely be surpassed among the forms of C. gigas. It was shown by Mr. Hardy, of Timperley. Another Orchid was Maxillaria setigera, shown by Mr. Buchan, Wilton House, Southampton. It has largish flowers with long and narrow petals of a pale yellow. The New Plant and Bulb Company, Colchester, showed a variety of Cattleya superba from Colombia, which, however, did not appear to differ materially from the original form, and the same exhibitors showed two Indian Balsams, one being the pretty and not uncommon Impatiens Jerdoniæ, the other a rare species somewhat like it named I. bicolor. It has two coloured flowers peculiarly curved like a horn. Mr. Bull showed flowers of the beautiful new Aristolochia elegans and the brilliant new Balsam (Impatiens Hawkeri).

Hollyhocks were again shown plentifully by two or three growers. Messrs. Webb and Brand, of Saffron Walden, had a great display of cut blooms, as well as spikes, and Mr. Blundell, of West Dulwich, again had some new sorts, among which we singled out those named Mary Anderson, straw colour: W. G. Head, crimson; Princess Victoria, blush-pink, all excellent. An elegant Maiden-hair Fern, named Adiantum cuneatum elegans, was shown by Mr. Kershaw, Shad House Nursery, Brighouse. It has finely cut fronds, and is altogether more graceful than the type.

Dahlias were plentiful, and the fine display of show kinds made by Mr. C. Turner, of Slough, included some beautiful new seedling doubles, one of which called Bendigo seemed to be the perfection of a show Dahlia. It has huge well-formed flowers of a plum-purple. Mr. Ware showed a host of new single sorts, as did also Messrs. Cannell, from whose collection we picked out those named, Our Leader, Cherry Ripe, Mr. Rose, as the finest. Messrs. Cannell also had a bright display of other flowers, including a selection of double Begonias, Carnation Pride of Penshurst, and a bunch of that rarely shown annual, Salpiglossis variabilis, in many colours.

Messrs. Carter exhibited an extensive collection of China Asters, all admirably grown and flowered specimens, representing every strain, we should say, that exists. There were Chrysanthemum-flowered, Quilled, Dwarf German, Victoria, Pæony-flowered, and others, all in various colours, so that it was not only a showy, but an instructive exhibition. A silver Banksian medal was worthily awarded to the exhibitors. Messrs. Veitch showed a collection of hybrid Gladioli of the Lemoinei race, which included a large number of varieties, some being quite new seedlings. The names of the finest were Enfant de Nancy, Emile Lemoine, Alsace, C. Colomb, La France, and Lemoinei. The rather uncommon, yet brilliant, G. Saundersi was also shown by Messrs. Veitch.

A silver-gilt medal was awarded to Messrs. Kelway for their large and magnificent collection of Gladioli, which numbered no fewer than 250 spikes, representing the finest Gladioli in existence. The collection was the great feature of the meeting, and was the centre of attraction. Among the finest new sorts, besides those certificated, were those named Lord Wolseley, brilliant scarlet; Sir F. Leighton, yellow flaked with crimson; Lady R. Churchill, blush-pink; Dr. Dresser, magenta; John Ruskin, delicate salmon; and Lady Lethbridge, blush-pink. All these are supposed to be improvements on older kinds of a similar colour. Messrs. Kelway also had a large display of Phloxes, Delphiniums, and Gaillardias, which, like the Gladioli, seem to thrive to perfection at Langport. The New Plant and Bulb Company took a silver medal for a fine gathering of Lilium auratum spikes and hybrid Gladioli; and Messrs. W. Paul and Son also took a silver medal for their large and fine display of Roses. Messrs. Paul, of Cheshunt, who likewise took a silver medal, varied their exhibits on this occasion with cut branches of ornamental trees and shrubs, such as Prunus Pissardi, the Golden Elm, Catalpa, Rhus typhina, and others, which harmonised well with the Roses and large masses of hardy plants. Mr. Ware again took a silver medal for a wonderful display of

hardy flowers which he has continually exhibited every week throughout the season. On this occasion the group indicated the near approach of autumn, by the comparative scarcity of Lilies and other summer flowers, and the prevalence of Composites, such as Dahlias, Sunflowers, Asters, Kniphofias, and the like.

Fruit.—Beyond one or two seedling Melons, which were passed by the committee, the chief exhibit among fruit was a collection of early Apples from Messrs. W. Paul's nurseries, Waltham Cross, which was both large and represented numerous sorts. Among them were the following: Lord Suffield, Devonshire Quarrenden, Stirling Castle, Cellini Pippin, Red Astrachan, New Hawthornden, Keswick Codlin, Yellow Ingestrie, Small's Admirable, Yorkshire Beauty, Echlinville, Golden Spire, and Kerry Pippin.

The Cottagers' Show.—Those who imagine that only inferior garden produce would mark the Cottagers' Show at South Kensington, must have found ample reason to admit that they were in error. Indeed, as compared with the exhibits of the co-operative association members and their gardeners at the other end of the conservatory, the cottagers' exhibits were very superior, and generally were first-rate, not a few classes being exceptionally good. The competition throughout was also remarkable, as will be seen from the details given, the judging presenting unusually arduous work, especially when from thirty to forty entries were staged. *Potatoes* were finely shown, no less than thirty-six lots, ninety-three dishes being presented, generally excellent samples. Amongst those were of white kinds, International, Fillbasket, Woodstock Kidney, Cosmopolitan, Prime Minister, Ashleaf Kidney, Chancellor, and Schoolmaster; and of coloured kinds, Edgcote Purple, Vicar of Laleham, The Dean, Adirondack, Reading Russet, Queen of the Valley, Cardinal, &c. The selected first three dishes included Essex Challenge (Bresee's Prolific), Vicar of Laleham, and Woodstock Kidney; the second three comprising Radstock Beauty, Adirondack, and The Vicar. There were no less than forty-two dishes in the single class, Fillbasket, a fine sample, coming first, Reading Russet being second, and Vicar of Laleham third. Eleven lots of two dishes of *Peas* were staged, and the best included Duke of Albany, Telephone, Ne Plus Ultra, and Stratagem. The same kinds were to the fore in the single dish class, of which there were twenty-one entries, John Bull being included. Though none were showy pods, they were mostly well filled and fresh. *Onions* included some twenty dishes, mostly autumn sown. Giant Rocca was the best, coming from Coleshill, Wilts; and some fine white Spanish took a second prize. Of *Cabbages* there were eighteen trebles, mostly large samples, the finest evidently Enfield Market, coming from Enfield; Daniels' Defiance being second. *Lettuces* were represented by Paris White Cos chiefly, in eighteen lots of three heads. The samples were only of moderate quality. *Scarlet Runners* proved to be a remarkable success, thirty-five dishes being staged, the best being a superb sample of Ne Plus Ultra, apparently a distinct kind, from Bletchington, Oxon, long, straight, and of good colour; Girtford Giant, also very fine, was second; and the handsome Ne Plus Ultra third. *Broad Beans* were moderate, the season being too late for them. The best were from Ealing—the Old Broad Windsor; Leviathan coming next in order. *Turnips* were again a remarkably good class, Snowball, Six-weeks, Jersey Lily, and White Stone all very like, but mostly very handsome and clean. The best of these were from Tring and Kent. An even more admirable class were the *Carrots*, many of the samples being most beautiful and perfect. There were no less than thirty-five lots, the best, some capital Long Surrey, coming from Mr. North, of Buckingham; whilst the second and third lots were the New Intermediate, and almost perfect in form. The Nantes were also good. *Beet* was represented by twenty-five lots and were of moderate quality. Carter's Perfection, Pragnell's Exhibition, Dell's Crimson, and the Turnip-rooted were the best. Eleven lots of three heads of Cauliflowers were shown, and included Walcheren and Autumn Giant chiefly, and were fairly good samples, especially for the time of the year. Some fifteen *Cucumbers* were staged, but few were named, and the samples were not specially good. On the other hand, *Vegetable Marrows* were in great force, being shown in some thirty couples. These included samples, white and green, long and round, ranging from a few inches to 15 inches in length. The selected lots were chiefly white and of fair even dimensions. Only eight dishes of *Tomatoes* were shown, most of these having been grown under glass. The best, which was Perfection, came from Bucks. Hathaway's Excelsior and Dedham Favourite were also very good.

Fruits.—*Apples* were very fair indeed, the best in the single-dish class being Lord Suffield, which took all the prizes; whilst in the class for three dishes Mr. Jacob, of Petworth, a rather formidable competitor, was a good first with Lord Suffield, New Hawthornden, and Gloria Mundi. The best of eating kinds was Red Astrachan. There were nineteen dishes of *Gooseberries*, both red and white kinds. The first dish was Lancashire Lad, as also was the third, whilst the second was the Old Whitesmith, all very good samples. Out of fourteen dishes of *Currants* the selected best were fine red from Amersham and Petworth, and blacks took third place. Finally, Cherries, all Morellos, and very good samples were represented by fourteen dishes. There was a well-named miscellaneous class, which included collections of vegetables, Celery, Globe Artichokes, dwarf Beans, &c., and of fruit, Plums, Pears, Apricots, and Mulberries, some twenty-two entries in all. Throughout these classes four prizes were in each offered, and, of course, all were awarded.

The National Co-operative Flower Show.—Such was the title given to the display made under the auspices of the Agricultural and Horticultural Association, of which Mr. E. O. Greening is the managing director. A large number of classes was provided, but in no case was there specially good competition, which was, with one half the classes, limited to members of co-operative societies, and the other half to members or the gardeners of their particular association. In the latter class the chief exhibitor seemed to be Mr. Dean, of Tilsey Park, Sussex, who took first place in the two collections of nine kinds of vegetables; a very fair lot, the best being Potatoes, dwarf Beans, Carrots, Celery, and Turnips. This exhibitor also had the best Cauliflowers; only two lots of three dishes of Peas were staged, and but one dish of Tomatoes—a very corrugated sample. Of Broad Beans two dishes were staged, but six dishes of Runner Beans, and of moderate quality; three lots of Cabbages, two of which were of great size. The best Carrots were Long Surrey, Nantes, and Intermediate. Beet, on the whole, was poor and ungainly. Onions were represented by nine dishes, Giant Rocca being the best; and there were ten bunches of Turnips, Snowball being placed first, though most were of indifferent quality. There were six dishes of White Kidney Potatoes, the best being International and Magnum Bonum, and thirteen dishes of coloured kinds, which included Vicar of Laleham and Reading Russet. Cucumbers were moderate; Marrows were more plentiful, but very uneven. The best lot of six dishes of vegetables came from Mr. Sexton, Northampton. A very nice feature was found in the bunches of annuals shown in six kinds, the first coming from Mr. Goldsmith, of Polesden, Herts, included Zinnias in variety, Lobelias, French Marigolds, Asters, Calliopsis, and Centaureas. Mr. J. Gow, of Hastings, was second with a large double Sunflower, Phlox Drummondi, Sweet Peas, Marigold, &c. Some spikes of Stocks were pretty, and nosegays, Asters, Dahlias, and other cut flowers interesting.

QUESTIONS.

5515.—**Mountain Ash berries.**—How can I preserve these in bunches? They are so handsome for Christmas decorations, that I should like to keep them for that purpose. The birds will soon eat them if not removed. Perhaps some of your correspondents will instruct me how to proceed.—T.

5516.—**Clematis montana.**—We fail to bloom this Clematis either out of doors or in a cool greenhouse; it grows luxuriantly, but never flowers, and I am told others in the neighbourhood likewise fail with it. Can any of your readers help us in the matter? We live at the bottom of a valley 300 feet above the sea. Is Clematis indivisa lobata likely to bloom out of doors with us?—E. L. R., *Halifax.*

FERNS.

TASSELLED AND CRESTED FERNS.

Mr. Syme names (p. 164) several collectors from whom I should seek information respecting Ferns of this class. I have done this in the case of the late Mr. Wilson, of Jamaica, who for years was a keen searcher for Ferns belonging to that island, and who contributed largely to our knowledge of them, both in a living and dead state. Dr. Thwaites, too, of Ceylon, did not allow many forms to pass unnoticed, and contributed largely, not only herbarium specimens, but many living plants, some of which were introduced by him for the first time. Krüger and Prestoe have also contributed largely to our knowledge of the Ferns of Trinidad. Krüger and Prestoe have also been searchers for these plants in Trinidad, and have enriched our collections of them to a great extent, whilst Belanger and Imray have contributed their quota from Martinique and Dominica; so also have Duncan and Horne from the Mauritius, Barter and Mann from Western Africa, Seeman from Panama and the Fijis, Milne from the South Sea Islands, Hooker from New Zealand, Spruce from the Amazon, and others. From these men I have from time to time obtained much information regarding exotic Ferns, but amongst all their contributions but few crested or tasselled Ferns have been brought to our notice. To our trade collectors we are mainly indebted for the introduction of most of these varieties of exotic Ferns, and from these I also have obtained much information.

Tænitis and Platycerium I do not consider to be abnormal forms. Antrophyums, I must confess, I have never seen forked or crested, although numbers have passed through my hands. I say again that it is my belief that English Ferns are more subject to abnormal variations than tropical ones, seeing that we have in commerce something like six hundred named kinds, mostly sports from about six species, whilst the forms hitherto introduced of exotics would not exceed a hundred. Mr. Fraser says the conclusion at which he has arrived as to the cause of our non-acquaintance with greater numbers of abnormal exotic Ferns is the want of interest shown by people abroad in that class of plants. But if botanical collectors do not care to gather abnormal forms, trade collectors do, and make it their aim to send home everything they find in that way of commercial value. Mr. Fraser seems to attach but little importance to climatic changes, but my botanical instructors have always contended that they were great factors in producing variations in plants. G.

Adiantum cuneatum var. elegantulum.—This is a fine-foliaged variety of the common wedge-leaved Maidenhair Fern, and, owing to its extreme grace and elegance, it promises to become a favourite with all bouquetists and floral decorators. If used for a bouquet or for grouping along with flowers in a vase, it can be spread entirely over the flowers without hiding them, as it then presents the appearance of a thin film of soft green colouring, through which each blossom is plainly visible. The fronds are as large as those of A. cuneatum, the only difference being the much smaller divisions. I lately saw it in Mr. Williams' nursery at Holloway, where it grows very freely and is much admired.—H.

Holly berries (p. 170).—I noted last year, on the 2nd of October, that there were still berries of the previous year on a Holly on my lawn.—William Wickham, *Binsted-Wyck, Alton, Hants.*

Double Begonias (*G. Stow ll*).—A very fine gathering of two-year-old seedlings; some are as fine as we have seen both for size and colour, and the pure white double will be valuable to you.—Ed.

Names of plants.—*H. K.*—Stanhopea radiosa.—*P. B.* (*Pamfield*).—1, Campanula (Platycodon) grandiflora; 2, Campanula isophylla alba.—*W. E.*—Bravoa geminiflora.—*Mrs. Maxwell.*—Spiræa callosa alba, Liatris spicata.—*W. P. F.*—Santolina incana, Rosa lucida.—*Walton Lodge.*—Rhus Cotinus.—*J. Z. B.*—Bignonia grandiflora.—*Secretary.*—You probably mean the Savin (Juniperus Sabina).—*E. M. G.*—Sollya heterophylla (blue), Quamoclit coccinea, allied to Convolvulus.—*W. Tottie.*—Shrubby Mallow (Althæa frutex).—*B. A. T.*—1, Eriobotrya japonica (Loquat); 2, Leycesteria formosa; 3, Liquidambar styraciflua; 4, Dodder on Furze (Cuscuta Epithymum).—*W. and H. S.*—Next week.

Names of fruits.—*J. A.*—1, White Astrachan; 2, Red Astrachan; 3, Kerry Pippin.

WOODS & FORESTS.

TREE PLANTING FOR PROFIT.

In considering this subject it is well at the outset that the planter should understand that whatever the quality of the soil is in which it is intended to plant trees that that soil will sustain and mature only a definite amount of timber. Hence, if trees are numerous on a given area, they will be proportionally small, and their money value, and also their value in the manufactured state, will be small, because they are adapted only for the most unimportant purposes. But if, instead of having, say, 1500 trees on an acre of ground at the time of cutting, there were only 500 trees, these 500 trees on the acre would be much more valuable to the owner than the 1500 poles would be at the end of the same time. Therefore, when thinning is rightly carried out, it is a most beneficial and an essential operation. The idea of planting trees at a distance sufficient from each other, that during the entire cycle of their existence they will require no thinning, is too ridiculous to be thought of. For even although planted under the best conditions, they would not yield the greatest amount nor the best quality of timber thus planted. The experienced and observant forester, who has opportunities of seeing the state of arboriculture in all parts of these islands, knows that hundreds of the plantations which he sees on all sides will never produce more than coarse-stunted scrub, fit for no better purpose than fire-wood, all owing to a want of knowledge in the planter.

Timber trees to be valuable should be tall, straight, clean grown, and large; and to obtain these qualities they should be planted thickly, that is, approximating to Nature in her method of planting, and thinned sparingly during the first decades of existence. The best soils and climate ought not to induce thin planting; inasmuch as if the soil and climate be the very best, the trees grow more rapidly and require thinning considerably earlier than they would in less congenial conditions. Should the soil, &c., on the other hand, be poor, the reverse would be the case. The more uniform the temperature of plantations, the more equal and rapid will be the annual growth, for light is not less a vital agent of healthy tree-growth than heat. A low canopy is almost certain to manifest a sickly and meagre evergreen undergrowth, for it is evident that the invigorating rays of the sun will hardly ever penetrate to the undergrowth through a dense shade of trees clad with branches and foliage from top to bottom. Nor is it incompatible or detrimental to the highest development of timber to thin trees to the widest distance, so as to encourage and create the greatest abundance of undergrowth.

J. F.

THE ASH.

No one questions that the Ash is one of the most useful of our British trees, and more especially on account of the excellence of its hard, tough wood and its rapid growth. Its value chiefly depends upon its white, dark, or pale colour, and as there are no objectionable qualities in the white sapwood, it is generally preferred. It is introduced into the field of commerce at a very early age. At four or five years' growth it is eagerly sought after by the walking-stick and whip-handle manufacturers, &c., and a year or two later it is ready for the use of Hop poles, the turner, cooper, cabinet, chair-maker, and the small wares manufacturer. It is also used for hurdle purposes, hoops, crates, and basket-making.

The second growth of Ash (that is, the growth after the first time of felling, and what is more commonly called stooled Ash) is much tougher than that on the original roots, or that of the first growth. Large Ash has many uses and is an important factor in the hands of the agricultural engineer, coach-builder, carriage-maker, and wheelwright. It is also the best wood for butchers' chopping-blocks and shop boards, as it will not readily splinter or wear away, and it is also largely used for bobbins and tools.

The Ash is peculiar in having a large amount of sapwood, and in the perfect wood taking up little or no colour in the process of hearting. The heartwood when it inclines to a black hue is frequently called black-hearted, sometimes black Ash, in which state some contend it shows signs of decay, but this is not the case, as it all depends upon the nature of the soil and climate.

Although the Ash occupies a place only second to the Oak, it cannot be planted profitably as a forest tree. The principal objection to the Ash is the injury it does to the underwood and plants that grow in its neighbourhood, by rapidly exhausting the soil. In consequence of this, few plants will thrive, or even grow, in close proximity to it, hence the very common practice of planting Ash in hedgerows. Its roots are of quick growth and extend a considerable distance, and may be easily traced by the weakness of the plants that grow near it.

FORESTER.

THE FORESTRY COMMITTEE.

So far as I have seen, nothing has been brought out in the report which was not well known before, and the only good it is likely to accomplish is the notoriety it has gained for the subject. In this indirect way the effort may prove to be of some service, as we now get articles on forestry from all sections of the press, and however ignorant of the matter the writers may be, it helps to make the question a popular one. This is a great necessity, as there is more to be hoped for in ordinary individuals becoming interested than in the production of a few skilled men. Notwithstanding what is said about exhausting supplies and no attempt being made to replenish them, it cannot be denied that the same agency is still at work as planted them at the creation of the world. It is a branch of the enquiry, a little, perhaps, beyond the points under immediate notice, but the mention of the circumstance that the primæval forests of India were preserved simply because they could not be got at, leads to it, viz., if a partially wooded country, say like Great Britain is at present, was entirely deserted by man and beast for a century or two, what would be the outcome? Would not the supply of timber naturally very largely increase? If so, and the principle can be universally applied, does it not give the key to the problem, why forests are always within a measurable distance of vanishing, but as time goes on they continually afford larger quantities of produce? Perhaps this aspect of the subject was outside the scope of the committee, as it would argue against scientific management, yet it is a thing when an impartial enquiry is made which deserves to be weighed. To take a simple instance of the way in which timber will increase by being simply let alone, we have only to take a glance at the estate of a regular tree-lover, one who does not plant to any extent, but who from a love of having trees about him allows them to grow on uninterruptedly. There are many such to be found, and it is simply marvellous to note the difference between such properties and adjoining ones where felling has been carried on at a normal rate. I am not referring to this to prove that it is the right thing to do in a country like this to allow trees to grow on for a whole lifetime without cutting such as have come to maturity, but merely to show the effect of simply leaving a district of country alone for a comparatively short number of years. A little while ago I had occasion to be upon some hills overlooking a wide valley. Over, perhaps, nine-tenths of the area, which could be distinctly seen, trees were scattered here and there in the way the bulk of the land is wooded in this part of the country, but in one particular spot, which was clearly defined, the landscape presented a totally different appearance. The same trees were there—indigenous to the soil—but they had been left alone to grow on, whilst the others had been thinned from time to time. On enquiry I found that the thickly wooded spot belonged to a gentleman who had all his life preserved his timber. An occurrence of this kind, though of no effect in itself if the principle holds good, serves to show that it is to natural reproduction rather than to planting we have to look for a continued timber supply.—D. J. YEO.

—— It seems not to be generally known that instruction in forestry is given to Civil Service candidates for India at Cooper's Hill, where there is adjoining what remains of Windsor Forest, and no doubt the best is made of such conditions of teaching as the locality affords. Still, it is evident that of practical knowledge of Indian forestry little or none can be obtained before India is reached, and then, with the grounding given at home, much good might result. One wonders, however, why natives are not trained to become Government servants, especially in having supervision of the vast forests of India. With respect to the comparative incompetence of the members of the committee, it should be remembered that, whilst not practical foresters, all had the interests of forestry at heart. If they were practical foresters, they would hardly need the evidence of those who may be, or at least profess to be, learned in woods and forests. Still, such amateurs may be enabled, having practical men before them, to extract from such witnesses all needful or possible information, although at times questions seem a little unpractical or far-fetched. Just now everything in relation to forestry seems to be regardful only of utility, but it will be a misfortune if the picturesque and beautiful gets no consideration; hence it is well, in devising any scheme for the development of forestry in this or in any other country that some persons of taste in the conjunction of trees and of foliage should be associated with any committee or authority appointed for that purpose. "Yorkshireman" throws doubt upon the value of the Birch as a shelter for Scotch Fir. Curiously enough, another correspondent at page 170 strongly advocates the employment of Birch as a shelter tree, although not specifically for the purpose first named. Now, apart from the value of the Birch for shelter purposes, it is not possible to ignore the singular beauty found in using the Birch as a fringe to masses of dark-foliaged trees, especially Scotch Firs. Some of the loveliest effects in foliage massing has been found in these combinations, and if Birch is, further, so valuable for shelter purposes, then a double reason is given for its employment. There seems to be very much room for the extension of forest planting in this country, but it is very probable that poverty on the part of landowners is one of the chief obstacles, just as that poverty more than anything else is helping to depopulate woods, parks, and hedgerows of much fine timber. Literally, vast areas of what is called poor land, chiefly producing Heather now, simply needs some rough cultivation and drainage, and then planted with Fir and some other suitable trees, would in time become valuable. Poverty on the part of landowners and disregard for the interests of posterity stop the way, and tens of thousands of acres remain as wild as at the time of the Conquest; whilst converted into plantations they would give employment to myriads of people.—A. D.

Raising woods from seed.—There has been a good deal of discussion in our pages with regard to the practice of raising plantations from seed, as against transplanting from nurseries. The system is not by any means a new one, as may be seen from the following remarks from Evelyn's "Sylva," written in the first year of the present century. The extract runs thus: "Plough the land in October or November, and

in the spring plough and harrow so as effectually to destroy the turf. Sow with Turnips to be eaten off by sheep. Another crop of Turnips should be taken in the succeeding year, after which the land will be in excellent condition for receiving the seeds of forest trees. Early in the spring on one ploughing sow one bushel or three pecks of Oats, and at the same time the necessary quantity of Acorns, Chestnuts, Ash keys, Beech Mast, Fir seed, &c. The Turnip and Oat crops will pay the expense of ploughing, seed, rent, and incidental charges. The tender plants, being nourished, warmed, and protected by the Oat stalks, will make vigorous shoots, and, having no weeds to struggle with, the first summer will push forward with amazing vigour. As the land sown in this manner will be fully stocked with plants, the feet of the reapers employed in cutting down the Oats will not materially affect the seedling Oaks, which, before the autumn, will have made considerable progress. The Firs, from the slowness of their growth, will be secured from injury, and the Ash cannot be hurt, as it does not vegetate till the second year. A wood raised in this natural manner will not only make the best timber, but will arrive at maturity many years sooner than one of the same age raised from plants drawn from the nursery."

FORESTRY SCHOOLS.

In reference to the subject of forestry instruction in this country, a writer in a contemporary observes that the art of forestry is taught in Germany in no less than nine special schools, and France and Italy have many such institutions. It is true, he says, that the latter have not been able to save the woods of Ravenna, but they may urge that they were called in too late, or that they have no pretensions to deal with the larger forces of Nature. At any rate, the Englishmen who want to learn anything of the art have to go abroad for the teaching, and that the knowledge so obtained is not without value may be seen by the work done by the Forest Department of the Indian Government, the best officials in which have been trained on the Continent. The Department was organised just before the mutiny, and has done much to arrest the blind destruction which was going on there, and which, doubtless, caused many occasional famines in the land. But it is not in India alone that the knowledge of high woodcraft is required.

The French Government is ahead of us in so far as it has an Inspector of Forests, who has not, perhaps, very many forests to inspect, but who goes very much more systematically to work than our Department of Woods and Forests. This inspector has paid an official visit to this country, and expresses his astonishment at the apathy he found on the subject. He found something to praise in the way in which Scotch proprietors were planting Larches and Firs, but he found that, beyond this sound but primitive notion, no knowledge of the capacities of the soil existed. Deer and cattle were allowed to roam at will, Beeches were planted where they would not grow, and no one seemed to know what trees to plant in the peat mosses; while no provision had been made to secure the growth of trees of varying age and size. Forests planted, as they appear to have been planted in Scotland, mature simultaneously, and have to be cut down at one time. This must be a disadvantage to land, to labour, and to the investor, as well as to natural beauty. A storm, or a supposed marketable period, thus leads to the wholesale disappearance of the forest, leaving ugliness and desolation behind, for there are no younger growths to keep up the tradition. The theory which obtains abroad is that a forest should yield a stable annual income, by judicious thinning, felling, and planting. In the German schools they maintain that the most profitable time to fell a tree is when it is two-thirds grown. This seems a sound theory, but how many wood reeves know when a tree has arrived at that age, or who knows whether Oak is best planted alone or with Beech, or with Fir? As a matter of foreign experience, Oak goes best with both Beech and Fir. Then, again, are questions of soil and exposure, of which sylviculturists know nothing, chiefly because there is no one to teach them anything. The same thing will apply to our colonies, where the sylvan wealth is far greater than ours, but where no more is known about the most economical and profitable way of managing woods. The committee obtained by Sir John Lubbock has already acquired much valuable information, and although the matter in these days of small profits and quick returns is one which must largely rest upon the good faith of one generation to another, yet we shall in future, if we sin in this direction, sin against light.

CARE IN MARKING TREES.

The present is rather an off season in matters relating to forestry, but we are within a measurable distance of the time when attention must be directed to the question of felling. There are gentlemen I know—men of taste and with a knowledge of the subject—who, if possible, personally decide upon all trees to be felled during the season. In many cases such a personal attention would, of course, be a physical impossibility, but I mention the circumstance to show that those who really appreciate a well-timbered place do not mind expending time in satisfying themselves that the right trees are felled and the right ones left. There is another class of owners who seem positively indifferent as to the way in which the work is carried out so long as a respectable sum results annually from sales. Amongst the last-named class there are, I presume, very few readers of *Woods and Forests*. Between these extremes there is probably a larger number to be found who, in a general sort of way, would like to see their timber as well managed as that of their neighbours, but who cannot bring themselves to take a sufficiently active interest in the subject to attain this desirable end. In the face of this, I believe that the stir which has during the last few years been made about tree planting and tree management, if it fails in its chief object, will cause a greater interest to be taken in the existing timber supply. The lack of an intelligent appreciation of the fact that there is such a thing as tree management seems to be at the root of the evil. Care in marking for exploitation seems to be the exception rather than the rule. Taken in masses in the landscape, there is much to be proud of in the way many of our English counties are wooded, but when we come to the detail the lack of thought or foresight is too often painfully apparent. The general impression is that of a Potato patch which has been run over indiscriminately, and a bunch of tubers lifted here and there without any idea to the general crop, but merely to supply the wants of the moment in the quickest way and with the least trouble. The comparison does not represent the case fully, but it will serve to show the absurdity of conducting operations in such a way. The one thing necessary seems to be to get the attention of those interested directed to both sides of the question. I have frequently known *carte blanche* given to a man—who, perfectly competent in his particular line, knew nothing, or, at any rate, thought nothing, of the future of the timber on the place—to go and make up a given quantity of timber in the readiest way that presented itself to him. Such a system, or want of system, cannot fail to be disastrous. The importance of carefully selecting the trees to be felled cannot be over-estimated, as it is the end and aim of the whole business. In harvesting any other crop, the neglect of common-sense rules would make a man an object of ridicule; but be a timber crop as badly managed as it well can be, it seems to excite little comment. There is, of course, the obvious difference that most crops ripen at one time, and that the production of food is a matter of necessary interest to everybody. Still, there seems no good reason why so little care should be taken of the first article essential in civilisation. There need be no great difficulty in the matter, as the issues are simple, viz., to make as good a return as possible for the present, but always with a view to the future, both with regard to profit and appearance. These two things will sometimes clash, but the accustomed eye will soon decide which must be sacrificed. If an entire group has occasionally to be taken out of the landscape, it may be better to do it than leave one or two trees which may grow into timber, but which would always be an offence to good taste. D. J. Y.

"HOW I MANAGED MY ESTATE."

This little book seems to have been pretty well received by the critics, who, as far as I have seen in several papers, appear to know even less about forestry than the author, and consequently have been careful not to commit themselves on that head. I shall, however, confine myself chiefly to the extracts from the book given in The Garden of July 24. In one of these it is asserted that an acre of land under the best of circumstances ought to carry at least "eighty Oaks worth £10 each at the end of about fifty or sixty years—that is to say, the crop would be worth £800 per acre." If this is an example of the kind of material to be found in the book, I should say the sooner those who buy it for a guide put it aside the better for all concerned. The assertion that Ivy-bound trees "lose about one-third of their natural power of expansion" must be a conclusion jumped to at first sight, and not verified by him at all, nor true. So long as the branches have scope the trunk will take care of itself, and burst the bonds of any Ivy that ever clasped it. The thickening of the trunk depends on the leafage of the branches and not upon the exposure of the trunk.

Then the author having to take the measuring of the timber "into his own hands" is good. Clearly the merchants have humoured him to the top of his bent, and made a good thing of it for themselves, I have no doubt. Finally, he gave up the tape and string, "and resolved to dispense alike with the merchant and bailiff. He went through the woods with someone to hold his measuring rod" and a ready reckoner, in the shape of the sliding rule so often used, "and set his own price on the trees" standing, and found that "he never had any difficulty in getting it," which I can quite believe, because if there be one thing a novice is apt to do in valuing standing timber in the manner just alluded to, it is to under-estimate the contents and ask too little, and that our author accomplished this remarkable feat the ready willingness of the merchants to give him his price "without any difficulty" is sufficient proof; they, at least, know how much timber is in a lot before buying, and never give more than it is worth. In short, the innocence of the author of "How I Managed my Estate" is simply charming to a practical man. "Somehow or other he found timber buyers would always give him some twenty-five per cent. more than they gave to big proprietors in the neighbourhood who left the transaction in the hands of their reeves." How delightful and how likely! Our author doubtless got this interesting information from the timber-buyers themselves, and not from the reeves. It is one of the commonest tricks of the trade for buyers to carry about with them lists of the marvellously low prices they have paid elsewhere, and to tell novices how much more they were asking and getting, and all this appears to have been swallowed by the author as profound gospel. In all probability it was himself who was victimised, and not his neighbours. Why, his writings show that any wood-reeve would confound him in about five minutes in valuing timber anywhere. The author's skill in practical forestry comes out in the confession that "he had quite ruined a two-acre plantation" of Spruce, Scotch Fir, and Larch by attempting to thin it after the trees had grown up rather thickly to a good height. He contemplated thinning other plantations of the same kind in the same way, but "found it best after this to leave them alone." What said the reeve about this management, I wonder? In the next edition, if ever there is to be one, I expect to hear similar confessions about his valuing and selling, &c. I observe from a critique of the book in a contemporary that the author, "unlike some preachers, does not venture beyond the limits of his knowledge," and tells only what has "come within the range of his own experience," which one can believe, for no experienced forester would append his name to the picked extracts of the book which I have seen. Yorkshireman.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GARDEN IN THE HOUSE.

HARDY FLOWERS FOR CUTTING.

As "Delta" appeals to other lovers of hardy plants to record their experience of those kinds that ought to be generally grown, I venture to supplement his excellent list with the names of sundry species that have proved themselves thoroughly reliable for the particular purpose of supplying cut flowers. I will follow "Delta's" example by premising that the garden from which these notes are made is on the sandiest and most arid of soils where the rainfall is abnormally small, so that, owing to dryness during the winter, some plants survive which elsewhere might damp off, or which, from beginning to grow too soon through a damp, warm winter, get caught by a spring frost; for there is no doubt that it is the recurrence of cold after the plants have started into growth rather than the severity of our winters that is fatal to so many hardy plants, which at home are probably accustomed to be deeply buried under the snow-blanket until the sun comes out for good; whereas here they are treated Turkish-bath fashion—alternate hot and cold—until they hardly know whether they are alive or dead, and then those starving, interminable east winds settle the question. This year numbers of plants survived the hard winter, only to be killed or crippled, when they should have been coming into flower, by frosts in April and May, even such hardy shrubs as Pontic Rhododendrons and Azaleas were much disfigured.

A propos of the Himalayan Rhododendrons, is not the question of their hardiness in Surrey what Paley would call a case of absence of experience rather than contrary to experience? I do not know all the Surrey Rhododendron grounds, but I know some famous ones where, I believe, no attempt has been made until the last few years to grow the Himalayan species out of doors; but this is no proof that they are not hardy there, nor would it be if these young plants should sometimes die, for many plants are tender in the young state, although quite hardy after having attained a certain age. Now, discoverers sometimes have friends at home to whom they send their good things, and if the discoverer of the Himalayan Rhododendrons, about the year 1848, sent seeds to friends in South Wales, they would have got a long start with plants that require some patience to raise from seed, and might well have fine examples by this time. But that is no reason why the inferiority of the five-year-old Surrey plants (!) to thirty-eight-year-old Welshmen should be thrown in the teeth of the Surrey climate, as "Delta's" remarks seem to indicate. Perhaps in thirty years—but this is anticipating. To return to cut flowers. I will only make one deviation from "Delta's" convenient mode of enumeration, by placing the plants, more or less, in their order of flowering instead of in alphabetical order.

ANEMONE SULPHUREA.—This is one of the most beautiful of all early summer flowers, and has the additional advantage of being a perfectly hardy and robust herbaceous plant. Established plants throw up several stems about 2 feet high, each bearing a large single upright flower with silky petals of a pure sulphur colour. The flowers last well either on the plant or in water; but if not cut the seed-heads are afterwards extremely ornamental, owing to the great length of their silky awns. A. sylvestris is another good species which makes a pretty companion to the foregoing, being of approximately similar height and size, but having pure white flowers.

ANTHERICUM LILIASTRUM.—St. Bruno's Lily is a charming flower for vases, for its glistening whiteness is equally effective when contrasted with other flowers, or when relieved only by the foliage of the plant. The smaller-flowered A. Liliago is also light and graceful in tall vase bouquets, and the plant seeds itself about all over the borders so freely, that there is no difficulty in obtaining a good supply.

FRITILLARIA MELEAGRIS.—This native bulb and its white form (alba) should be extensively grown for cut flowers, as the blooms last well, and an old blue bowlful of them looks exceedingly rich. If the bulbs can be planted in large groups on the Grass, the flowers are especially effective.

TROLLIUS EUROPÆUS.—Although the pretty Globe flowers should be grown beside streams or in damp places to ensure the display of their greatest beauty, nevertheless even on dry soil they supply innumerable flowers admirably adapted for cutting, being produced on long slender, but stiff stems. As a companion to the pale yellow-flowered T. europæus, T. asiaticus, with less globular, but deep orange-coloured flowers, may well be grown.

CHRYSOGONUM VIRGINICUM.—A pretty, but apparently not often grown plant, of sturdy branching habit, producing abundance of stellate flowers, which retain the brilliancy of their deep yellow colour for a considerable time in the cut state.

HEUCHERA SANGUINEA has proved a great acquisition for the supply of light, graceful spikes of a bright rosy crimson colour, admirably adapted for decorating the top of an epergne or other vase where heavy flowers are not desirable. The plant is a good grower, becoming readily established, and then throwing up flower-stems in abundance. There are several other species of some interest, among which H. Menziesi, from the Rocky Mountains, has quaint brown flowers.

LUPINUS ARBOREUS.—This is the best of all Lupines for cutting. One might have thought the dear old blue and white Lupines, indispensable as they are in the garden, would have been almost too "vegetable" in the cut state to have satisfied "Delta," whose judgment in such matters is generally considered as final. But this objection cannot be urged against the yellow Tree Lupine, whose flowers supply a pure soft shade of yellow much wanted, and have the additional attraction of a pleasant fragrance; while the deep foliage is far better adapted than that of the polyphyllus varieties for use in the cut state. The plant is not very easily controlled in the border, it is true, but it is well worthy of some secluded corner just to cut from.

POTENTILLA FORMOSA.—The prettiest and best border plant of all the numerous species, with its clear cerise flowers and compact habit. Another species that is less weedy than most, and looks well associated with the above, is the pale yellow P. hirta.

DIANTHUS PUNGENS is excellently named, for its single white flowers, though no bigger than a sixpence, have a most powerful and delicious fragrance, while they are produced in the greatest profusion, and the plant will grow anywhere. Half a dozen of these little blossoms artfully introduced into a bouquet of white Camellias might induce an unsuspecting person to believe that the ordinary Camellia is only slightly less fragrant than the Gardenia.

ERYNGIUM BOURGATI (AMETHYSTINUM).—This is the only one of the Sea Hollies that is of much value in the cut state, as most of them are too coarse to be available. But the one under notice throws up numerous stems on which the leaves occur only at considerable intervals, so that they may be gathered without inconvenience and of almost any size; while the peculiar metallic or amethyst-blue which suffuses the heads and stem is a rare colour among flowers, and renders the species valuable.

CATANANCHE CÆRULEA is an old-fashioned plant by no means to be despised for cut flowers where blue is wanted.

COREOPSIS AURICULATA is an old favourite that is still "bad to beat" for cutting, in spite of its tendency to lop over in the border.

SCABIOSA CAUCASICA.—This plant supplies us with delicate porcelain-blue flowers, whose long, straight stalks render them particularly useful for bouquets.

CEPHALARIA TATARICA is another not very common plant of the Scabious family, having flowers of a pleasing pale yellow colour. Although very useful for cutting, this is a plant not very desirable in the border, unless it can have an isolated position as a specimen. It is likewise a capital wild garden plant, as it is able to hold its own against the strongest.

ALSTRŒMERIA AURANTIACA.—This plant sometimes seems rather capricious about settling itself in a new locality, but when once established nothing can exceed the wealth of blossom which it provides, so that a good clump of it constitutes a supply that may be drawn upon for a considerable time. The flowers last well in water, and do not suffer much in wet or windy weather. There are several colours besides the orange type, all more or less decorative; and there are also other good species which, however, seem to be mostly lacking in robustness.

GAILLARDIA GRANDIFLORA.—This is quite a model cut-flower plant. Of dwarf, compact habit, taking very little room, it throws up, on long stalks, gorgeous flowers of various shades of crimson and yellow; it blooms profusely throughout the summer until cut off by frost, and the flowers are very enduring; while the more they are cut the more freely are others again produced.

GAURA LINDHEIMERI.—This plant is sometimes said not to be very hardy, but, at any rate, it is hardy enough on a dry soil, and makes a very pretty vase flower with its long slender spikes of white flowers with their pink sepals.

MONTBRETIA POTTSI.—The brilliant orange flower-spikes of this beautiful Cape bulb, as well as those of the larger flowered hybrid M. crocosmæflora, are very striking in the cut state, and both deserve to be extensively grown for the purpose.

HELENIUM PUMILUM.—One of the best of the North American composites. Dwarf in habit, its light green foliage is half hidden during most of the summer by its golden blossoms about the size of a half crown. It increases readily and grows freely without ever becoming weedy, and the flowers remain fresh and bright for a long time when put in water. It is not (like some of its tribe) at all coarse in growth or flower, nor has it any rank smell.

RUDBECKIA NEWMANNI and R. HIRTA are also useful yellow Composites, while R. californica, growing 6 feet high, is effective in the garden or in great jars in the corner of a room.

HARPALIUM RIGIDUM, handsomest of its race, is another good border plant in the matter of not encroaching overmuch, and its bold straight-stemmed flowers, with their dark centres and rich gold rays, are unrivalled among Composites for the combination of strength with elegance.

HELIANTHUS DECAPETALUS.—This is a tall-growing plant, 5 feet or 6 feet high, but the pale sulphur-coloured star-shaped flowers are not at all coarse, being freely produced as laterals on stiff wiry stems.

POLYGONUM POLYSTACHYUM.—This is a pretty plant to cut from, of a class not very generally met with. There are several species which make very handsome specimens where they can have plenty of room, but the one under notice is of dwarf branching habit about 2 feet high, and having a spike of pure white flowers issuing from

the axil of every leaf, so that a branch with its slender spikes displayed against its deep green foliage makes a very fresh and pleasing effect when used in the cut state.

Zauschneria californica.—There seems to be no situation too hot or too parched for this sun-loving Californian, for it succeeds admirably on a sandy, stony bank, facing south, where it leans over a great flat stone that gets as hot as possible in the sun. In this position it produces numerous spikes of small, bright scarlet tubular flowers, which are very effective.

Schizostylis coccinea.—This useful plant flowers so late in the season, that it is liable to be disfigured by weather in some localities, although it is quite hardy. But it is quite worth the protection of a bit of canvas put over it at night if rough weather sets in before the flowers are expanded, as flowers in October and November are of importance in gardens where there is little or no glass. It flowers equally well in pots, and makes a capital foreground for a large group of white Chrysanthemums.

Tussilago fragrans.—No garden that lacks glass should be without a few plants of the winter Heliotrope to counteract the sometimes aggressively strong Christmas decoration by the delightful fragrance of its pale flowers. The plants may be thrown down in any out-of-the-way corner, or behind a hedge, and be forgotten till January, when their flowers are sure to be welcome.

Among plants to avoid for cut flowers, note should be made of the Pentstemons, which, gorgeous and persistent as they are in the garden, fade almost immediately in water. The strong, brown-sugary smell of the Phloxes again is very disagreeable to some people; while it is impossible to sit in the room with the otherwise attractive flowers of the double perennial Sunflower (Helianthus multiflorus fl.-pl.). The same remark applies to the superbum Lilies, which are very unpleasant company in the house, and L. auratum, though not disagreeable, is too strongly scented for many persons' liking; but without these there are plenty of Lilies that are among the finest subjects for cut flowers, especially the Tigers, single and double, lancifolium, testaceum, and colchicum. The brilliant umbrosum Poppies have been sometimes objected to on the ground of smelling rank, but as this is only from the broken stalks, if the vases are arranged elsewhere and not taken into the room until the ends of the stalks are safely immersed in the water, no unpleasant smell will be noticeable.

T. W. G.

BALCONY GARDENING.

It may interest your correspondent of last week ("H. B.," p. 186) to know that the balcony garden of Yuccas and Ivy in Portman Square to which he refers was in good condition at least ten or twelve years ago, when I made a sketch of it for *Domestic Floriculture* (*vide* p. 97). Its permanent state of freshness and beauty, summer and winter, is a great advantage in the town. There is a corner house in the Fulham Road which is also noteworthy, the strip of front garden being planted with Yuccas, and a Wistaria has been trained very prettily up to the balcony above. These two examples show us something of the possibilities of town gardening. It is only a very few years ago since several fine old Mulberry trees used to fruit freely in the old Drapers' Gardens, within a stone's throw of the Bank of England; and the white Water Lily used to flower in a little pond there as freely as in Kent or Surrey. It is not as yet ten years since a pair of rooks used to build in the Plane tree in Wood Street, Cheapside, and the Plane is still there as healthy as ever, I believe. The garden around St. Paul's is another example of what can be done with green turf and Ivy; while old Sam Broome's Chrysanthemums at the Temple Gardens quite supplanted the white and red Roses which formerly grew there, and led to one of the most remarkable of all our civil wars.

F. W. B.

NOTES OF THE WEEK.

Spiræa palmata alba.—This variety is likely to become as popular as the species, especially as it has now proved to be amenable to forcing in pots; in foliage and habit it is undistinguishable from palmata, but the flowers are of the purest white. It is now very fine in Messrs. Backhouse's nursery at York.

Montbretias at York.—The following varieties of Montbretia and Tritoma are also flowering now in the York Nursery: Montbretia crocosmæflora, Golden Sheaf, sulphurea, Fiery Star, elegans, Bouquet Parfait, Pottsi, Tritoma Uvaria, nobilis, glaucescens, Saundersi and Macowani.

Citrons at Waddon House.—A very fine plant of Citrus medica is now bearing a heavy crop of fruit in the gardens of Waddon House. The plant is in a border, the head being trained over half the roof, and is about 24 feet long, bearing upwards of a hundred of its large ovate fruits. These are cut before they are ripe and used for preserving.

Rosa foliolosa.—This tiny Rose seems to promise to be a gem among Roses for the rock garden. Its pale green, very small, and finely cut foliage distinguishes it from all others; while its flowers, faintest blush colour when opening, but white when fully blown, are rather large in proportion to the plant, being nearly the size of the Dog Rose. The tiny buds, tipped with faintest pink, are especially delicate and pretty.—G. J.

Fuchsia Riccartoni.—This fine old Fuchsia, now in full beauty, appears to enjoy the sea breezes, for the gardens hereabouts are full of large bushes of it now laden with countless numbers of crimson blooms. In Fuchsias, as in other plants, hybridisers have aimed to get large blooms, but to many a crowd of delicate little hanging sprays of Fuchsia blooms are prettier than a small number of large ones.—J. G. H., *Gosport*.

Passiflora Constance Elliott.—This pretty sweet-scented white-flowered Passiflora is said to be perfectly hardy; it is now in great beauty upon the roof of a glass corridor at Beddington House, where its flowers are highly appreciated. The corridor can be heated, and the extra protection it gets here will probably prolong its blooming into the winter months, when flowers of all descriptions are highly appreciated, and white ones doubly so.

Solanum jasminoides.—This old plant covers a large space on the back wall of one of the greenhouses at Beddington House, and is invaluable for cutting, a profusion of its blooms being now open; and, indeed, the same might be said of it nearly every month of the year. As a pot plant it is seldom satisfactory, but planted in the border it cannot be overrated; and we have found that in delights in frequent applications of liquid manure.

Anthurium Andreanum.—In the stove at Waddon House there is a distinct, dwarf, compact form of this plant. Its leaves are comparatively small, and are produced upon shorter foot-stalks than usual, and it is now bearing fourteen large flowers, which are very highly coloured. When seen in this condition it is really a grand and imposing plant, and the less robust habit of this form will enable amateurs with small houses only to add it to their collections. It may be called the Waddon House variety for convenience, as we are convinced of its distinctiveness.

Begonias at Forest Hill.—The display of tuberous Begonias at Messrs. Laing's nursery at Forest Hill must be seen to be appreciated; their effect cannot be adequately described. In the open air there are about a hundred thousand Begonias, all profusely laden with flower, raised from seed this season, whilst a conservatory, upwards of 100 feet long, is devoted to the culture of specimens both in pots and baskets. Amongst these are both doubles and singles, bearing flowers of all shades and variety in colour to be found in Begonias, and measuring, in some instances, upwards of 7 inches in diameter. Among the finest novelties of this season are those named Queen Victoria, deep rose; Prince of Wales, vivid crimson scarlet; Princess of Wales, deep rosy pink; Prince Albert Victor, bright scarlet, shaded with orange; Princess Louise, purest white; Princess Victoria, rosy carmine margin, pale centre; Duke of Edinburgh, dark maroon shaded chestnut; Duchess of Edinburgh, deep yellow shaded orange.

Floriferous Eucharises.—I have half a dozen pots of Eucharis amazonica now finely in bloom. One plant in a pot 12-inches across bears 18 spikes—10 spikes with 7 blooms, and 8 spikes with 6 blooms, making a total of 118 blooms. On another plant the same size there are 17 spikes with 110 blooms. The other pots (10-inch) average about 11 spikes and about 70 blooms each. This is the second time they have flowered this year, and I hope to have another batch a few months later.—W. A. Cook, *Holme Wood, Peterborough*.

Lilium auratum platyphyllum.—This is a new and most distinct type of the auratum group, an improvement on the ordinary auratum. It is dwarf in habit, has broad and massive leaves, and its flowers measure some 9 inches in diameter. The ground colour, which is white, is profusely spotted. The variety giganteum is a more vigorous grower; its flowers are pure white with a broad central stripe of deep lemon. L. platyphyllum luteum differs from it in having the lemon colour spread over the petals. All three forms are now in bloom in Mr. Bull's nursery at Chelsea. They are grown in quite small pots, which are found to be better than large ones for Lily cultivation.

Eucryphia pinnatifida.—Our tree of this, which is 5 feet 6 inches high and 6 feet across in the widest part, is now finely in bloom. Each blossom, which is of the purest white, measures 3 inches across, and consists of four, and in a few cases five, and even seven petals. Of such blossoms there were some 500 on the tree last week, but they are now beginning to fade. To my mind it is the most beautiful hardy shrub or small tree in cultivation. Antholyza paniculata, Montbretia Pottsi and crocosmæflora are in bloom side by side. I am convinced that all three bloom better if taken up and kept nearly dry for a short time. Montbretia Pottsi can hardly be kept within bounds without drying it off and replanting. The Eucryphia, I should add, is quite hardy.—C. O. Miles, *Sunny Hill, Shirehampton*.

*** The Eucryphia certainly merits all that is here said in its favour. A coloured plate of it will be found in The Garden, Vol. XII., p. 544.—Ed.

Tecoma radicans.—This beautiful hardy wall climber is just now attracting attention by its large showy flowers. Should the wall on which it is trained be rather rough, it will attach itself firmly thereto in the way that Ivy does, and grow very freely when once established. The flowers, borne in good sized clusters, are of rather a distinct shade of bright red. Besides forming a good strong-growing wall climber, both this Tecoma and the allied T. grandiflora may with advantage be used in festooning neighbouring trees or shrubs, where that practice finds favour. This shrub is a native of North America, and was introduced more than a century ago. It can be increased to an almost unlimited extent by means of root cuttings, for if roughly chopped up nearly every bit will grow if favourably situated.—T.

The flower beds in Hyde Park are in excellent condition just now. We noticed Herniaria glabra and Mentha gibraltarica as being amongst the best plants for groundwork, the vivid green of their foliage affording a better and more pleasing contrast to the bright colours of the Alternantheras than other plants used in these beds. Spergula pilifera aurea has a telling effect used in proximity to the darker colours, but should be kept away from the lighter foliage of its surroundings. A very effective groundwork for Alternantheras in one of the beds is Mesembryanthemum cordifolium variegatum. Sedum glaucum, used as groundwork for beds of Alternantheras, has not grown much and does not look well, but as

setting for smaller plants it is good. Another striking bed is planted with variegated Pelargoniums mixed with Iresine Lindeni, encircled with Festuca glauca, and edged with Alternanthera. A group of Ricinus sanguineus is also a fine feature, and the same may be said of Solanum Balbisi and Polymnia grandis. The two best dark Pelargoniums are Henri Jacoby and Miss Stubbs, and the best pink is Sybilla. Begonia Lady Stanhope is a fine pyramidal variety and good in a bed, but the other kinds of tuberous Begonias used here are very poor, and do little credit to this beautiful race of plants. The fine old Gazania rigens, used here as an edging, is one of the very best plants where orange is desired, and has the recommendation of lasting well into the autumn. The Dell is this year peculiarly attractive, the combination of giant Tree Ferns, Australian Dracænas, Musas, Palms, Bamboos, Phormium, &c., being charming; all these plants have a very noble appearance. Phœnix, Chamærops, and Seaforthia amongst the Palms are more effective than any other Palm used here. Seen from above or below, the view is equally beautiful, yet presenting a totally different appearance.

Night-flowering Cacti.—It is, perhaps, somewhat tantalising to our readers to be told that during the last month there has been an unusually fine display of the flowers of these plants at Kew, such magnificent kinds as Cereus Lemoinei, C. nycticalus, and C. Macdonaldiæ having borne numerous fine flowers, all, however, at night when only the moths and perhaps the fire stokers could enjoy them. Cultivators should, however, grow these plants for themselves, and they are so easily managed that every warm conservatory should contain at least one of the kinds. It is impossible to describe the sensational beauty of the enormous, but short-lived, blooms of those named above.

Indian Lilacs (Lagerstrœmia) are just now represented at Kew by two distinct kinds, viz., the pale rose-flowered one, which is now so common as a garden plant in Southern Europe, but which is a comparative rarity in English collections, although as easy to grow and flower as an Almond if treated in a similar way with the addition of a few more degrees of heat. The other kind referred to is the deep coloured variety called elegans, and which is one of the many choice plants that find a genial home at Pendell Court. Kept in a moist, warm house all the year round, these Lagerstrœmias will not flower, but if rested in a cool, dry house during winter they flower freely about this time of year. There is also a white-flowered variety of L. indica, but we have never seen it in flower.

White Agapanthus.—The blue Agapanthus is a grand old plant, but being so common it is rather slighted. The white variety of it is as choice as the other is common. A good sized specimen of the white variety affords a charming companion to the blue, especially if the old sort be of a good dark colour, for in this respect there exists a good deal of difference. As white flowers are always in demand the blooms can be picked singly and be used for cut bouquets and other small floral arrangements. Though there are several other kinds of Agapanthus, I take the above two, the old blue and the white, to be by far the best, for of others that I have seen one named excelsus differs principally in the unusually long flower-stem, which does not add to its ornamental appearance, and Mooreanus and minor are less showy than umbellatus, while flore-plena is worthless.—T.

Cyrtanthus McKeni.—This is one of the easiest to manage of the dozen or so kinds of Cyrtanthus which have been in cultivation in English gardens, but are now almost unknown, having gone out of favour probably because of their being difficult to keep healthy. That the majority of the species are beautiful flowering plants may be seen by the figures of them in the *Botanical Magazine* and elsewhere, and notwithstanding their bad character as garden plants they are certainly worth reintroducing and trying again. They are closely related to the old garden favourite Vallota, but in some of the kinds the flowers, instead of being erect, are pendulous, as in the Australian Blandfordias. They are found principally in the eastern districts of the Cape and about Natal. C. McKeni is found in the latter place, and therefore requires warm greenhouse treatment, under which it keeps healthy and flowers freely annually. Some pans of it are now flowering at Kew, where it has been cultivated for years amongst the plants of tropical Africa in the Palm house. It has narrow, strap-shaped leaves, erect scapes one foot long, and flowers in an umbel; these are narrow tubed, 3 inches long, white, and sweet-scented. Specifically, this kind must be considered only a form of C. lutescens.

Desfontainea spinosa.—Just now when this singular-looking, Holly-like shrub bursts out into a profusion of crimson and golden blooms, it stands out conspicuous from everything near it. Unfortunately, it is not often met with in a flourishing condition, and is frequently injured during severe winters, though when at its best it is just now among the most attractive of all shrubs. It needs planting in a somewhat sheltered spot, and in a situation where it does not get too dry during the summer. Cuttings of the half-ripened shoots strike root fairly well in a close frame, and this is the method usually employed for its propagation. The Desfontainea was introduced from South America to this country about 1845 by William Lobb, to whom we are indebted for such high-class plants as Berberis Darwini, Lapageria rosea, Embothrium coccineum, Escallonia macrantha, and Philesia buxifolia. Of these, the Lapageria and Darwin's Barberry are certainly two of the finest plants in cultivation.—T.

Ipomæa velutina is a beautiful climber which has been introduced from Queensland to Kew, where it is now flowering in the Water Lily house. Close to it is that grand old tropical Bindweed, I. paniculata, figured in The Garden a year or two ago as Batatas paniculata, and we couple these two because they have some points of resemblance in robustness of growth and in size and shape of flower. But whilst the Batatas has palmate leaves and large lilac-rose flowers, I. velutina has entire cordate foliage and flowers coloured pale pink, with a deep maroon blotch in the throat. These perennial Ipomæas are of the finest of stove-climbers, but they want plenty of room to be seen at their best. If I. velutina proves as accommodating under cultivation as I. paniculata is known to be, it will be a valuable addition to stove-climbers; indeed, it may not require the heat of a stove, judging by the plant at Kew, which has a great amount of leafage, but comparatively few flowers. Admirers of I. paniculata will be able to form some idea of this new introduction when we say that whilst it is at least as beautiful as the finest forms of that plant, it is quite distinct from it and all other garden Ipomæas.

Varieties of Montbretia.—I notice that, at page 187 of The Garden, a note stating that you had received from the New Plant and Bulb Co., Colchester, a set of six so-called varieties of Montbretia crocosmæflora, adding that they were nearly all the same, and leaving the responsibility of the fact to the Continental raisers. It is well known that all the varieties of M. crocosmæflora in the trade were sent out by me. I have pleasure in claiming to be the raiser of these varieties of M. crocosmæflora, and I consider that they form a magnificent series of varieties, differing both in shape and in colour. The New Plant and Bulb Company received the most part of the novelties as soon as sent out, and purchased them in quantities the second year after having seen them in flower.—V. Lemoine, *Nancy*.

*** We do not doubt but that the named varieties raised and sent out by M. Lemoine were distinct. We can only repeat our previous remark, that we failed to see any difference between the half-dozen named sorts sent to us, except one, which was decidedly darker in colour.—Ed.

Battersea Park.—The flower beds in this park are probably now at their very best. Especially attractive are the white Phloxes and the various Pentstemons; a very effective group is made up with a groundwork of Vitis heterophylla variegata relieved by taller plants of Acacia lophantha. The groups of Cannas are admirable, but where arranged in stiff and sharply defined lines their effect is impaired. The groups of succulents are bold, attractive, and quaint; arranged in this manner their beauties are far better developed than placed in patches round the edges of the beds. The Fern dell is very charming; so also are the bold groups of Blue Gums (Eucalyptus globulus), Wigandias, Phormiums, and Palms. Here we noticed that the various groups of Phœnix were the most useful Palms, and next to these the Chamærops and Seaforthias. Musas have a majestic appearance, and standing in quiet, secluded spots are most enchanting. Polygonum cuspidatum is a very fine plant for isolated groups, and so is Amorphophallus Rivieri, a large Aroid which is very effective in character in the sub-tropical garden, but as used here is not large enough; probably it wants age. Arundo conspicua is in great beauty; so also are Bamboos, various species of Cycads, Wigandias, and other large and well-known ornamental-leaved plants. The white variegated Maple is beautiful in irregular groups or associated with others, but it loses much of its effectiveness when planted in straight lines, as is the case in several parts. Tobacco, again, is very ornamental both in foliage and flower, but its grace and elegance are quite spoiled planted in this manner; more especially is this the case when they have to be supported with stout and tall stakes. On the whole, however, the sub-tropical garden in this park is instructive both to the gardener and the general public, and most enjoyable to all.

A beautiful new Anemone (A. Fannini).—This plant is already represented in several gardens in England, seeds having been distributed by Mr. Adlam, who collected them in Natal, where this really wonderful Windflower is a native. It is described as having flower-stems 5 feet high, Vine-like leaves 2 feet in diameter, and pure white flowers like single Dahlias, measuring between 2 inches and 3 inches across. It flowers in the last quarter of the year in open grassy places at an elevation of about 4000 feet. It is to this last statement that we would particularly call attention, as we may from it conclude that A. Fannini will be almost, if not quite, hardy in England. Mr. Adlam states that it is as hardy as A. japonica. There is always the danger of giving a plant tropical treatment if we know nothing more about it than that it is a native of a tropical country; as, for instance, when Orchid cultivation was in its infancy all the kinds were treated as tropical plants, because they came from countries within the tropical circle. Those who have duplicates of this new Anemone should try one or two of them out of doors.

Hæmanthus coccineus is now flowering freely in the Cape house at Kew, where two very large pans crammed with stout bulbs have been for years most attractive specimens, both when in flower and when bearing their large tongue-shaped bright green foliage. A single bulb of this Hæmanthus makes a poor show by the side of these large panfuls, so that it is best to put about half a dozen bulbs in a pot to begin with, and then shift them on about every two years. The species of Hæmanthus belonging to the same group as H. natalensis, H. Catherinæ, and H. cinnabarinus flower more satisfactorily when allowed plenty of root room and a rich soil; but H. coccineus, H. albiflos, and others of the large-bulbed distichous-leaved section seem to prefer cramping treatment at the roots and a long dry rest after growth is finished. The above-named kinds thrive in a warm, sunny greenhouse, but there are also several which require a stove temperature, such as H. Kalbreyeri, which is a beautiful plant, though rather difficult to keep in health.

Phlox Drummondi is as well known as any annual in cultivation, but its magnificence is never seen unless when grown in large masses or beds, as, for instance, at Kew, where an enormous bed of it is now a perfect flame of colour, giving life and beauty to the wide expanse of lawn and other greenery in its neighbourhood. Phlox means flame, and certainly the aptness of the name is seen best in the bright crimson, scarlet, lilac, and rose-coloured flowers of P. Drummondi. Annuals such as this, and there are scores, make a grand display when grown in large masses, and we can imagine a garden of the greatest brilliancy and full of attraction if planted with a selection of them. There is one drawback to be considered in relation to annuals, and that is their being, as a rule, of short duration, and also easily injured by a spell of bad weather. Still, we know of few gardens where a good deal of space is devoted to handsome flowered annuals, and these when in full bloom

are worth a long journey to see. Sown or planted over collections of hardy bulbous plants, the smaller kinds of summer flowering annuals might be enjoyed without doing harm to the resting bulbs, and they would serve the purpose of covering soil which is often left bare during summer.

European plants (*F. W.*).—There is no book so small as you require which contains descriptions of all European plants. Hooker's "Flora of the British Islands" (Macmillan & Co.) does not contain an unnecessary word, and it treats only on British plants, but it is a good pocketful. Hooker's "Botany for Beginners" is a useful little elementary work, which any bookseller will procure for you for three or four shillings. A flora of Europe would be a large and costly work.

Elymus glaucifolius (*W. M. H.*).—This is a glaucous-leaved variety of the common North American E. canadensis, and both of them are perfectly hardy in England. They frequent river sides and swampy ground, and therefore thrive best in this country in moist situations. We have seen fine tufts of the glaucous-leaved variety at Kew, where they are grown for the ornamental character of their foliage. The flower-spikes are nodding with long awns, but they are not borne freely in this country. E. arenarius is a British species, and is common along seashores, where, owing to its long creeping rhizomes, it is sometimes planted as a sand-binder. There are about two dozen species of Elymus, but none of them are of any value economically.

Gloxinia culture.—A correspondent asks how these plants should be treated from the seedling state till they have flowered and are ready for resting. Seeds should be sown in spring on light sandy soil in pans; they do not require any soil over them, but a pane of glass may be placed over the pan. The soil to be moistened from below, not watered overhead. When large enough to be handled with safety, the seedlings should be pricked into pans of sandy peat and leaf-mould and kept well watered. After this they may be transferred when ready into 2½-inch pots, using for them the same soils, but coarser than for seeds, and from these they may be removed into 5-inch pots, in which they will form nice plants and flower freely. To grow large specimens, it is best to begin early in the year with healthy young tubers of the previous season's growth. The soil should be rich, porous and light; plenty of water may be given whilst growth is vigorous, and the temperature should always be tropical, but never close and stuffy, the rust disease, so frequently seen on these plants, being the result of a close atmosphere combined with heavy syringing. A shelf near the glass in a stove is a good position for Gloxinias.—B.

Moths caught by Physianthus flowers.—On looking at a flowering plant of Physianthus albens growing in my glass porch, I find a number of moths caught in the blossoms, and there are at present two fluttering ineffectually to get free. How are they caught? It seems to be by the proboscis.—R. H. Wake, *Ballyhooly, Co. Cork.*

*** The moths which you sent caught in the Physianthus blossoms were undoubtedly caught by their probosces, which, apparently in trying to obtain the nectar from the flowers, were pinched and held by the base of the anthers, which are of a very peculiar formation. I have known instances before of moths being trapped in this manner by flowers, but being from home, I cannot refer to my books. I will reply more fully later on.—G. S. S.

Earwigs and Chrysanthemums.—Would some Chrysanthemum grower inform me of the best remedy for earwigs on Chrysanthemums, as I am much bothered with them this year? They eat all the young buds, and we have done everything to get rid of them, but without success.—Reader.

*** The best way to trap earwigs is by putting some dry Moss in 2½-inch pots, and invert the pots on the end of the sticks. Place at the same time some hollow Bean-stalks amongst the branches. The insects feed at night, and retreat towards morning into the hollow stalks and the flower-pots. Examine the traps every morning, and shake the insects into a vessel of hot water.—J. D.

Rose Garden.

PROPERTIES OF GOOD ROSES.

It is not always the so-called fullest Roses, as "D. T. F." observes, that are the best stayers. In order that Roses should last well in the cut state, depth rather than multiplicity of petals is the great essential. Perhaps it would not be too much to say that, granted a certain amount of fulness, a Rose is enduring in water in proportion to the depth of its petals—that is to say, the fewer short petals it possesses the longer it will continue in its state of greatest beauty. When the centre of a Rose is surrounded by innumerable very short petals, the base is made so wide that the outside petals are hardly able to meet over the flower, so that if the covering outside petals part ever so little, the hollow centre, and probably the green eye, are at once displayed, and, in spite of being exceedingly full, the Rose quickly becomes unsightly. Instances will readily occur, and a typical case is afforded by the Hybrid Perpetual Duchess of Connaught. A more generally known variety, however, is Merveille de Lyon, which can certainly not be called a thin Rose. As long as the outer petals overlap, it is a perfect white Rose; but in about ninety-nine out of every hundred flowers these petals fail to meet, and then—jealousy herself is not more green-eyed. There seems, unfortunately, reason to fear that the new Eclair, as well as the beautiful Heinrich Schultheis, are failures in this respect, as are frequently Emilie Hausburg and Duc de Montpensier, among other varieties. These Roses are built very wide at the base, and it is generally more than the outer petals can do to make both ends meet across the top. Time after time I have been tempted to take a beautiful bloom of Duc de Montpensier to a show, and invariably on arrival he has got himself "chucked out" for his ill-mannered staring. On the other hand, when Roses have petals deep enough not only to meet, but also to fold or twist together over the centre, as in Innocente Pirola, Jean Ducher, Maréchal Niel, Rosieriste Jacobs, &c., those Roses are pretty certain to remain in perfection for a considerable time. The Teas are among the deepest petalled Roses, and they nearly all last well in the cut state; while the most enduring of the Hybrid Perpetuals are also the deepest petalled Horace Vernet, Alfred Colomb, Marie Baumann, Madame Gabriel Luizet, &c. Again, Roses with few, but stout petals will often stand better than Roses with many thin ones. Thus, Madame Welch, whose petals are often few, but broad and thick, will generally last longer than Francisca Krüger, with its numberless flimsies; and stout-petalled Cannes la Coquette will almost invariably outlast its thinner-petalled parent, La France.

The most certain way, however, to ensure Roses lasting well when cut is to afford the plants the best and most liberal culture. Fine substantial blooms will long outlast smaller, even if equally bright and fresh, flowers when placed in water, and will retain the colour better as well. For though all the reds that have much blue in them, such as Antoine Ducher, Cheshunt Hybrid, Comtesse d'Oxford, Madame C. Joigneaux, Maurice Bernardin, Nardy Frères, Pierre Notting, &c., will begin to look dingy anyway soon after being cut, yet when they are exceptionally well grown, there is just a chance tha they may for a time be lighted up by a brigh flush.

Not that good cultivation alone is a guarantee for the satisfactory endurance of Roses in water, for the time of day and the state of the atmosphere when the operation of cutting is performed may be points of vital importance. If in hot, bright, sunny weather Roses are cut about midday, there is small chance of their being in good condition by the next morning; while, if in addition to the hot sun, there be also a drying wind, it will be impossible to get blooms (albeit of first-rate quality) into the house before they will have begun to "flop," a process of collapse which not even the instant seclusion of a cool cellar seems able to check. In damp or cool weather Roses will last if gathered at any time; but in hot, and especially in hot windy weather the only safe times to cut Roses are the very early morning and late evening.

Is it possible that the law of compensation is to prove so rigid as to admit only of altering the distribution of qualities without augmenting the sum? We must hope not. But yet it looks as if there was considerable resistance to be overcome. As "D. T. F." points out, there seems a tendency that the development of some quality on the one hand be counterbalanced by the loss or reduction of another quality elsewhere, as though there were a fixed sum of excellences in a plant which could not be exceeded—so much form, so much colour, vigour, size, profusion, &c., the elaboration of any one of which must be effected at the expense of the others. At any rate, one of our most mildew-proof Roses is certainly not particularly attractive; several of our grandest flowers seldom appear in the autumn, and some of the most perfect in form are the weakest in constitution. Mary Bennett, for instance, is a very lovely Rose, but I sincerely hope someone is getting on with it better than I am, or it will very soon be extinct.

The suggestion to defer the award of a certificate to a new Rose until the judges have seen the plants growing is good, but impracticable. The judges are generally exhibitors, and exhibitors have little spare time during the showing season to go up and down the country to inspect seedlings in various gardens. The National Rose Society go as near as they can by demanding that a ground plant shall be shown with the cut blooms, and, with careful judges, this should be found sufficient to answer the purpose.

"D. T. F." comments on the inclusion, in the National Rose Society's illustrations of form, of Souvenir de la Malmaison. Was not the perfection of guidance, philosophy, and friendship supposed to lie in the pointing out of what to eat, drink, and avoid? I always thought this last was the vitally important office of the fifth plate in the "Illustrated Rose Catalogue."

A propos of Roses that bloom better in autumn than in summer, this seems especially to be a characteristic of Bourbon blood. Frequently Souvenir de la Malmaison, Sombreuil, &c., produce wretched summer flowers, and then in autumn are among the finest in the garden. Boule de Neige often flowers better in autumn than in July; and all the Gloire de Dijon family are better and purer in colour, at any rate, during the autumn than in early summer.

I hope "D. T. F." will maintain his crusade against the distributors of consumptive varieties, and that we may soon find our new Roses demanding some of those glowing French superlatives accurately to describe their constitutions and continuity of blooming as well as their flowers. T. W. G.

Flower Garden.

VERBASCUM OLYMPICUM.

Some of the more important biennials, Foxgloves, and, still more notably, the larger Mulleins, have in their short lives two distinct seasons of beauty. The first when the young plant, within its first year of life, has thrown all its strength into the great rosette of foliage; the second, when the garnered vigour has been expended in building up the stately flower-spike. The engraving shows the Olympian Mullein in the first state, when its leaves, of palest grey-green velvet, are in their young prime. A plant that has passed midsummer in this state will probably so remain till next spring, the grand circle of leaves, 3 feet to 4 feet in diameter, growing a little more, but retaining its perfect appearance till well into the winter. Frost will destroy the outer leaves, but they will be renewed when the warmer days come, to be followed by the great branching stem, laden with sulphur-coloured flowers.

Foliage of Olympian Mullein (Verbascum olympicum). Engraved for The Garden from a photograph.

Ranunculus Marigolds.—By this term I mean our common double Marigolds—pot Marigolds as they are termed in the seed lists. When walking through the Botanic Gardens at Chelsea a few days ago I noticed that Mr. Moore has this year a very fine strain of these Marigolds of the type of the well known Meteor, but smaller in size, more compact, and of various hues of colour, from delicate primrose and creamy white to a rich deep orange. It might have been that the nature of the soil affected the size of the flowers, but their exquisite form and compactness made them perfect models. All these Ranunculus Marigolds are very showy and most useful in the garden, but they should not be planted in too rich soil, or they are in danger of becoming coarse, and the plants should not be allowed to seed. As soon as the flowers decay they should be picked off; this leads to the production of other flowers, and a good succession of bloom is thus obtained. There are some pretty single varieties also. A few years ago one of the Italian seed firms sent out a collection, a few of them at least being very pretty. They are found by gardeners to be very useful for cutting from. Self-sown seedlings will sometimes come with marked distinctness of character, and it is a good plan to save a few seeds from the very best, rooting up and casting the others away.—R. D.

Dietes tricolor.—I never saw this plant in blossom till last week. It is one of the most striking flowers in my garden, and I was quite surprised with its beauty. No other Dietes that I know anything about can be compared to it for a moment. It does not seem to blossom so freely as its congeners. What an odd thing it is that flowers are often scanty bloomers if they are excessively beautiful; it is as though they felt they had some right to be shy. I will send you the next specimen I have, so that you may see it. It might well have a place in your picture gallery.—H. Ewbank, *Ryde*.

Sweet Sultan (Centaurea moschata).—Amongst the varieties of Sweet Sultan, the yellow form is of so pleasing a colour as to deserve far greater attention than it receives. It is rarely seen in gardens of good repute, though occasionally met with amidst collections of cut flowers at floral exhibitions. Some object to yellow flowers in any great quantity, but the particular shade of colour in this plant does not make it too obtrusive. Sown under shelter and properly transplanted into the open ground it succeeds easily and well, being a reputed hardy biennial. As it is a Persian plant, a favourable sunny site should at all times be selected. The purple, white, and yellow forms make together a fine contrast.—W. Earley.

THE BEST CARNATIONS AND PICOTEES.

Of these we have a few blooms still on outdoor plants, and very bright in colour they are, though somewhat small in size. Our earliest blooms were open on July 1, and it is now the last week in August; therefore, we have had eight weeks of flake and bizarre Carnations; also edged Picotees in abundance, and scattered blooms of the perpetual flowering Carnations all the year round. As regards raising new varieties during the past season, but little progress has been made. The northern growers have a keen eye to anything new and good, but they will not part with good old sorts until new ones have established their claim to pre-eminence. Beginning with scarlet bizarres, we still place Admiral Curzon first. It was raised forty-two years ago, and we have plants of it now quite healthy and vigorous. It is always shown well by Mr. Robert Lord at Manchester. The only new scarlet bizarre shown in the north this year was Robert Houlgrave (Barlow), a very promising variety, in which the scarlet and maroon colours are very rich and well set off by a sufficiency of clear white. Mr. Robert Lord also again brought out Mercury in his stand of twelve. I have discarded it and grow Mars by the same raiser, the late Mr. J. D. Hextall. Tom Power (Dodwell) is a good and distinct variety.

In the crimson bizarres, Master Fred, raised by Mr. Hewitt, of Chesterfield, a few years ago, has rapidly taken the lead; its flowers are large in size and of a rich crimson, but the petals are not of good form. I exhibited a very richly coloured variety, Duc d'Aumale, at the National Society's meeting at South Kensington; if it maintains its promise and is sufficiently full, it will be an acquisition. Mr. Lord exhibited J. D. Hextall (Simonite) and John Harland (Adams) in his collection, but both of them have degenerated in the south.

The pink and purple bizarres sadly need renovating. The best variety we had this year was Mrs. Gorton (Dodwell). William Skirving (Gorton) was the best two or three years ago, but it also has degenerated; from a dozen plants I could not cut a good bloom. To make up our number of blooms we had to fall back upon good old Sarah Payne (Ward), a variety raised at Woolwich forty years ago. It is quite distinct from any other. It seems more difficult to obtain a good purple flake than a variety of any other section. James Douglas (Simonite) is still by far the best in this class. I saw it in flower in the raiser's garden in 1875, and it was sent out in 1876. I have grown it every year since that time, and it is still as vigorous in constitution as ever it was. Besides this, Squire Meynell (Brabbin) and Mayor of Nottingham were the best varieties shown in the north; the first named was raised in 1832, and it still retains its vigour. I have raised some purple flakes of which I thought highly in the seedling bed, but after being propagated they have disappointed me. Squire Whitbourn (Dodwell) promised well, but that promise has not been maintained.

In scarlet flakes, Sportsman (Hedderley) must again be placed first on the list; it was exhibited in collections both by Mr. Lord and Mr. Simonite. It is really as old as Admiral Curzon, having originated as a sport from that variety in 1855. Henry Cannell (Dodwell) was well shown in the north this year. Matador (Abercrombie) was also in good colour in the south. It is, I think, a better flower than Figaro by the same raiser, and sent out from the Royal Nurseries, Slough, about the same time. John Ball (Dodwell) is also a good scarlet flake. In rose flakes it will be difficult to surpass Rob Roy (Gorton). As shown by Mr. Turner, it was simply grand in form and markings. Tim Bobbin and Robin Hood, by the same raiser, are both first rate. Sybil (Holmes) still holds a high place as the earliest, if not the best. Jessica (Turner) is also very fine in its way; it flowers late and holds a high place in its class. Good old John Keet and James Merryweather, both of which held the highest position for many years, are now fairly beaten.

Picotees.—Passing to these, we have nothing in the way of heavy red-edged flowers to equal, let alone surpass, well-known varieties such as Brunette (Kirtland), a superb sort, dwarf in habit, but having large clear white flowers with broad deep red or crimson edges. John Smith (Bower) is also a very refined flower of a paler red. This was shown well by Mr. Lord in the north, and the

first named by Mr. Helliwell. Mr. Simonite exhibited Princess of Wales (Fellowes), which I like best of all the heavy red-edged varieties. In the light-edged red class Thomas William (Flowdy) has kept well to the front, even more so this year than it has done previously. It is not such a refined flower, however, as Mrs. Gorton, which was also well shown at Manchester by Mr. Simonite. Mr. Lord had superb blooms of Thomas William. Dr. Horner, raised by the Rev. F. D. Horner, and which obtained a first-class certificate from the National Society in London last year, is a very fine flower, and may displace the other two named. Mrs. Bower and Clara have had their day. They were highly esteemed some years ago, but their glory has departed. In heavy-edged purple varieties, Catherine (Fellowes) has broad, well formed petals, with a broad edge of bright purple; the white is also very pure. Juliette, by the same raiser, has a medium purple edge and flowers of exquisite form. These will doubtless be sent out by Mr. Turner. The best of the older varieties, as proved by this year's experience, are Muriel, Mrs. Chancellor, and Zerlina; the last was raised by Mr. Robert Lord, and shown well by him at Manchester on the 14th August. Of light purple-edged Picotees, the best have sadly degenerated in our collections; it is therefore with pleasure I have to note a good variety, viz., Mrs. Nicholay (Fellowes), the flowers of which are large, well formed, and quite distinct. Clara Penson (Wilmer) was such a grand flower when first exhibited, that it was a disappointment to find that it did not maintain its character the second year. Her Majesty (Addis) improved after the first year. Ann Lord and Nymph are the best of Mr. Lord's flowers, and Jessie (Turner) is large and fine; we have shown it on our winning stands for years.

Heavy rose and scarlet edges have received a startling addition in Duchess (Fellowes), a very large flower, exhibited in fine form on the 10th August by Mr. Turner, of Slough. The white in this variety is very pure and the edge well defined, heavily edged scarlet. Mrs. Sharp (Sharp) is also a good addition to this class; it was shown well at Manchester, but not good enough to beat a lovely bloom of Fanny Helen (Niven) shown by Mr. Lord. Constance Heron is a distinct and fine variety with a scarlet edge. Royal Visit and Edith D'Ombrain are superb kinds when we can get vigour into them, but that we have failed to do for two or three seasons. In the light rose or scarlet-edged class, Maud (Fellowes) has good breadth of petals, and is altogether a promising variety. Mrs. Turner (Fellowes) is medium scarlet, that is, the edge cannot be classed with either; it has broad, well-formed petals, what the fanciers term smooth, and the white is pure. Orlando (Fellowes) makes up a good trio from that raiser in this section. It has a light edge, and the flowers are very large and distinct. Favourite (Liddington) has again held a high position; this variety went to the top of the class at a bound, and not only stands premier in its own class, but is generally the best Picotee in any exhibition in which it is shown. Ethel is generally very good, and Mrs. Alcroft has always held a high position. Evelyn (Fellowes) is also a good full flower.

Of yellow ground Picotees, no new varieties have been exhibited recently, except my own seedlings. Annie Douglas is a heavy rose edge; but the edge is not solid like Duchess or Mrs. Sharp, but a margin of bars or short lines closely placed together; the yellow is rich and clear, and the flowers are very large. It has received three first-class certificates this year—the first at the Crystal Palace, on July 3, and the last at South Kensington, on August 10. Agnes Chambers has a well defined light red edge, and neither spot nor bar defaces the clear yellow ground; this has received two first-class certificates. Almira is clear yellow, but has not a Picotee edge; the point of each petal is singularly marked with red lines. From the same batch of seedlings three varieties have been selected, with a buff or terra-cotta ground colour, edged with scarlet and crimson. Fancy Carnations and Picotees have taken, as they deserve to do, a prominent position—at least in the south. Northern growers seem to despise them, as only three competitors came forward to claim the prize for twelve, while in the south no fewer than eleven amateurs competed for that number of blooms, and a considerable number in the class for twenty-four blooms, making altogether a very fine exhibition of this type of Carnation.

Those who are saving seeds should carefully remove the decayed petals as soon as sufficiently decayed, otherwise they will sometimes cause the immature seed-pods to rot. I find the only safe way to ripen seeds is to keep the plants under glass, so as to protect them from wet—air being admitted abundantly night and day. They are apt to become infested with green fly, but that can be destroyed by fumigation. When the plants are out of doors green fly does them no harm, and layers are always best from plants out of doors, whether in pots or planted out. The best way in which to treat any choice seedlings that have flowered in the ground for the first time is to dig them up and pot them. Layers root much more freely in this prepared potting compost than in anything else. The pots containing these plants should be placed for a week or ten days in a frame kept comparatively close by day, but on a calm, dewy night I would pull the lights quite off in order that the leaves may be laden with dew in the morning. If the sun came out hot, as it does frequently in August, the lights should be placed over the plants, tilted at the back and shaded, removing them again at night. In the case of established plants in pots, when the layers are put down they are placed out of doors in an open place, but sheltered, if possible, from high winds. The last week in September or first in October is a good time to take off layers and repot them, and it is by far the best time to purchase any new varieties needed, or to repair losses that the collection may have sustained. I have named all the best of the varieties that I intend to grow next season. It is better to grow a dozen plants of a good variety than a dozen varieties which may be distinct, but which cannot be depended upon to produce good blooms. Jas. Douglas.

Double Larkspurs.—Amongst the many forms of improved garden flowers, the annual Delphiniums, or Larkspurs, are well worthy the attention of all who delight in growing good annuals. Not only have the size and form been improved, but the colours are more intensified and increased. Whenever Delphiniums are sown or seedlings transplanted in the open border, protection must be given against slugs, as they are extremely partial to them, and will otherwise eat them down close to the ground.—W. Earley.

Phlox Drummondi var. Cardinal.—This is the deepest and richest coloured of all the annual Phloxes, constituting, when in a mass, a rich glow of deep crimson such as one seldom sees equalled. It occasionally produces flowers of different hues, some of which are heavily shaded with purple. Varieties of Phlox Drummondi, to be done well, should be sown in a cool house, and, when the plants are large enough, they should be potted up singly into 3-inch pots. Thus treated they get well rooted, and when planted out soon grow into strong free-blooming plants.—A.

The Calystegias.—These are very beautiful plants during July and August, but the worst of them is that they are rather wild and rampant in their growth; and it is necessary every autumn to dig up a large quantity of their creeping Twitch-like roots, so as to keep them within bounds. They are regular "Morning Glories," and are shorn of their beauty by mid-day; but they are lovely for the decoration of a breakfast table or morning room. One of the prettiest and most rarely grown species is C. oculata, a kind which produces white flowers shaded with purple in the centre. C. incarnata, which has pale blush flowers, forms a striking object when trained up two or three tall Scarlet Runner stakes; and the same plan may be pursued with advantage with C. dahurica, which has large rosy pink blooms, streaked with white, much resembling the beautiful British seashore weed, C. Soldanella, which deserves a corner to itself in every good herbaceous collection.—H.

HARDY PLANT CUTTINGS.

A common cause of failure in striking hardy plant cuttings is excessive moisture in different forms, and especially from the soil being made too wet. It is scarcely possible to lay down a general rule, for some cuttings root more readily in very moist earth, whilst others, such as the Cruciferæ, make quicker progress if it is kept somewhat dry. The black decay which sets in on the stems and in patches, often just on a line with the surface of the soil and frequently higher up, is what many of us find most trying, for it often occurs when there are healthy calluses and roots forming. If the parts are examined before any of the leaves are disturbed, in nine cases out of ten it will be found something has been touching the part, and causing particles of water to lodge there. Many simple causes exist, such as we are apt to overlook, which quickly and effectually rot the soft material, which from its abnormal condition is very susceptible to injury. For instance, cuttings with down or hairs on the stems, if put close to the pot's sides above the surface, are pretty sure to rot at the point of contact; those of Onosma taurieum and Salvias and such like will not endure moisture so held, and black spots of decay will occur all the time a good callus is forming. I like to fix such cuttings with their heels touching the pot's sides, keeping them erect, so that at the surface they are half-an-inch or more from the side, and it is safer not to put too many in one pot. Making the soil firm in some degree is a preventive against the retention of too much moisture, but if the compost is gritty the tender skin of the cuttings is liable to be bruised, which may cause their death. It should be the aim to get cuttings rooted quickly, and those which are inserted in pots ought not by any means to have their pots plunged. Sunshine is our best friend in this matter if we utilise it. Cuttings which have stood in the sun have always the best roots on the sunny side; of course, I do not mean to say that cuttings should be inserted and placed at once in the hot sunshine, but after a day or two those of hardy and sun-loving plants may be set there, and the result will be better than if they were coddled in cool and shady places.

J. W.

Haplocarpa Leichtlini.—I thought as you did (page 186) about the hardiness of this plant on first seeing it. In fact, it came to me with a character to that effect. But I am quite sure from the way in which it behaved under the first touch of winter that it is not hardy at all. I should advise any possessors of this very pretty plant to give it some protection in winter if they do not want to lose it.—H. Ewbank, *Ryde*.

Artemisia annua.—For symmetry of growth and delicacy of foliage the annual Siberian Artemisia as a border plant has few rivals, especially where grown in rich soil. The peculiarly intense dark green of its leaves proves exceptionally refreshing to the eye during such a dry period as we have lately experienced. It may be difficult at times to secure good seed, so seldom is the plant grown; when procurable, however, it is very easily raised, and the young plants transplant readily, quickly forming handsome pyramids some 5 feet in height, clothed with foliage to the ground. Like Artemisias generally, the flowers are by no means ornamental.—W. Earley.

Pentstemons.—These make superb border plants at the present season, and deserve a greatly increased popularity. The improvement that has taken place in the quality of Pentstemons during recent years can scarcely be imagined. I have now in full flower a large bed containing some two hundred plants of Pentstemons raised from seed early in the spring of last year. They all flowered strongly last autumn, and with scarcely the loss of a plant during the winter. They have now thrown up quantities of young growths that have

been all through June, and will probably be all the autumn a mass of flowers. Their colours vary greatly; among them are scarlet, purple, pink, white, and intermediate shades of all kinds; their blooms, too, are large in size and the spikes long. —B.

VARIEGATED-LEAVED PLANTS.

We have not as yet taken half the advantage which will be eventually derived from the large numbers of fine variegated shrubs which are now at command, both deciduous and evergreen; but the knowledge of them, and with it the taste for their culture, and the true feeling of the various ways in which they may become so immensely valuable in varying the effects and imparting gradations of light and dark to our shrubberies, is becoming more fully developed. The variegated Eurya latifolia, with its long pointed leaves of mingled cream, grey, and green, is a very magnificent plant, inviting the attention of all such as wish to make a really grand addition to their conservatories. Ivies grown as shrubs or standards, especially the variegated sorts, are a treasure store in themselves, while for fine semi-tropical effect, the noble leaf-blades of the variegated New Zealand Flax (Phormium tenax variegatum) forms a grand addition to Yuccas and other stiff-leaved Aloe-like plants. With this the variegated Yucca filamentosa would group admirably. Scrophularia nodosa, with its white-bordered leaves and young sprays of golden yellow, is also very pretty; while the leaves of the variegated Hemerocallis, an old garden favourite, are so beautifully marked, that a plant of it would form a fine object anywhere. There is also the smaller double-flowered variety, the leaves of which are conspicuously streaked with clear white, which would be very attractive wherever there is room for it. Acanthopanax variegatum forms a very charming little bush of mingled creamy white and pea green. Then there is Coprosma Baueriana, an elegant shrub with golden-hued leaves of clean and regular form, marked by a spot of bright green in the centre. Euonymus latifolius and E. radicans are both of them attractive shrubs, and most useful in producing a special kind of effect; the former has leaves of pale cream colour marked very distinctly with two shades of green, some of the leaves remaining entirely cream coloured. The leaves of E. radicans are more regularly marked with cream colour. There are also several other kinds of Euonymus, all more or less beautiful as variegated shrubs. Of the variegated Hollies there is an endless variety, and no shrub or tree with variegated leaves can surpass the best gold and silver forms.

As a ground-covering foliage, where a low growth is alone desirable, what can be finer than the variegated Coltsfoot (Tussilago Farfara), so finely edged and brightly splashed with white as are some of the best variegated varieties? For spreading over rock-work in favourable positions what can be more desirable than Sedum Sieboldi, each leaf of delicate pale green blotched with a circlet of soft cream colour in the centre? And then the common old-fashioned border flower, Polemonium cæruleum (Jacob's Ladder, variegated variety), is as pretty and bright an object as can be conceived. Each of its elegant pinnate leaves is edged with a clear sparkling border of white, making the foliage even more attractive than its pretty crown of soft blue flowers. These are but a few of the many variegated-leaved hardy plants which are available to everyone disposed to make use of them. N.

Preparations for spring.—Now is the season to make preparation for spring flowers. Many seedlings, such as Myosotis dissitiflora, will need transplanting from seed-beds into rows about 6 inches apart, so that they may make nice clumps by October when transplanted to beds with bulbs for spring. Daisies, red and white, may be parted and replanted, Polyanthuses and Primroses, if they were not attended to in spring, may now be divided, and old clumps of Forget-me nots of various kinds, if pulled to pieces and dibbled in lines in shaded places, will make good plants. Several kinds of biennials, or rather annuals, sown now will flower freely next spring. The pretty Silene pendula compacta is one of the best for producing a mass of rosy pink flowers. Limnanthes Douglasi makes a good companion, with pale straw-coloured blooms; and Saponaria calabrica, a bright rosy pink, is very pretty. Many other annuals are hardy enough to stand the winter in a small state that are sure to suffer from even slight frost if sown too soon. I find it best to sow on rather poor soil, in a dry, well-drained place, such as a sloping bank or border. The Godetias, Gilias, Phlox Drummondi, and similar flowers will survive ordinary winters and make a fine display of bloom at a time when gardens are frequently destitute of much variety; and in localities where the winters are too severe to admit of open-air culture, many of these plants, if sown in a box and wintered in a cold pit, may be put out very early in spring, and make a fine display in early summer.—J. G. H.

NOTES ON STOCKS.

The summer-blooming Stocks being now on the wane, seem to remind one that the time for sowing the Brompton, Queen, and intermediate Stocks is at hand. There is always a risk about the two former, as a wet and cold winter or severe frost invariably decimates them, but those plants that stand and flower are very beautiful in the early summer. The Queen and Brompton Stocks are closely allied, and are probably only varieties of the same species; but it is curious to note that the seed of the white Brompton is pale in colour, that of the white Queen quite dark. Old growers of the Stock distinguish the foliage of the Queen and Brompton Stocks in this manner. They assert that the under portion of the leaf of the Queen Stock is rough and woolly; that of the Brompton Stock is as smooth on the under part as on the upper. Of the Queen Stock there are three colours—purple, scarlet, and white; and of the Brompton Stock the same number, with the addition of a selected crimson variety of great beauty, but somewhat difficult to perpetuate. Both of these types (if distinct enough to be regarded so) are really biennials, and the seed should be sown at the end of July in beds, and the plants, I need scarcely remark, should be transplanted to the open ground in the autumn.

The difficulty of wintering the Brompton Stocks operates to deter many from attempting their cultivation. Even in the case of an unusually mild winter many will die. A well-drained subsoil and a porous surface soil will suit them best. Shelter from biting frosts and nipping winds is of great service. A second transplantation has been tried with considerable success, the last one made about December. The intermediate Stocks are much used for cultivation in pots, to bloom in the spring and early summer, and are very useful for decorative purposes. The seed should be sown in August, and the plants, when large enough, placed in 6-inch pots, three plants in a pot, rich soil being used. They should then be placed out of doors in the shade, kept well watered in dry weather, and finally wintered in a cold frame, and drafted into the conservatory or greenhouse as they come into flower.

There is a very pretty variety of the intermediate Stock, somewhat taller in growth than the scarlet one, and forms capital pyramids of white flowers. Some of the dwarf German bouquet Stocks imported from Germany by our seedsmen make very good intermediate Stocks, being dwarf and compact in growth, and well adapted for pot culture. One, of a bright crimson hue, has a very dwarf and yet vigorous habit, and flowers in great profusion. The East Lothian intermediate Stocks, as they are termed, are in reality mainly used for late summer blooming, when they are very effective. They are sown in the usual way about the end of March, planted out at the end of May when some 3 inches or 4 inches in height, and bloom finely through August and September, and even later, as they throw out numbers of side shoots that produce spikes of flowers. Thus, by using the autumn-sown intermediate Stocks for early blooming, the ordinary large-flowering German Ten-week Stock for summer flowering, and the later East Lothian intermediate Stocks for late summer work, Stocks can be had in flower eight or nine months of the year without intermission. Q.

AMERICAN LILIES AT HOME.

Writing to the Trenton Natural History Society's journal, Mr. Ernst Volk says, respecting some of the American wild plants:—

"Among the most beautiful wild flowers growing around Trenton, N.J., are two species of the great Lily family, which, as Linnæus says, have no poor relations. These are Lilium canadense and L. superbum, the bell-shaped Canadian and the brilliant Turk's-cap Lily. L. canadense blooms about the middle of June. It has a bell-shaped, canary-yellow flower, varying to coral-red. The thick, scaly bulb is annual, and scarcely half an inch long, although it sends out runners 5 inches or 6 inches in length. In shaded places it is only about 2 inches under ground, but in sunny spots 4 inches to 5 inches. The Lily will travel slowly, as the runners produce new bulbs in every direction. I have found, in a space 18 inches square five stems, the bulbs being connected by the runners. In sunny places the stems grow to a height of 1½ feet to 2 feet; among bushes and on the borders of woods, to 6 feet. In a single instance I found a stem 9 feet 8 inches high, with fourteen flowers in full bloom. In the sun the flowers are seldom more than three on one stem, but their colour is then brilliant. In the shade the blossoms may be ten or fifteen, but the colour is usually dull. L. superbum has bulbs so closely resembling those of L. canadense, that a good judge would be needed to distinguish them, but they are perennial. The stems vary from 6 feet to 10 feet or 12 feet in height. The flower-buds are round, those of L. canadense being triangular. This Lily prefers a bushy place, so that the stem may be somewhat shaded. Four years ago I planted six bulbs of L. superbum in my garden, and the stems have each year averaged a height of 10 feet to 12 feet, with fifteen to twenty flowers in a cluster.

"Either of these Lilies may be successfully transplanted while in bloom by cutting off the stem about 2 inches above the bulb, the new stems appearing the following spring. Once planted, they need no further care. They steadily increase, and their exquisite bloom soon illuminates the whole garden."

Respecting Lobelia cardinalis, he says, "This plant needs no protection in the winter, as I accidentally proved by unintentionally omitting to cover some of my plants, which reappeared in the spring, while the protected ones all died. The wild Lobelia can be obtained and cultivated by root or seed. If the roots are taken, remove as much earth with them as possible, after cutting off all the stems. Young plants thrive best. They should not be planted deeper than found. Before the winter sets in they become established. The seeds ripen by the middle of October. Plants raised from the seed will not flower the first season."

The Comfreys.—The Symphytums, or Comfreys, are most valuable for the shrubbery and wild garden. They grow freely—in fact, rampantly, under trees and elsewhere, and are good and showy plants. S. asperrimum is the tallest, growing to 6 feet, and has red flowers changing to blue. S. caucasicum (2 feet), white flowers, and S. tauricum (3 feet), also with white flowers, are all fitted for naturalisation. S. bohemicum, with brilliant red flowers, only growing to 2 feet, is worthy of a place in the border, as is the variegated form of S. officinale (a handsome plant), and perhaps S. tuberosum, with yellow flowers, though I am not certain that the latter may not prove too rampant.—O.

Showy Mallow-worts.—The great beauty of this family has been in some of the collections of herbaceous and alpine plants around London this day season. We allude more particularly to such plants as Sida malvæflora and incarnata, Malva Alcea, and the British M. moschata with its white variety, and the Lavateras thuringiaca and unguiculata, the latter one of the finest herbaceous plants in flower at the present time, a good specimen of which may be seen at Kew. It grows about 6 feet high, and has large bright rose-coloured flowers. The flowers of these are generally

of a light clear rose colour, and are produced in dense masses, and the plants are hardy and vigorous. They are highly suited for the embellishment of borders as well as for the wild garden.—G.

THE CLAMMY COLUMBINE.

(AQUILEGIA VISCOSA.)

COLUMBINES may be found in most gardens, and where allowed to hybridise at will the result is an effective mass of well varied and striking colours; they cross so freely that it is hardly possible to keep two kinds true to name if allowed to grow in close proximity; indeed, if grown in the same garden, the chances are that in the seedlings some alteration will have taken place. Where distinct kinds are desired the better plan is to choose a few of the most marked, and grow them well apart; but if such as vulgaris, canadensis, chrysantha, and others of the robust kinds be cultivated, the progeny will be doubtful. Even if cærulea, a most distinct kind, grows along with chrysantha, the blue will be found to mix with the yellow, thus deteriorating the appearance of the flowers. In most soils Columbines appear to be short-lived plants; a renewal, therefore, every two or three years will be found to be beneficial, as well as necessary. The plant here illustrated, along with which may be included A. alpina, pyrenaica, viridiflora, &c., belongs to a dwarf growing section, very useful for cultivation on low rockwork. It seldom grows more than 1 foot high, and its flowers, which are purple, are distinct from those of any other kind. The leaves are clammy and covered with long hairs. It flowers in May and June, and is a native of Southern Europe. K.

Centaurea babylonica.—Among the Centaureas by far the most remarkable, to my mind, is the very silvery-leaved C. babylonica. It is quite hardy, and when planted in good ground, sends up strong shoots, clad with yellow flowers, to a height of 10 feet or 12 feet. The bloom, which continues from July to September, is not by any means so attractive as the leaves, but the plant is at all times picturesque. In groups, or, still better, isolated, on rough or undulating parts of pleasure-grounds, it has a very fine effect. When the leaves alone are seen, it is worthy of a place among the finest hardy variegated subjects, but when it sends up its strong stems, it is a fit associate for Hollyhocks and the very tallest herbaceous plants.—O.

SHORT NOTES.—FLOWER.

Nicotiana affinis (*G. P. Flemwell*).—There is certainly a great difference between the specimens you send, the larger flowered kind being much superior to the other. Are you satisfied that it is not the result of superior vigour of the plant induced by an extra dose of manure given to its roots?

Lasthenia glabrata.—This hardy annual composite has been flowering freely for these past two months in my garden from spring-sown seeds, and is now a perfect mass of rich orange-yellow blossoms. It grows about 15 inches in height. If sown in autumn, patches of it come in along with early Phloxes, Alyssum, Iberis, Wallflowers, &c.; it certainly far surpasses any of the Doronicums, which often find a place in such borders.—T.

Autumn-sown Cornflower.—Few persons seem to have any just idea of the value of Centaurea Cyanus as an early summer plant when sown in autumn. The variety in the colours of the pretty flowers is quite charming. The blooms are among the best for cutting. Self-sown plants, or those sown in the autumn, make a lovely display on strong soils. No garden in which flowers are valued in the early summer should be without a mass or a few tufts of it.—W.

The Rouen Violet (Viola rothomagensis).—This pretty Violet has been very beautiful with me this season. It belongs to the tricolor section, and has low-growing creeping stems, from which spring numerous small, long, narrow-petalled purple and white flowers. It much resembles another pretty species which I had some years since, under the name of V. palmensis, which is, I believe, a native of Sicily.—H.

The Sycamore-leaved Buttercup (Ranunculus platanifolius).—Few plants were more beautiful with me during early summer than this pretty Buttercup. It is a tall-growing species with large handsome dark green leaves and a stem from 1 foot to 2 feet high, bearing numerous large snow-white flowers. My plants, which lasted in bloom nearly a month, came from the Dolomite Mountains, the home of another lovely white-flowered species, which is also growing well with me, though it has not yet blooomed, viz., R. Seguieri.—H.

Ononis fruticosa.—This handsome and neatly-habited plant is now in flower. It is seldom seen about London, though no doubt it was often planted in days gone by; but being a dwarf mountain shrub, it probably often perished from being associated with coarse subjects in plantations. It is suitable for grouping with the dwarfer American plants, for banks, for rockeries, or for planting alone on turf.

Agapanthus umbellatus out of doors.—I lately saw in a Surrey garden plants of this lovely old-fashioned Lily, that had stood out in the open ground all the winter, and which are now pushing up strongly. The soil is stiff clay; aspect east. I have somewhere read that this plant ought to be allowed to have plenty of light during the winter, but here I saw a fine lot that had been wintered in an ash-pit, and I was informed that thus treated they flower profusely every season. This Lily may be wintered successfully under the stage of a greenhouse, or even in a cold pit, and never fails to bloom freely during the summer-time.—C.

FRUIT GARDEN.

THE COLOUR OF GRAPES.

IF Grapes are ripe, colour is sure to be found in conjunction with high flavour and other good qualities, for it must be borne in mind that black Grapes get black before they are fully ripe. There seems to be no doubt either that high finish is a sure sign of vigour in the Vine; for that deep black colour and purple bloom is never, as far as my experience goes, found on weakly Vines, or in conjunction with a too heavy crop of fruit. I have seen Hamburgh Grapes ripe, yet nearly green, simply through allowing the Vines to carry an excessive crop. Two or three years ago I saw a house of Grapes, Hamburghs, belonging to an amateur, in which there was not one bunch that had even got as red as a Grizzly Frontignan, and many of the bunches had scarcely a tinge of colour about them at all, but remained green almost to the last. The berries tasted sweet, but that was the highest praise that could be given them—globules of sugar and water, for they could not be called fleshy. Considering the strength of the Vines, the crop was, however, the heaviest I ever saw. Every bunch had been allowed to remain, two and three on a shoot, and every Grape grower knows what that means. The berries had been thinned to some extent, but that was all. Great stress is laid by many upon light and air as colouring agents, and I certainly do not undervalue their importance in this respect; but the most thorough ventilation and exposure just when the Grapes begin to colour, as commonly practised, is of little avail if other matters have been neglected. Plenty of light and air, acting upon the foliage, without doubt promote a vigorous constitution in the plant, and indirectly materially assist the colouring process, but the mere action of either upon the fruit itself seems to be very unimportant indeed; otherwise, in fine and bright seasons we might expect the best-finished crops, but such is not by any means the case.

Black Grapes ripened in January are often quite as highly coloured as those ripened in summer and autumn. Varieties differ in regard to their colouring power, so to speak. The Black Hamburgh is susceptible of the deepest black and the densest bloom under favourable conditions; but it is oftener seen only red, which has encouraged a belief that there is a red Hamburgh, though in all probability no such variety exists. We have at least often seen "red" Hamburghs turn black under altered circumstances. The Muscat Hamburgh is another Grape which, among other bad qualities, has that of colouring indifferently. Mrs. Pince, too, frequently gets only red. I have this Grape here on its own roots, and grafted upon the Alicante and on Lady Downes. On the first it is simply bad as a setter and in colour. On the Alicante the bunches are invariably magnificent, except in colour, though better in this respect than on its own roots; but often reddish when the Grapes on the Alicante limb of the same Vine are quite black. On the Lady Downes stock the bunches are smaller and more cylindrical; but they always finish best and keep longest. On its own roots it has a high and delicious Muscat flavour, but it is less piquant on the other stocks. Mrs. Pince is, however, most erratic in this respect, for we have tested it at other places and on other stocks, and failed to detect the slightest Muscat flavour about it. West's St. Peter's is one of the best to colour, and takes on a singularly beautiful metallic lustre when well finished that no other Grape does. The Royal Ascot would appear to be a favourite in this respect also. Barbarossa, in some soils and situations, is a Grape which finishes exceedingly well, putting on the most extraordinary bloom I ever saw.

Among white Grapes perfect finish is even more uncommon than among the blacks. Taking the Muscat of Alexandria as the type of this section, how seldom do we see it of that deep yet transparent amber colour which indicates perfection and high flavour? Buckland's Sweetwater Grape is one that, as a rule, finishes well, and has a very taking colour when quite ripe. That magnificent Grape, the Golden Champion, is certainly worthy of its name but for the constitutional speck which affects the berries when just about ripe. I have had it, however, and seen it on several occasions without blemish. My experience is that it is a Grape which requires time and a somewhat dry atmosphere to finish it properly. It is at least a month later than the Black Hamburgh, and it will not bear hurrying. By far the best stock for it is the Muscat of Alexandria. Upon the whole, we are as yet in the dark to a great extent concerning the colour of both fruits and flowers. The directly operating agents in its production are a mystery, but it is a well-ascertained fact that the general health of the subject has much to do with the intensity or brilliancy of the hue, whatever it may be; and this should be constantly kept in mind by the Grape grower who would wish to secure a good sample; while he must not forget that his prospects, however fair at the commencement, may be blighted at the last by having too heavy a crop on the Vines, or by subjecting them to a high and hurrying temperature, which alone is sure to impair both weight and colour, and, I should add, flavour. CHEF.

Leaf-shaded Grapes.—My Vines under glass, not forced and of different kinds, have this year succeeded well. They are strong and vigorous in growth, well set with Grapes, which promise to be exceptionally large and heavy. The leaves on every Vine are very large and close and form a more or less compact shade over the Grapes. May I enquire whether it is good practice to remove as many leaves as may be required to admit light and sun to the Grapes, or whether the removal of such leaves would injure the growth of the Vine and check the full development of the Grapes?—ENQUIRER.

*** Your Grapes, according to your own showing, are in a very satisfactory condition, and will

no doubt colour well. If lateral growths have been allowed to crowd up to the glass and impede the circulation of air from the bottom to the top ventilators, shorten them by degrees, but on no account interfere with the main leaves, as Black Grapes always finish and keep best under a heavy covering of good foliage. White Grapes, on the other hand, colour best, *i.e.*, lay on that rich amber which every grower covets, but does not always attain where the bunches are indirectly exposed to sun and light. These Vines, therefore, be they Muscats or less valuable varieties, should be divested of all their lateral growths, provided the main leaves are good and not too close, to prevent the refracted rays from playing upon the berries. If the large leaves of which you speak completely shut out the sun, turn or tie them aside immediately over the bunches, but do not cut them out, as such a course would most likely check the Vines when steady progress is of importance. Why do Vines which are over-cropped, badly scalded, or infested with spider fail to colour their fruit? Simply because the foliage and the roots have received a rude check and cannot properly perform their functions. Be patient, give your Vines plenty of time, cut out all the remaining pieces of laterals down to the main buds as the bunches are cut, but carefully syringe and preserve every old leaf to feed and fill up the buds.—W. Coleman, *Eastnor Castle, Ledbury.*

GOOD STRAWBERRIES.

In our district, the north east of Ireland, we had this season no room for complaint as to deficiency of crop. We grow some ten or a dozen sorts, but were I limited to one, I would certainly grow Vicomtesse Héricart de Thury (Garibaldi). This variety I find is a large and sure cropper and hardy in constitution; our next is President, which is better flavoured than the preceding, but with us has the habit of odd ones dying off, particularly if too long in one place. Keen's Seedling and Duc de Malakoff we count of equal merit. Victoria we find to be a valuable sort rather late; its fruit is somewhat soft, but the flavour is almost equal to that of President, and the plants keep long in bearing. Sir J. Paxton with us scarcely merits the high encomiums usually awarded it, but as this is only my second year with it, I should not like to speak too definitely. Duke of Edinburgh is a high-coloured, good-flavoured, free-fruiting sort of considerable merit. Many of its fruits are very large, but very rough. For late use we rely on Elton Pine, a well-known variety largely grown on north borders for lengthening the supply. Its fruit is large, ovate, of a bright shining crimson where fully exposed, and agreeably sub-acid in flavour. We grow a few rows of Victoria alongside it on a north border, which we find to be most useful in helping us to keep up the supply until late in the autumn. The above refers to kinds which we grow for general use; for pot culture we now depend on Garibaldi and President. Of sorts not generally grown we have the Alpine and Hautbois, the varieties being Galande and Royal respectively. Few would grow or would recommend them to be grown largely, yet they have their own decided characteristics. The Hautbois flavour is much esteemed by some, although to my palate it is not altogether what I like. The Alpines, on account of their firm and high-coloured fruits, are useful for bottling whole. Both sorts well repay careful and kindly cultivation, and may be increased rapidly from runners, but some prefer raising stock of the Alpine from seed.

For securing good crops of fine fruit annually I prefer and would advocate working Strawberries on the three or four years system. It is well known that young plants produce the finest fruit, although if the nature of the soil on which they are growing is suitable to them they may do well for many years. President dies suddenly with us, and more so after the third year than earlier. Last season, for example, having a spell of drought, we lost many. Necessity, therefore, compels us to study carefully the means by which the best results are obtained. Thus we every third, and sometimes fourth, autumn select all the strongest runners, and plant them thinly in nursery beds until the following spring, when we plant them permanently in a specially prepared plot. The special preparation alluded to consists in a thorough deep digging early in winter, and in incorporating a good quantity of strong farmyard manure with the soil. In digging, the surface is left as rough as possible, and by planting time it moulders down into powder. We exercise special care in lifting the plants with good balls of earth attached to them; then in replanting we work in, in the first place, a good supply of pulverised soil, and give them a thorough firming. Under such treatment they receive no check whatever. Such plants, too, would bear a fairly good crop, but this we do not allow them to do the first season; on the contrary, we rigidly nip all runners and blooms off, and by autumn they are strong plants with plump crowns, a sure indication that they will fruit well the following year. It is from such plants that the best of early runners can be got for pots; we only allow one plant to furnish one runner, so as not to tax its energy too much. As we must of necessity keep our established plants we therefore have two plots filled with Strawberries in the one season, and as soon as the old plants are past fruiting we grub them up, and immediately plant the ground with Broccoli for late use. In planting Strawberries, for strong-growing sorts we make the lines 2½ feet apart and the plants 18 inches asunder, the dwarf growers being allowed 2 feet by 18 inches. These distances we find to suit them well.—S. Kevan, *Templepatrick.*

Aquilegia viscosa. Flowers purple.

Our Strawberry Crop.

The following varieties are grown in this garden, viz., Keen's Seedling, La Grosse Sucrée, Vicomtesse Héricart de Thury, Sir J. Paxton, President, Barnes' Prolific, Unser Fritz, Sir C. Napier, British Queen, Oxonian, and Loxford Hall. The best flavoured is British Queen, but its behaviour is so indifferent in other ways, that it is not worth the space which it occupies. Keen's Seedling is superior to all the others for sweetness. Between the flavour of La Grosse Sucrée and the Vicomtesse there is not much to choose. Sir J. Paxton and President are our favourites for dessert, as the others are too small, except Unser Fritz. The latter is a large, handsome fruit, but inferior in flavour to the two just named. It, however, withstands wet better, and is a free bearer. The Vicomtesse produces the greatest number of fruit of any we grow, but it is a question if President or Sir J. Paxton would not equal it in weight. Barnes' Prolific is much grown for market in this district—more so than any other, as it travels well. Its flavour is, however, inferior, in my estimation, to that of five or six others. It is said to be a first-rate cropper; with me it stands about fifth in this respect. I cannot say much of Oxonian from its behaviour here; and Sir C. Napier has no resemblance, except in foliage, to the one I knew under that name some years ago. The above sorts ripen pretty well in the order in which they are named. I am so pleased with Loxford Hall this year, that I intend to plant more of it. Our plants of this variety are 1 foot apart in the rows, which are 2 feet asunder, but if put 8 in. by 18 in. they would not be too thick. If it succeeds as well as it has done this year, its yield from the same space of ground will equal that of any kind in the garden. Our favourite mode of culture is to layer annually as many as we can and plant 1 foot distant in the row, cutting out the second year every alternate plant. We used at one time to allow the same distances apart, and plant three plants, triangle fashion, chopping two off as soon as the fruit was gathered; but as there was some amount of crowding when pots were introduced in which to layer the runners, we gave up the practice. Plants in their third year give but a poor return compared with those in their first year.—W. P. R., *Preston, Lancashire.*

Notes on Strawberry Culture.

After years of experience I am convinced that, in order to secure fine crops of Strawberries year

after year, three or four points in their culture must be attentively observed. In the first place, early runners must be secured with the least delay possible. As soon as they are sufficiently rooted, no time must be lost in getting them on to the ground they are intended to occupy. The plants must be encouraged in their growth during the autumn by keeping the surface of the ground frequently stirred with the Dutch hoe and free of weeds, and on the approach of winter let the plants be mulched with half rotten manure. By the early part of the following May, when the flower-spikes begin to appear, the mulching given in the early part of the previous winter will all have disappeared. As soon as the flowers are fairly open another mulching must be given, either of litter from the stables or litter in a half decayed state, which will keep the fruit clean during the process of ripening. Manure in a partially decayed state I find an excellent mulching. It prevents the ground from becoming dry and parched, and also keeps the roots cool. When the fruit is beginning to swell give the beds a thorough soaking with manure water, and this should be repeated every ten days if dry weather prevails until the last fruit is gathered. A very good plan to preserve the fruit from injury I have adopted with marked success is to tie it up with sticks and matting. This entails a little extra labour, but it pays before all the crop is gathered. I have about four sticks placed round each plant, and the bunches of fruit are supported by two strings run round each plant and fastened to the stakes. If wet weather sets in the fruit does not decay by lying on the ground. It is not damaged by workmen gathering the earliest ripened fruit; it prolongs the supply, and every berry comes to perfection. I strongly recommend the tying up of the fruit in this uncertain climate, especially those beds which supply the fruit for table. The most prolific Strawberry that I have met with, and which appears to be little known, is one I have by the name of Preston Seedling. I have never seen it mentioned in any catalogue, except Mr. Lovel's, of Driffield, from whom I received the plants two years ago. It bears very large fruit; though not handsome in shape is a most heavy cropper, and the flavour is tolerably good, though not first class. Runners planted last autumn on ground previously occupied with Potatoes have given us enormous crops of fruit this season; in fact, the crop of fruit on a plantation made last autumn has been heavier than on those two and three years old. Another useful Strawberry, for late use especially, is Filbert Pine. From this and Preston Seedling we gathered fruit for table until after the middle of August. The fruit of Filbert Pine is moderately large, conical shape, dark red, and fine rich aroma—the best late variety which has come under our notice. For upwards of twenty-five years we have been experimenting with Strawberries, and we strongly recommend Preston Seedling for quantity and Filbert Pine for quality.—Q. Read, *Thornbury, Sheffield.*

I should like to add my mite to the store of information you are collecting about Strawberries. I find that Vicomtesse Héricart de Thury is known under the name of Garibaldi in many places in the north. I have grown it many years and forced it in quantity, and have never known it to fail. One kind that I grew at Cliff Hall, near Darlington, many years since, called Ruby, raised by Mr. Nicholson, of Yarm, surpassed all for cropping that I ever knew. In the East Riding of Yorkshire Keen's Seedling always did well, also British Queen and Elton Pine. The soil was a dark sandy soil on gravel. I had the ground trenched two spades deep and well manured; I then took a crop of early Potatoes or Cauliflowers before planting the Strawberries. I grew them four years on the same spot, but did not dig it, only put fresh manure from the stables every autumn, so as to make a good covering between the rows. The winter's rain and snow bleached it clean for the fruit, and if the weather was dry we gave the plants two heavy waterings before blooming and after the fruit was set, so we never failed having a good crop. In the county of Durham the British Queen has not done so well with me. At Hamsterley Hall, ten miles south-west of Newcastle, the following kinds did well with me under the same treatment as described above: President, Sir J. Paxton, Keen's Seedling, Vicomtesse Héricart de Thury, Elton Pine. Frogmore Late Pine did not do well, nor British Queen; but one other that we had did well, called Wonderful. I seldom see it mentioned in catalogues; its flavour with us was equal to British Queen, but of a much dwarfer habit, so that we could plant it a little nearer. Dr. Hogg and Sir C. Napier did not crop well. At Moorlands, Sunderland, and near three-quarters of a mile from the sea, we depend mainly on Garibaldi or Vicomtesse Héricart de Thury, also President and Sir J. Paxton; we have tried several others, but they do not succeed with us.—J. G., *Moorlands, Sunderland.*

PACKING PEACHES AND GRAPES.

Some plain directions for packing fruit, especially Grapes and Peaches, would be valuable at the present time to many who, being absent from their country homes, are in the habit of having fruit sent to them by parcel post.—H. Clements.

It should be remembered that Peaches and Nectarines require as much care in gathering as in packing, for the slightest bruise will appear an ugly blemish a few hours afterwards. Have a tray lined with a thick layer of wadding beside you when going over the trees; try only those that look ripe, and, taking the Peach gently in the palm of your hand, bring the fingers and thumb under its base, and if it does not come away with a slight effort leave it. What are ready set on the tray, and do not handle them again till they are packed. Some have their Peach boxes divided into compartments about 4 inches square; but it is not an economical plan, for only one Peach, be it large or small, can be put into a division, and they are too often bruised in getting them out again. The boxes should be of tin, and from 12 inches to 18 inches square, and 4½ inches deep. In packing lay a thick piece of wadding on the bottom, and line also the sides; then take a square piece of wadding of the requisite size, lay upon it a piece of the softest tissue paper, and on this set the Peach; fold the wadding up over it, and set it on its base in the box at one corner. Fold up the others in the same manner, pack them closely together, lay a sheet of thick wadding on the top, shut and fasten the lid securely, and they are safe from any ordinary danger.

Few fruits bear carriage better than Grapes, and yet, strange to say, they are often much damaged in their transit, for the simple reason that they are seldom packed as firmly as they ought to be, through fear of crushing them, though the Grape will stand a wonderful amount of pressure before breaking and the bunches have a certain elasticity about them which protects them. Boxes 18 inches by 1 foot and 6 inches deep are a convenient size. We use soft paper shavings or wadding for packing them, first wrapping the bunches in soft drapery or tissue paper, and twisting it at each end; they are then wedged in together with a few shavings between the bunches, and a layer below and above all, in sufficient quantity to hold them securely in their places, when the lid is put on. All our packing materials are returned in due course, and it is seldom that there is the slightest stain from a broken berry on the Grape papers. Nor does the bloom suffer to any serious extent by this mode of packing if done with ordinary care. It is friction which rubs the bloom off most, but firm packing prevents this to a great extent.

Figs are precarious things to handle in packing if perfectly ripe, as all Figs ought to be before they are sent to table. Their skin rubs off with the slightest touch. They should be detached from the tree with great care, and they should be packed like Peaches; but, instead of using tissue paper inside the wadding, use a soft vine leaf in a flaccid state and fold the fruit carefully in it, and pack tightly, using plenty of wadding.

Small fruits, such as Currants, Gooseberries, and Cherries, will travel well without packing further than a layer of leaves top and bottom. Plums will travel well in a bed of soft, clean leaves and covered with the same, but the bloom of the fruit is easily rubbed off. It is a common plan, and a good one, to pack the different boxes of fruit in one hamper when sent off. Sometimes they can be sent in the vegetable hamper. Either way, do not let the hampers be unwieldy and inconvenient to handle, and the chances are that the damage, if any, will be less than it otherwise would be.—S.

THE NAMES OF FRUITS.

The subject of fruit nomenclature was discussed at a recent meeting of the Massachusetts Horticultural Society. The Hon. Marshall P. Wilder opened the discussion, and in the course of his remarks he said:—

In naming fruits, we want to suppress all royal titles, such as emperor, king, or prince; all political titles, such as president or governor; all military titles, such as general, colonel, or captain; all indelicate names, like Hogpen, Sheepnose, and Big Bob; all ostentatious names, such as Excelsior, Ne Plus Ultra, or Stump the World; and all long names like Doyenné Gris d'Hiver, Nouveau, or Twenty-fifth Anniversary of Leopold the First; and also to strike off the hundreds of Beurrés and Doyennés from the names of our Pears where it possible to do so, and to write hereafter Anjou, Diel, and Boussoch, in place of Beurré d'Anjou, Beurré Diel, Doyenné Boussoch, &c. There are, however, some instances, such as the old Beurré Gris and Doyenné Blanc, when the Beurré and Doyenné must be retained as the original types of certain classes. There are many other terms which have become unmeaning and useless, such as Pippin, applied to Apples, and Seedling, applied to certain varieties of all fruits, for all varieties are originally from seed. The terms Favourite, Beauty, and Choice not being distinctive appellations are better dispensed with in most instances, but in some they must be retained, as in the case of the Clapp's Favourite Pear, because we have also the Frederick Clapp and Lemuel Clapp Pears. As regards Clapp's Favourite, when it was introduced the Massachusetts Agricultural Club desired to possess the control of the variety and give it its name, and authorised a committee to offer £200 for the stock; but Thaddeus Clapp, who raised it, preferred to have it dedicated as it was, and a figure of the Pear is carved on his monument in Forest Hills Cemetery.

Among Apples we have several Spitzenbergs, Russets, and similar names, which should be dispensed with as far as possible. The terms Doyenné, Bon Chrétien, and Calebasse once had some reference to the forms of Pears, but they have never been adopted in naming American varieties. In the future, we desire to use but one word for the name of a fruit, as with the Baldwin Apple, the Bartlett Pear, the Concord Grape, and other renowned fruits, which will be perpetually known by appropriate and easily remembered names. In a word, we desire to establish a system of nomenclature which shall be pure and plain in its diction, pertinent and proper in its application, and an example not only to our own, but to other countries.

A lengthy discussion ensued, most of the speakers agreeing with Mr. Wilder that some sort of reform is necessary in naming fruits. We hope the Massachusetts Society will take steps to bring about the desired revision in fruit nomenclature, but perhaps they will have to meet the same difficulties as we have here in the attempt to revise the nomenclature of varieties of garden plants.

Plum trees as cordons.—This fruit may not be extensively grown in this form, but they certainly appear to succeed admirably when so grown. I have just seen a single cordon of considerable length, form-

ing the margin to a walk in the kitchen gardens at Hardwick, consisting of some of the best varieties of this fruit, and each variety bearing a heavy crop of fine fruit, which it has been found necessary to thin out. The cordon is little more than a foot from the surface of the soil, consequently does not in any degree interfere with other crops, and occupies but little space, which is a consideration where the extent of a garden is limited. The training of fruit trees in the form of single cordons is exceedingly simple. Short strong stakes are driven into the soil, some 2 yards apart and to the desired height; while to the top of each is secured a strong galvanised wire, and to this wire the single shoot or rod intended to form the cordon is trained. The trees may be planted at a distance of 6 feet, more or less, from each other, and as soon as the wire is quite covered, which is soon accomplished, the cordon is complete, and presents a very neat and pretty appearance at all seasons of the year. At the height of a foot from the surface of the soil the fruit, when ripening, is apt to be disfigured by grit thrown up during heavy falls of rain, so this altitude may with advantage be increased to 18 inches, or even to 2 feet.—P. G.

RIPENING AND PRESERVING FRUITS.*

The principles upon which success must ever depend are now so well established, that it is only necessary to bring them to mind for our government. The preservation of Apples through the winter months is now pretty well understood, but with the Pear, Grape, and other delicate fruits more care is requisite.

The ripening of fruit depends on saccharine fermentation; this is followed by the vinous and acetous fermentations. To prevent these, and preserve fruit in all its beauty, freshness, and flavour, the temperature must be uniform, and kept below the degree at which the fermentation or ripening process commences.

Late fruits may remain on the trees until severe frosts are feared, but should be gathered with great care. Summer Pears should be picked some days before the ripening process commences. A summer Pear ripened upon the tree is generally inferior. Pears which become mealy, and rot at the core, if left on the tree to ripen, are juicy, melting, and delicious when ripened in the house.

With the increase of fruits their preservation in the most perfect condition has become a matter of great importance; various methods have been adopted, both in this and other countries, for this purpose, many of which have been failures. Nearly half a century ago the first houses of which I have any knowledge were built for the preservation of fruits by the retardation of their ripening. Most of these have been controlled by ice; others by the use of chemicals and apparatus with revolving fans to diffuse the cold air through the various rooms.

The most common method for preserving fruits in small establishments and private use is the construction of houses with walls of non-conducting materials and with well drained and thoroughly cemented cellars. Such was the house built by M. Victor Paquet, of Paris, about forty years ago—without the use of ice or chemicals—an account of which was given in the illustrated transactions of this society in 1847. The house was built with outer and inner walls, with a space of 3 feet between; in fact, a house within a house, and so arranged that he could control the temperature at will, and which he kept at a little below 40° Fahrenheit. Our climate differs so much from that of Paris, that we cannot follow all of M. Paquet's plans. Suffice it to say that by this process, without the use of ice, he kept his fruits in perfect condition until June.

On this plan, fruit houses may be constructed at a very moderate expense, in which fruits may be kept in all their beauty, freshness and flavour through the entire season. The Anjou Pear has been exhibited in our society as late as the month of May from a retarding house.

* Extracts from a paper read before the Massachusetts Horticultural Society by Hon. Marshall P. Wilder.

One great secret of success begins in the state in which the fruit goes to the cooler. It should be before any sound specimen begins to show ripeness, and no single fruit should be stored that has fallen to the ground; for, however perfect it may seem, sooner or later that dropped fruit will tell its own story, and often cause the decay of the whole package when not noticed in time, which rarely happens when hundreds of bushels are piled one above another for a month or two. The fruits intended for cold storage houses should go directly from the orchard.

The cause of so many failures in storing Pears, for instance, is that the fruit is often bought of different parties, much of it so imperfectly packed that it is never fit to go to the cooler—perhaps it has been gathered weeks previous or carried long distances and become more or less bruised and rendered every way unfit for keeping in this way. The past autumn hundreds of bushels of Bartlett Pears that were nearly ripe were stored by small fruit vendors who knew nothing about the subject.

The fruit house of Ellwanger & Barry, at Rochester, N.Y., is a building where walls and floor are lined with straw and boards, with cellars underneath for storing fruit. When the mercury goes 10° or 12° below zero, a few, 3° or 4°, of frost get in, but the boxes and barrels are all covered with straw mats and are never reached by the frost. When the late autumn and winter Pears are gathered they are put in bushel or half-bushel boxes and placed on the north side of a building outside of the fruit house and protected. They are kept there as long as the weather will permit—by that time the room has got thoroughly cooled and ready to receive the fruit. They have both Pears and Apples there now in perfection.

In an account, by Mr. S. W. Dorr, of a fruit house constructed by him on the cold-air system, without the use of ice, he lays down the principle, that in order to keep fruit for any great length of time, the store-room must be frost-proof and kept at a low, even temperature—3° or 4° above freezing, with sufficient ventilation to carry off all moisture and impurities. He was able to keep his house within 3° of freezing for five months, and when the temperature outside changed 60° in twenty-four hours, the change in the fruit room was imperceptible. Again, when the thermometer fell from 6° to 20° below zero for five days in succession, the temperature scarcely changed one degree in the fruit house. This result was effected by building a house with triple walls, 15 inches in thickness, 10 inches of which was filled with sawdust.

The conditions of success may be briefly stated as follows: The perfect control of temperature, light and moisture. All experience shows that these conditions must be complied with or success cannot be attained; hence these apartments must be cool, and constructed so as to exclude at pleasure the external atmosphere, which starts fermentation. After many years of experience, both with and without ice, I have adopted a house built in a cool, shady aspect, with the door on the north, and with a thoroughly drained and cemented cellar, with small, double windows, which may be opened or closed at pleasure. In this way I am enabled to keep my late autumn and winter Pears until February or March in good condition. Apples may be kept at a lower temperature than Pears—say 34° to 40°. In a fruit room of this kind, Mr. Thomas writes me, that by admitting air on cold nights, and closing the entrances when the air is warm, he has had sound Lawrence Pears in March, and Josephine de Malines in April, and Baldwin Apples in June.

My late autumn and winter fruits, intended for long keeping, are allowed to remain on the trees until frost is apprehended. They are then gathered with great care, into bushel boxes, and placed on the north side of my fruit house in tiers of boxes 6 feet or 7 feet high, and covered with boards, where they are kept until the ground begins to freeze. They are then removed to the cellar, piled up in the same manner, with thin strips of boards or shingles between the boxes, until wanted for use, when the boxes are looked over and the most mature are from time to time taken out. In this way I keep Pears until March or April in perfect condition.

In regard to the use of ice, I would say that where fruits are kept for some months under its influence at a low temperature, they seem to lose much of their flavour: the cellular tissue also seems to have become dry, and to have lost its vitality or power to resume the ripening process. Experience proves that, for the common varieties of the Pear, about 40° of Fahrenheit is the temperature best suited to hold this process in equilibrium. The proper maturing of fruit thus preserved demands skill and science. Different varieties require different degrees of moisture and heat, according to the firmness of the skin and the texture of the flesh. Thus some varieties of the Pear will ripen at a low temperature and in a comparatively dry atmosphere, while others are improved by a warm and humid air. Some varieties of the Pear ripening with difficulty, and formerly esteemed only second rate, are now pronounced of excellent quality because the art of maturing them is better understood. Great improvement has been made in the handling, packing, and preservation of fruits, so that they are delivered in perfect condition from distant places, every class of fruit having its suitable style of package. So well is the art of keeping Grapes now understood, that we have them in our markets in such fine order as to command from 7d. to 9d. per pound until the month of May.

Referring more particularly to Pears, some sorts of which are more delicate than others, and will not bear so low a temperature. The Bartlett Pear loses its flavour after being exposed to a low temperature for two weeks. It is very important that the temperature should be uniform. I once had a house controlled by ice and found that 40° would hold fermentation in check. My cellar sometimes gets below freezing and I then cover it with mats.

KITCHEN GARDEN.

SPINACH ALL THE YEAR ROUND.

In order to keep up an every-day supply of Spinach all the year round, the last summer crop should be sown on a well-prepared border or quarter about the middle of July, in drills 18 inches apart; this will yield a good supply of fine large leaves till October is out. For the late or winter crop prepare about the end of July a border or sheltered quarter; apply a good coating of thoroughly decayed manure, trench the ground well and cast it up into ridges, so as to expose as great a surface as possible to the influence of the atmosphere. Every dry day till August 10 or 12 east down the ridges and pulverise with a steel fork, so as to sweeten and incorporate all together. Then draw lines a foot apart and sow the Hardy Prickly variety. As the plants advance thin them out from 6 inches to 9 inches apart, and maintain a healthy and vigorous growth by constant surface stirrings in suitable weather; this, if attended to, prevents canker, and encourages the production of abundance of fine leaves for use every day throughout the winter. Timely forethought should be taken to shelter a portion with a row of short stakes about 18 inches high, interwoven with Fern, straw, evergreen branches, Furze, Heath, or other material, which should be neatly applied, and also made wind-proof. Thatched hurdles or frames, cheaply made, of battens backed together and thatched, might also be used for the purpose of protecting from frost. Make another good sowing of the same hardy Spinach on ground as well prepared as the last, about August 20 or 22, in lines a foot apart, and thin out to 4 inches or 6 inches between the plants. This will furnish a supply for use next spring, for although there is only a period of eight or ten days between this sowing and the last, this one will yield but very little before spring. To keep up a regular supply in summer,

sow the round Spinach on a warm sheltered border and between lines of early Peas, &c., once a fortnight from February to May, and for the next six weeks after that on the coldest and dampest part of the garden; and if a north aspect can be provided, so much the better.

In March, New Zealand Spinach should be sown in heat; pot off, and encourage the growth of a few plants till about the middle of April; a very few plants will produce an enormous quantity of leaves if turned out on a slight hotbed, as is done with ridge Cucumbers, and let hand-glasses be placed over them until strongly started and well established. The hotter and drier the weather, the stronger will this Spinach grow, a circumstance quite at variance with the winter and summer varieties, which "bolt" or start to seed at an early stage in hot weather and in warm situations, particularly on light or poor soils, or when under shallow culture. Another substitute for Spinach in summer is the foliage of the Silesian White Beet, a row or two of which will produce a quantity of fine clean healthy leaves in the heat of summer. In autumn the silvery clean white stalks of this famous Beet make a very good substitute for Seakale; they are served at table in the same way, and make a capital wholesome dish. W. B.

Watering and mulching.—Waterings, effectual, but not frequent, and stirring the surface or mulching immediately afterwards, form the secret of success in droughty seasons like the present. Mulching in itself has a wonderful effect on nearly all kinds of vegetable crops, and notably on Peas, all the Cabbage tribe, Celery, and Potatoes. The handiest material for such purposes is short Grass, which is always plentiful. A good mulching of this between the Potato rows, instead of earthing them up, increases the weight of the crop largely, but it is a disadvantage in wet seasons. Raspberries luxuriate under a thick mulching of Grass, which is worth a heavy dressing of manure to such moisture-loving plants. Strawberries are equally benefited by the same treatment, and the mulching should be done early in the spring in their case. On Apples, Pears, Gooseberries, and Currants, in shallow warm soils, a top-dressing of any loose material seems to work little less than a miracle. Indeed, such a practice is commendable under almost any circumstances, and at all times saves an immense amount of labour entailed by continuous watering.—J.

Earthing up Celery.—Although I know that it is the usual practice in Celery culture to repeatedly earth it up while growing, I certainly do not think it necessary to earth it up when it is growing rapidly; more than that, I think it is bad practice. A little sprinkling of earth, pushed down after a heavy watering to prevent evaporation, is all we should give during the growing season, and we know it to be a fact that some of those who grow the finest Celery in the country do not earth until full growth is attained. Indeed, some of them do not earth at all, but effect the blanching by other means. That some old professionals of fifty years' experience, and many other persons, pursue quite a different course, I am well aware; yet one would think that a single hint would suffice to point out that it is difficult to give abundant waterings to Celery, and impossible for it to benefit by the natural rains, if we pile a sharply-sloping bank of firm earth close along each line long before the plants have attained maturity or vigour. And no plant is more benefited by profuse waterings than this, naturally an inhabitant of very wet places. The repeated earthings which Celery receives in the majority of gardens are not only harmful to the Celery, but the cause of a great waste of time and labour.—R. T.

Cabbage and other vegetables.—The recent heat and drought, if so short a spell of unusually fine harvest weather merits such terms, has done much good in checking the too luxuriant growth of the Brassica family, and in so doing, assisting to render the plants firmer and more capable later of enduring hard weather. That there will be an abundant supply of all kinds of greens, inclusive of Turnips, is evident, and whilst these things will assuredly be cheap, still it would be a misfortune were hard weather to find them gross and full of soft pithy growth. Some little check, even though of but a week's duration, must be productive of good, because with rain and colder weather growth will be resumed, but now more in the direction of hearting than of producing excessive outside leafage. Rarely have extensive breadths of plants of all kinds been got out with more facility than this season, and rarely has better growth been made. Wireworm, grub, and club so far seem to have given little trouble, but any considerable spell of dry weather now might conduce to the promotion of these pests. Whilst flagging very much during the day, the foliage has found in long nights and heavy dews ample time for recovery. In spite of a late season, Autumn Giant Cauliflowers and Brussels Sprouts, of course, on early planted breadths are already turning in, thus lengthening the season, as, of course, in such case the turn in is gradual. Owing to the preceding showers and probable absence of the fly, Turnip breadths are very promising. Late sowings are receiving some check, but a gentle pressure by wooden rollers is productive of good, and if the young plants can be pulled through the drought, they will make rapid growth when the autumn rains come, and a plentiful stock of late bulbs will result. So far there is promise of plenty of marketable winter vegetables.—A. D.

Potatoes at Shrewsbury.—At the excellent show recently held at this town Potatoes were unusually plentiful, and the majority of them above average merit. Indeed, it would be difficult to find an exhibition of Potatoes to equal those shown here, and the Potato crop in Shropshire this year is evidently a fine one. The largest class was that for six dishes, and the gardener at Berwick House, Shrewsbury, showed the finest. He had Cosmopolitan, Surprise, Beauty of Hebron, Blanchard, Vicar of Laleham, and Reading Russet with splendid produce. I noticed that Sutton's Seedling was very extensively shown here in fine condition. I observed that International and one or two others of inferior table properties were not so extensively shown as usual; but the Dean, a rough, dark-coloured variety, Village Blacksmith, and Mr. Bresse, were conspicuous.—Cambrian.

Potatoes on trenched ground.—It has been said that the value of deep digging is never so apparent in the case of Potatoes as in that of other vegetables, but I am convinced that Potatoes feel the benefit of deep culture to a greater extent than is commonly supposed. A year or two ago we planted some on a piece of ground, a portion of which had been trenched 3 feet deep, the remainder having been dug in the ordinary manner. As they were planted so that the half of each row was on the trenched ground, it was easy to see the difference in the growth of the plants, and to compare the yield in tubers at digging time. During the growing period it was easy to see that the plants on the trenched ground were growing more vigorously than the others, and they gave a much greater weight of tubers. I should, however, mention that the soil is sandy loam, which quickly dries in summer, and I feel sure that in such land there is no crop that is not benefited by deep culture. In heavy moisture-holding soils, 6 inches of well-worked earth may be enough, but that is not sufficient for anything in those of a porous character.—J. C. B.

Rhubarb in summer.—Some years ago I accidentally discovered that Rhubarb may be had just as good late in the summer and in autumn as in spring. It happened that a plantation of it having been disturbed, some roots were left lying about on the top of the ground for a month or two. As everyone knows, Rhubarb has exceptional vital power, and this rough treatment did not kill the roots, which eventually were cut up into moderate-sized pieces and planted in good ground. I am not sure as to the exact time at which the planting was done, but it was early in summer. The plants grew well, and in August, as they seemed so fresh and succulent, it occurred to us to cook some of the stalks, and they were found to be fully as tender and juicy as spring-grown ones, with the difference that they had a finer flavour. This is not to be wondered at, seeing that a certain amount of maturity is necessary to develop flavour in a fruit and a vegetable, and Rhubarb is generally consumed in spring in a very immature condition. When bush fruits are over there comes a dearth of fruit, and where much of this is required in late summer, Rhubarb might be profitably used. By the ordinary system of culture, however, Rhubarb is not eatable late in the season, as the stalks produced by plants which have been growing from early spring are tough and flavourless. Some roots should be set aside expressly for a late supply, planting them in rich soil about the latter end of May. These will be in free growth by August, and will furnish good, tender stalks up to October. From the time that bush fruits are over till Apples come in, Rhubarb grown in this way would prove of great service.—J. C. B.

Garden Flora.

PLATE 560

THE ST. JOHN'S-WORTS.

(WITH A COLOURED FIGURE OF H. OBLONGIFOLIUM (HOOKERIANUM).*)

The genus Hypericum is found represented in all temperate climates, and some of the species have a very wide geographical distribution. Hooker estimates the number to be about 160, and of these eleven are to be found in the British Isles, exclusive of the large-flowered Tutsan (H. calycinum), a plant of South-eastern Europe, which is naturalised in many spots, and for considerable distances along the banks of some of the southern railways forms a beautiful dense carpet of dark green, studded in summer and autumn with numberless large handsome flowers. All the Hypericums have yellow blossoms, but, in spite of that, there is a rather large series of shades, varying from pale creamy yellow to a rich golden colour.

H. oblongifolium, the subject of the accompanying plate, was introduced to this country previous to 1856 by Messrs. Veitch through their collector, Thomas Lobb. Were it a little hardier it could certainly claim to be one of the finest of ornamental flowering shrubs. As it is, its value is somewhat discounted by the fact that—except in favoured situations—it is apt to suffer severely during bad winters. The compact habit, the evergreen foliage, the contrasts afforded by the red branches, the glossy dark green leaves, and the golden yellow flowers, however, render it a desirable plant to grow in any garden, and as cuttings strike readily it is always worth while to insert a few in a cold frame so as to guard against the emergency of losing the species. Old plants sometimes attain a height of 6 feet or 8 feet. The species is a native of the Himalayan region, and ranges in altitude from 8000 feet to to 12,000 feet above sea level in Sikkim to from 4000 feet to 6000 feet in the Khasia Mountains. The correct name is H. Hookerianum, and the plant is very nearly allied to H. triflorum already figured in the twenty-third volume of The Garden.

Among the best of the other shrubby species are H. patulum (a native of Formosa and Japan, also distributed throughout temperate Himalaya), which is a lower-growing, more rigid bush, with smaller flowers. The North American H. Kalmianum and H. prolificum are perfectly hardy and resemble each other in habit; the former has glaucous leaves and flowers about an inch in diameter. H. aureum, a somewhat rare plant, sent to this country a few years ago by Professor C. S. Sargent, of the Harvard Arboretum, is a

* Drawn by Mrs. Duffield in Mr. G. F. Wilson's garden, Oakwood, Wisley, August 20, 1886.

HYPERICUM DELONGIFOLIUM

native of the Southern United States, was first discovered by Bartram, who describes his finding it in his very interesting book of travels. H. empetrifolium and H. Coris are handsome little shrubs, well worthy of a sheltered spot in the

Hypericum patulum.

rockery; both have small Heath-like foliage and are natives of southern Europe. Cuttings of these two should be grown annually in a cold frame. The discovery of H. orientale, a pale yellow-flowered species, which, like the two last-named, is apt to disappear in the open border during inclement winters, is quaintly described by Tournefort in his "Voyage into the Levant," a perfect storehouse of valuable and original information.

H. reptans is a beautiful and graceful trailer, with small leaves and wiry prostrate-rooting branches, each of which bears a single flower at

Hypericum reptans.

its tip. In proportion to the size of the foliage the flower is very large, as it reaches 1¼ inches in diameter. This is best seen when grown between the chinks of the rockery and allowed to carpet a rapidly sloping or perpendicular surface. It is a native of temperate Sikkim Himalaya, at elevations of from 9000 feet to 11,000 feet above sea level. G.

The Cornflower.—"A. D.'s" remarks bearing on the identification of the Cornflower are interesting. There can be no doubt, however, as to which plant is intended, so much evidence being forthcoming attaching the name to Centaurea Cyanus. This species of Centaurea is, or has been, named variously Blue-blow, Blue-bottle, Hurt-sickle, &c. We find on turning to its mythology, its specific name was derived from Cyanus, a youth devoted to Corn and Cornflowers, who was so partial to this flower as to dress himself in the same blue colour he so delighted in, and amidst masses of which he

Hypericum empetrifolium

was eventually found dead, and subsequently transformed into one of them. Mythological data may not be worth much to establish a fact upon; nevertheless it seems imperative that we follow it in this instance. Old Gerard gives Cyanus as the generic name of the Order, and this species as Cyanus vulgaris. Chrysanthemum segetum has invariably been known as the Corn Marigold, having, as is well known, some resemblance to the latter class of plants. It is well to observe, however, old authorities, including Gerard, give it also the pseudonym "Cornflour;" this in itself qualifies the reasonableness of "A. D.'s" suggestion. Furthermore, both plants are to be met with in Cornfields, the Centaurea being, however, far the most generally distributed, this latter fact going far to affirm its right to the name. When it is observed how beautiful Chrysanthemum segetum really is both as regards form and colour, in its normal or weed state, it is not difficult to imagine how capable it might be of improvement, even as a garden flower.—W. Earley.

WORK DONE IN WEEK ENDING AUG. 31.

August 24 to 31.

The intense heat has quite parched up all ground that is not mulched or covered with a growing crop, and there being no signs of rain, artificial watering goes on from morn to night in somewhat the following order: Indoor, fruit borders; outside, Peach, Pear, and Apricot borders, flower-beds and turf, and, lastly, vegetables; but in respect of the latter, by deep cultivation, combined with the mulchings we give whenever practicable, the necessity to water is reduced to the lowest point; at present, however, there is plenty of it to be done, as Celery and late sowings of Peas and French Beans must have it to keep them in good growth. Of kitchen garden work, besides watering, digging Potatoes is about all we can attempt till we are favoured by rain, and these we are harvesting as fast as possible; the crops are good, and but slightly tainted with the disease. These, I need scarcely say, are every one discarded, as the tubers are collected for housing in a cool, dry cellar, on the floor of which we spread a thin layer of straw, on which the Potatoes are spread as thinly as space admits of, that they may the more readily be examined to pick out any diseased tubers, for not unfrequently the disease spreads after having been housed ever so carefully. Except Magnum Bonum, Chiswick Favourite, and Stanwell, all our kinds are fit to house, and these kinds we shall get in a week hence, as by then they will be quite ripe, unless rain falls in the meantime, in which case they will be left to take their chance, which would not be worth much, as they will either make a second growth, to the deterioration in quality of the tubers already formed, or they will get badly diseased. Wall fruits—Peaches, Nectarines, and Plums—having had good supplies of water are ripening up their crops well; on Early Albert, Early Grosse Mignonne, and Bellegarde there are many ripe fruits, and so there is on Lord Napier and Downton Nectarine, Jefferson's, Kirke's, Transparent Gage, and Pond's Seedling. Plums are all ripe, and of extra fine quality. As yet wasps trouble us very little, but they have sent out their scouts, which has put us on the alert as to preparing and fixing protective netting over all first-class fruits that are not already fit to gather. The wood of Peaches and Nectarines is being thinned out as the fruit is cleared; very little wood other than what is needed for next year's fruiting is left in the trees, a plan that gives the wood a better chance of ripening, and at the same time the winter pruning required is of the smallest description. Apricots and Plums we fruit more on the spur system, and new breaks or growths from such spurs from this time onwards we keep constantly pinched back. Of course, long shoots are occasionally left to be laid in, either to fully furnish the wall, or may be to take the place of an old branch on which the spurs may have got too long. Strawberry plots have all been cleaned and freed of runners, and now only await a favourable opportunity to give them a fresh coating of well-decayed manure. New plots in place of those destroyed are not yet finished planting, as we prefer to keep the plants in pots rather than to plant under such unfavourable weather conditions of heat and drought as prevail at present. Flower garden work can be summed up in a very few words—it is simply watering, picking off seeding and bad flowers, and keeping the edgings and lawn in neat condition. We are making progress with the propagation of Pelargoniums and other bedding plants that are usually propagated in quantity at this season, and hotbed frames are being prepared for striking cuttings of the tender kinds, such as Coleus, Iresine, and Alternanthera. Roses want a good deal of attention in the direction of keeping them free of decaying flowers, Brier suckers, mulching, and watering. We have a grand second bloom on a number of plants of that fine old variety Souvenir de la Malmaison, the au-

tumn flowers of which are always more perfect than the earlier blossoms. All the Tea varieties, having been well watered, are also unusually full of flower; we water and syringe them whenever time can be spared for the work, and well they have repaid our labour. Indoor work is now mainly prospective, such as keeping all laterals in late vineries within reasonable limits, that the sun may reach and aid ripening of fruit, wood, and buds. Late Fig and Peach houses the same; and with our first batch of Queen Pines it is the same, for, having completed their growth, a drier state of the soil and atmosphere will now be aimed at. The process, however, will be very gradual, as we have no faith in roasting plants of any description to get them to fruit. Planted out winter Cucumbers and another lot of Melons; the latter may do, though the odds are against them, the season being too late. However, we have the space, and the trial will cost nothing but our labour, and an over-high estimate is not at all times placed on that. Disbudding Chrysanthemums, tying up and watering them is at present rather a serious addition to our daily labours. Hants.

HARDY FRUITS.

Apricots.

When all the fruit has been gathered, the trees should be well washed with the hose to feed and refresh the foliage; more light, non-conducting mulching may also be laid over the roots, not so much to feed them as to prevent the escape of moisture. The fine rains we had early in August greatly assisted the fruit, but the trees now require more and must have it, not in dribblets, but thorough drenchings that will penetrate to the lowest roots and through the drainage. It is generally admitted by experienced hardy fruit growers that Apricots require and are capable of carrying off more water than any other tree, and many are of opinion that bud dropping in the spring is due to dryness at the roots through the autumn and winter months. If this theory which I endorse be correct, why not go a step further, and lay the sudden collapse of the branches of Moorpark as well as the dropping of flower buds to the same cause? But why allow the roots of any wall tree to become dry, as the best regulated fruit gardens are now well supplied with water, and in many of them thousands of gallons of this life-giving and life-saving element can be administered through the hose? If nailing in has been neglected, let all shoots be closely laid in without delay, and persistently pinch or prune back breastwood to let in light and air.

Peaches.

The crop of fruit as a rule is all that can be desired, and never in my recollection were the trees so clean and densely clothed with perfect foliage. The wood, moreover, is short-jointed, and looks promising for another year. Although at one time we were almost inclined to wish for more sun and less rain, the fruit lately has made good progress, and will be plentiful before the crop in late houses has passed away. This being the position, and having the ball in our own hands, all we have to look to is its retention by treating the roots of Peaches as we treat Apricots, and wash the foliage with pure water on fine evenings until the different varieties begin to soften for ripening. If any of the trees persist in making wood, all strong shoots, which will have performed their office when the fruit is gathered, must be pinched to increase its size and prevent crowding, but leaders must be kept closely secured to the walls. As this work is proceeded with an eye must be kept on ties and nails, as it is at this season that the main shoots thicken rapidly, and many cases of gumming when the leaves fall can be traced to tight ligatures and nails. Immunity from insects, be the cause what it may, does not affect the gluttonous wasp, for this pest, which is so small and active, is always alive to the luscious opportunity. War to the knife is the watchword; nests must be sought, no small matter in hilly and wooded districts, and late at night when the major part have reached their home the composing draught of gas tar or paraffin must be administered. A small quantity poured in and made air-tight with a piece of turf is all that is needed, but there must be no digging out or after disturbance, otherwise a remnant will rally and return. When wasps are very troublesome and attack the best fruit before it is ripe or wanted for use, the most effectual and, in the end, the cheapest course is protection with fly-proof netting. I always use Haythorn's hexagon netting, just deep enough to descend from the coping to flat pieces of timber or floor boards set up edgewise about 3 feet from the foot of the wall. A few slating laths reared perpendicularly prevent it from bagging, and entrances are provided at each end, and the whole length can be traversed at pleasure without letting in a single fly or wasp. My netting, stored away as soon as the Peaches or insects are disposed of, has paid for itself over and over again, and will still last for a number of years.

Varieties of Peaches.—Many paragraphs on extra early varieties having recently been published, the following notes from this district may be of use to growers who do not happen to have late houses to lead up to walls. Amsden Pine and Alexander, two highly coloured varieties, last year ripened on a south wall about the 20th of July, but the quality of the fruit, owing to the intense heat, was not quite up to the mark—in fact, the flesh was inclined to be adhesive. These in October were removed to a west aspect, and this season ripened finer fruit of better quality; the first on the 30th of July, the second five or six days later. Hale's Early comes next, and Condor, a highly coloured and good flavoured variety, is now (August 20) dead ripe on a south aspect. Early Grosse Mignonne and A Bec, greatly superior to the preceding, are now forward enough for gathering; not so for eating; and Dr. Hogg, an excellent Peach, follows close upon them. Amongst Nectarines, Advance is an advance on Lord Napier in point of earliness, and the quality is excellent. The last named, however, is a host in itself, and should be planted against west as well as south walls, where it will lead up to Stanwick Elruge, one of the finest and best Nectarines grown.

Apples.

Although at one time late and unpromising, all kinds have made amazing progress since the heavy rain which fell in July. The crops, too, in gardens and well managed orchards are, in many instances, heavier than they should be. We have already gathered Red Astrachan and Irish Peach; King Pippin is ready, and Worcester Pearmain must be closely watched, as wind or rain will cause many of the finest fruits to drop. Red Quarrenden is carrying immense crops in orchards, but Worcester Pearmain with us has superseded it in every respect. Our best cropped early culinary Apples are Stirling Castle, Keswick Codlin, Lord Suffield, Lord Grosvenor, Echlinville, Hawthornden, and Warner's King. These have required much thinning and the fine clear fruit will pay for it. Stone's Apple, Lady Henniker, and Peasgood's Nonsuch I have planted and trained as cordons wherever a few square feet of wall, no matter what the aspect, required filling up. Peasgood's, a strong grower of the Blenheim type, is worthy of extension, and it merits it, for the large, handsome, heavily bloomed fruits are marvels of beauty, and their quality is equal to their appearance.

Gathering fruit.—Early kinds of Pears and Apples should be gathered as soon as the first signs of changing are visible. Many varieties will ripen upon the trees, but their good qualities are so fleeting and fermentation sets in so quickly, that it becomes a question whether they should not be gathered very early, and have a place in a cool, airy fruit room where the temperature will not fluctuate. Early morning, as soon as the fruit is dry, is the best time to gather, and the greatest care should be observed in detaching and conveying it to the shelves. Peaches and Nectarines for home use may be allowed to soften on the sunny side, but not quite down to the stalk, otherwise they will lose their sprightly flavour before they are taken for use; whilst the slightest pressure with the fingers will produce bruises which will be followed by fermentation and decay. For packing and travelling they cannot be too hard to please the fruiterer, always provided they have size and colour. Whether the consumer of those fruits ever tastes a Peach at its best is not for me to determine. One thing, however, is certain; the grower must pluck early if his fruit is to find favour with the dealer.

Root-pruning.—As soon as the fruit is off, any ordinary trees which require a check to arrest and consolidate growth may be taken in hand, not upon the old system of cutting off all the roots and styling it root-pruning, but by clearing off a quantity of the mulching to let in sun heat, and perhaps by digging out a trench barely without the external radius of the roots, and leaving it open for days or weeks to dry and warm the ball. This plan, it is hardly necessary to say, does not apply to fruit trees which have never been neglected, as these can be taken in hand and finished off in a few hours at any time after the end of August. When trees of mature age get wrong, it is generally found that a few strong roots have penetrated the subsoil, and persist in forcing up crude sap quite late in the autumn. The remedy in this case requires two seasons for its completion. If the trees are espaliers, a trench may be taken out the whole length and depth of the border, when, having severed all the strongest roots, especially those which descend, and raised them where practicable, the trench may be filled in with the best of the old and a little new loam. Full leaf is the proper stage for this work, as young roots will soon form, when the other side may be treated precisely the same the following autumn. I now have in my mind six old trees of Marie Louise which were treated in this way four years ago. Previously they had not borne a dozen clean fruits each for several years; now they are loaded with handsome russetty Pears, whose very appearance betokens flavour. The same system applies also to standards and pyramids which have been neglected in their youth, the completion of the circular trench being allowed to extend over two seasons. The second or third year after planting is, however, the proper time to raise and lay the roots in a horizontal position, as we find this attention induces a fruitful condition, thus rendering further disturbance unnecessary.

Planting follows close on the heels of root-pruning, and requires equal forethought and care. If for this purpose trees have to be bought in from the nursery, now is the time while they are in full leaf to select and mark them for removal. The largest and strongest, it must be borne in mind, are not always the best, as they generally suffer after removal, when the private grower loses more than the nurseryman gains by neglected transplanting. The most valuable trees are those which, by their moderate growth of short-jointed shoots and well-formed spurs, show that root-pruning has received proper attention. Buying in for direct planting is sometimes absolutely necessary, but the cheapest and safest practice is the maintenance of a home nursery in which younger trees can be planted and grown on to one's own liking. The nurseryman's everlasting "cut-back" with a piece of dead wood buried in its centre can then be avoided, and annual lifting will fit them for transplanting before the leaves fall.

Figs

on open walls, so severely tried last winter, have made excellent growth, and promise well for another year. Although, as I predicted, the crop of fruit in ordinary situations is light, the old Brunswick is now swelling up a few fine Figs, and the young shoots are thickly set with embryo fruits, which it must be our endeavour to keep below the size of Peas by close training and full exposure to the ripening influence of dry sun-heat and fresh air. In good Fig seasons it is necessary

to mulch and water. This year, having so little to ripen, barren or partially barren trees will pay best for being kept dry throughout the autumn and winter. This withholding of water as a rule produces the desired effect on roots and shoots, but should any of the trees persist in elongating their growths, the sooner they are root-pruned the better.

Strawberries.

Young plants put out in August must be regularly attended to, both with mulching and water; the first to prevent the ground from cracking, as generally happens after ramming at the time of planting; the second, to encourage a good root-hold before winter. Newly-made beds do not require gross mulching, as the fresh loam alone will produce a vigorous growth, but they require some loose manure for keeping in moisture, than which there is nothing better than an old Mushroom bed spread rather thickly round the collars of the plants. If weeds spring up they must be kept down with the Dutch hoe, and strong runners may be taken off, but unless the crowns are likely to be strong enough to flower well next year, a few runners will do no harm, as root action is always in proportion to the rate at which runners are produced. New plantations may still be made, but unless the plants are very strong and well rooted in pots or sods and the ground is in excellent order, nothing will be gained over keeping them in nursery beds and planting out early in the spring. To this end a good quantity of runners of all the leading kinds should be pricked out in beds or along the sides of walks, not too far from the hydrants, both for transplanting in April and for giving early runners for forcing. Some growers lift and pot these young plants in June, but they are apt to lose their old leaves and become leggy and do not make such pleasing-looking stock as the next generation. Strawberries, however, unlike many other plants, submit to and produce fruit under almost all sorts of treatment, always provided their food is good, and they are not allowed to get below par through lack of stimulants. W. Coleman.

NOTES.

White Everlasting Pea.—As seen at its best, firmly established in deep rich soil, there are but few other hardy herbaceous plants that can rival this white-blossomed Pea. Of course, Anemone japonica alba stands alone—the Venus de Milo of garden flowers, as someone has said in these pages—but even that plant is not so graceful in habit as is this Lathyrus as seen climbing up a fence or other suitable support, or even as grown in a bed on the lawn without any support whatever. I saw a most lovely group of white flowers in a well planted herbaceous border the other day. Anemone japonica alba and Galtonia (Hyacinthus) candicans were boldly grouped together on a carpet of Campanula Hosti alba. All were in flower together, but even when out of flower the leafage of these plants would form a pleasing variety of tint and of form. I thought at the time that a good mass of this white Everlasting Pea towering up above everything would have been an improvement. It is a plant which requires time to become established, after which it forms a picture every year. Now and then it comes true from seed, but division in spring is a more certain method of increasing one's stock.

Flowers of autumn.—Heavily hangs the tall Sunflower, and the uprising Torch Lilies and Dahlias, Hollyhocks, and early-blooming Chrysanthemums bespeak for us the time of harvest once again, and tell us of the hot sunny days followed by the thick white night mists of September. There are white Japan Anemones and scarlet Gladioli everywhere. The Wistaria again yields us a few of its purple clusters, and its leaves are of all the varying shades between deep green and pale gold. The tall Aconite of autumn and the perennial Sunflowers wave in the warm breeze. The Tigridias, scarlet or yellow and white, flutter their petals every morning like gorgeous butterflies, and there is a golden glow over everything in the garden after the showers of yesterday. The first clean fresh Colchicum flowers opened their pink buds to-day, and displayed their daintily chequered petals as if spring were here again. Now is the time to plant bulbs of nearly all kinds for next year's blooming. The ground is so warm that Crocus, Narcissus, and Squills planted now root immediately, and gain strength to resist the cold of winter and to bear their beautiful flowers in spring. The robin has commenced its autumn song, and the fairy spider spreads out its lace veil on the hedges to dry every morning. It is the time of fruit and of ripening corn, and the bees hum among the Heather on the hillside, or they make their drowsy music among the garden flowers.

Herbaceous Phloxes.—Just at this time of the year these plants are a great ornament to the herbaceous borders, and to my mind the best varieties by far are the pure whites, or those which are white with a pink centre or eye-like spot. There are a whole host of forms of a rosy purple, lake, or magenta shade, and a few of these placed in a border along with Tritomas or other orange-red flowers are very jarring discords in our rainbow music, and one's teeth are set on edge by the sight of them. Some say they like them; but then they have no eye for colour, and persist in mixing blue-reds with orange-reds in their borders and bouquets year after year. Good pure white Phloxes are very valuable, and the drawback is that we have so few of them of really good quality. I must ask my friend Mr. Douglas to raise us a few good white kinds, of which, indeed, we can scarcely have too many, and if he would also try and raise for us a pure white Gladiolus as free and as hardy as G. brenchleyensis, it will be as heartily welcomed and far more largely grown than any hybrid Orchid yet obtained. My experience with herbaceous Phloxes is that they like being divided and replanted in spring every second year at the latest.

Autumn-flowering Cyclamens.—Here and there in the Grass and nestling under the shelter of the rockery stones, these old-fashioned garden flowers are peeping once again. I saw a broad leafy patch of them around the base of an Irish Yew yesterday, and they were lovely, forming a carpet of marbled leafage and pink, peach, or pure white flowers. They show better as seen in good breadths or masses, and seeing that they are cheap if bought by the thousand, as dug up in Austria or the Tyrol, there need be no obstacle to their becoming plentiful in all good gardens. I know of an old garden in which I am always a welcome visitor, and to which I rarely miss an enjoyable pilgrimage when the mellow Peach Apples hang ripe and rosy on every bough. It is only an old cottage garden with old crumbling walls all around, but they fortify from wind or harm many a lovely blossom. Just now the long lines of rosy lilac, and of pure white autumnal Cyclamen are a sight alike for gods and men; and no pen and ink could tell a tithe of their beauty. Here and there their corms, plump and brown and as big as tea-saucers, are quite bare of earth, but hidden now by the shelter of hundreds upon hundreds of flowers. Even if they never flowered, their marbled leafage alone would be worth the having in all good gardens.

Gladiolus brenchleyensis.—A big bed of glaucous-leaved Yuccas on a carpet of sweet white Viola was planted thickly in March last with this old scarlet Gladiolus, and the sight it now affords is an effective one. This variety is a favourite of mine, and is one of the best of all the really hardy Corn Flags in our soil and climate. What is the history of this flower? Someone told me it was a hybrid or seedling raised by the late Mr. Hooker, a nurseryman at Brenchley, in Kent, years and years ago. Be this as it may, it is effective either in the borders or as cut and arranged indoors in pots or vases. The spikes should be cut as soon as the lowermost bud expands, and as so cut dozens of spikes may be packed for post or other means of transit in a small space, and they then travel without injury. A dozen spikes in an old copper Venetian bucket are now very pretty with their own leaves, and yesterday I saw a few spikes contrasted with the soft blue tint of the Shore Grass (Elymus arenarius), and the effect was a pleasing one, heightened by the vessel which contained them being a bit of Japanese bronze quite dark in tone. Late in the season, but quite early enough to plant for autumnal flowering, the bulbs cost from 15s. to 20s. per thousand, and it is worth growing in quantity for contrasting with Lilium auratum, white Japan Anemone, or the graceful Galtonia candicans.

Grevillea Manglesi.—A very gracefully habited plant far too rarely seen, although as a pillar plant in a cool conservatory it has many charms. A friend of mine who saw the splendid specimen at Glasnevin years ago called it the Weeping Beauty, a name quite perfect in its way if considered in the same sense as the Weeping Willow of Napoleonic fame. Young plants may now and then be obtained at the nurseries, these, as a rule, being engrafted on stocks of G. robusta, and these if planted out in a conservatory or greenhouse soon grow up to the roof, their slender branchlets depending on all sides to the ground. In the springtime each shoot is tipped by a feathery little cluster of white flowers—flowers of the smallest, it is true, but the clusters have quite a pretty lace-like effect as seen amongst the soft glaucous trifoliate leaves. The slender branchlets are as useful as Ferns for cutting, and have the advantage of enduring fresh and fair for a much longer time than do Ferns when cut and placed in water indoors. Now and then it produces pods of seed from which plants are readily raised, but practically the best and quickest mode of propagation is to graft its young shoots on seedling plants of G. robusta as a stock.

Hæmanthus coccineus.—The Blood flowers have been rather neglected in our gardens of late years, although some of the species are very showy, and, unlike Cape bulbs generally, they are easy to grow. H. coccineus is very showy every spring, and at the present moment H. puniceus is bearing its vermilion brush-like clusters of flowers among the young green leaves. H. albiflos has white clusters not unlike the last named, and only the other day H. pubescens, another rather rare white-blossomed kind, came from a friend for naming. H. cinnabarinus is one of the best, and H. Kalbreyeri is another showy scarlet-flowered kind of recent introduction to our gardens. A warm greenhouse temperature suits them well, and, like most other bulbs, they are greatly strengthened by weak liquid manure during their season of growth. When the leaves die off they should be dried on a shelf in the sun until their flowers appear. Nerines do well under this treatment, for if the flower-spikes do not appear before the leaves shoot forth there is no hope for them. This year we have bloomed the rare Phædranassa chloracea by treating it on the plan as above recommended, and Urceolina pendula is most floriferous as grown in the same way.

Shrubby Hypericums.—The rare Javanese Hypericum triflorum survived the last winter in

the open air here, and is now in bloom. Its large, wax-like blooms, of a rich yellow colour, are very beautiful, and even in positions where it is not perfectly hardy it is worth being planted out in the border of a cool conservatory along with H. chinense (= H. monogynum, *Bot. Mag.*). Two of the best of all the really hardy shrubby St. John's-worts are H. oblongifolium and H. patulum. The last named was called H. Gumbletoni by the late M. Lavallée, and is just now quite covered with bright yellow flowers. A smaller form, H. nepalense, is also flowering freely; but perhaps the best, if only one kind is grown, is H. oblongifolium, which now bears its flowers so freely as to remind one of a little yellow Rose—say Rosa Harrisoni at its best. All the above are quite easily raised from cuttings slipped off now and inserted in wet sand in the open border, the whole being covered with a cap or bell-glass. So treated but few cuttings fail, and the young plants grow quite quickly after they are planted out in the spring. Cut sprays of H. oblongifolium go on opening their glossy buds for days after they are cut from the plants and placed in fresh water.

Yucca flaccida.—Now and then I meet with people who get tired of Yuccas, noble in habit as they mostly are, and they often ask me as to which is the best flowering kind. The only species known to me which can be thoroughly relied on to bloom year after year is Yucca flaccida, which is dwarf in habit, with narrow, flexible, glaucous leaves. It throws up a spire of white bells 3 feet or more in height, and is, when seen at its best, a noble plant for grouping on the Grass or for planting out permanently in either beds or borders. It is easily increased by dividing old clumps, and if the thick pieces of the fleshy root-stocks be saved and buried under a warm wall, they throw up young crowns quite freely. It is, or was, used in Battersea Park with good effect, and should become a general favourite wherever plants good in leafage as well as in blossom are appreciated at their true value. A good bold bed of this species on the Grass is now most beautiful in the Botanic Garden at Antwerp, and I saw some groups of it the other day contrasted with Clematis Jackmanni, the effect of the white spike rising from the rich purple Clematis flowers being a most beautiful one. Nearly all other kinds of Yucca are most uncertain as to their season of flowering in our climate, but this one is as beautiful as it is certain to bloom every year.

Acanthus latifolius.—All the kinds of Acanthus are noble foliaged plants, apart from their classical interest, but of all the kinds none to my mind equals this great dark-leaved kind when well and strongly grown. It always seems peculiarly happy nestling near great boulders, or at the foot of a rockery on the Grass, where its glossy leaves can spread themselves on all sides. In France, this kind and A. mollis are often grown in pots or tubs as room or balcony plants, and as so treated they succeed well and have a good effect. Once obtained, all the Acanthuses are very easily increased, since the smallest lengths of their fleshy roots produce buds and crowns if planted in warm light soils. In Holland these smooth-leaved kinds of Acanthus, along with the Japanese Aralias and that best of all room plants, the "Parlour Palm" (Aspidistra lurida), are often met with in windows and apartments in beautiful condition, their glossy green leaves hanging over the embossed brazen or copper bowls there generally used for holding pot plants in the house. Acanthus speciosus (perhaps a major form of A. spinosus) is just now throwing up its tall spikes of lilac flowers at the foot of a sunny wall where it thrives year after year. Its masses of deep green glossy leaves are just now very beautiful.

Tiny annuals.—Some of the small growing annuals are very pretty; none more so at this moment than the little tufted Violet Cress (Ionopsidium acaule), one of the most dainty little plants with which to carpet beds or borders of choice bulbs during the hot summer and autumn days. It may be sown at any time and is rarely out of bloom; often, indeed, it sows itself after it has once been introduced, and so lives on year after year without any attention. It is by no means particular as to soil or position. Another little annual eminently fitted for hot, dry soils or rockwork in full sunshine is Mesembryanthemum tricolor, which is of low and spreading habit, its star-like blossoms shining like floss silk, and varying in colour from white to deep rose. Now and then it is used in carpet bedding arrangements with good effect, but, like all its race, it is never so brilliant as in full sunshine. The brilliant little Linaria alpina grows quite freely on all soils if a little old mortar be dug in ere its seeds are sown. It is a choice little alpine with purplish blue flowers at the tip of its soft glaucous stems. A taller growing species of the richest tints of brown and golden orange is L. purpurea aurea reticulata, which may be sown anywhere over bulbs or tubers during early summer, as it is light in habit and a shallow rooting plant, not likely to do harm either by robbing the soil or by shading it too much from the sun.

Salvia patens.—Nothing in the garden just now can surpass this old-fashioned favourite as a bit of true blue of the richest and most effective kind. A good mass of it on a border amongst the uprising stems of a good white Phlox is now a sight worth seeing, and the other day I saw some well-grown plants of it in flower over a carpet of Heuchera Richardsoni, the lustrous brown leafage of which seemed to add a depth and richness to the Salvia flowers. There is a pure white form of this plant, but it is far less valuable as a garden plant, good white flowers being far more abundant than good deep blue ones. Salvia patens has long been an inmate of English gardens, its tuberous roots having been taken up every year and stored in sand or ashes in order to protect them from frost. Even now we have no deep rich blue flower that can rival it in colour, and so it is likely to remain in favour for a long time to come. The best way to plant it is to make a bold irregular group of it on the border where its flowers can be seen *en masse*, as isolated or dotted about it is too thin in habit to become really strikingly effective. Easily increased by cuttings in the spring.

Galium rubrum.—In habit this plant is not unlike a feathery kind of Asparagus, its flower-stems being purplish, covered with tiny claret-coloured flowers. It is perfectly hardy, and grows freely from seeds sown in the spring. As seen now in flower the plant looks like a soft purplish red mist on the ground. Its delicate sprays, if plucked, are almost of fairy-like tenuity, and may be associated with flowers in many pleasing ways. I first saw it, years ago, in the Cambridge Botanic Garden, and had plants of it from thence on one or two occasions, but I never succeeded with it until I reared plants in quantity from seeds sent to me with other good things by Director Regel, of St. Petersburg. Some of our native species are well worth culture, notably S. saxatile, which, if grown on a limestone rockery or on a wall-top niche in full sunshine, looks like a lace veil spread over the bricks or stones. Above all, however, I commend Galium rubrum as a pretty little species not generally known. I do not know if it has been figured in books, but it must have been a puzzle to whoever tried to show its slender habit and singular beauty if such is the case. Nothing but a most delicate etching could ever express its extreme fineness of growth. Veronica.

Trees and Shrubs.

Large Eastern Plane Trees.

It may be interesting to Sir John Ogilvy and others to know that there are at least a few examples of this beautiful tree to be seen of dimensions similar to that alluded to by Sir John at Charlton Park, Malmesbury (page 190). At Hawstead Place, near Bury St. Edmunds, at a short distance to the south-east of what must have been the front of the mansion, are three very fine old Oriental Plane trees. Nothing now remains of the mansion of Hawstead Place, which was visited by Queen Elizabeth in the year 1578, unless it be the moat which surrounded it and the proximity of these remarkable trees, which are alluded to in Cullum's "History of Hawstead," where it is stated that the largest of the three trees at 3 feet from the surface of the soil then measured 10 feet in circumference, and this is just 100 years ago. The same tree now measures 18 feet in circumference, and the three trees are now nearly upon equality as regards size.

According to Loudon, the Platanus orientalis was introduced to this country from the Levant about the year 1548, and it may be supposed that these trees, as well as that mentioned by Sir John Ogilvy, may have been planted soon after their introduction. In its native habitat this tree is said to attain to extraordinary dimensions as well as, like our English Oak, attaining to very great age, and, although perfectly hardy, grows most rapidly in somewhat sheltered situations. On account of its tolerance of smoke and other atmospheric impurities, it is admitted to be one of the best species of tree to plant in or near to populous towns. And when its great beauty as an ornamental tree is considered, it may almost be regretted that it has not been more extensively planted in parks and other suitable situations than is the case. P. Grieve.

Bury St. Edmunds.

White Jasmine.—A week or two since this old favourite was alluded to by "Veronica," who may be interested to hear of a hedge of it existing here of somewhat unusual size. It clothes a railing about 9 feet high for a distance of some 50 feet, is about a yard through, and is annually covered with myriads of starry blossoms. The main stems are very thick, some being as much as 7 inches in circumference, and are almost as rugged as the Cork Oak. This year the flowers have been exceptionally numerous and large in size. It is somewhat curious that the petals of the Jasmine vary between four and six, there being perhaps as many with five petals as those with six and four added together. — Greenwood Pim, *Monkstown, Co. Dublin.*

The Sycamore in the landscape.—There is no need to praise the common Sycamore as an ornamental tree. Everyone who pays the least attention to trees knows that there are fewer grander hardy trees than a fully developed Sycamore, and an extra fine tree is always a noticeable feature in the landscape. Its head being so massive, and its foliage of a darker green than that of most other deciduous trees, it stands out conspicuously from all others; hence it has always been a favourite ornamental tree, and that is the reason why it is common in the vicinity of mansions. One can always single out an old Sycamore in a plantation by the form of its head alone, which looks like a clouded mass of foliage arranged on branches, tier above tier, with dark recesses between them. The Sycamore produces the best effect when planted singly or in groups of three or four, placed sufficiently near each other to appear like one tree. It assumes two or three distinct

phases of beauty in the course of the year. In spring the new foliage is of a tender green colour, or tinged with red, and sometimes yellowish. In summer it is dull and heavy, while in autumn it suddenly changes to a bright golden colour. These constitute the chief points of beauty in the Sycamore. Its timber, too, is so much in demand now-a-days for a variety of uses, and fetches such a high price, that owners of fine trees cannot resist the temptation to cut them down. Being a rapid grower and not in the least fastidious as to soil or situation, no better tree could be planted in exposed places.—W. G.

THE DWARF MOUNTAIN PINE.

(PINUS PUMILIO.)

This Pine is a low, spreading, and usually stemless tree, found in alpine regions. It grows beyond the limits of trees on both the Alps and Carpathian Mountains, seldom at a lower elevation than 4000 feet, and perhaps but seldom exceeding 7500 feet. Its usual height is about 6 feet, although I have been informed that, under very favourable circumstances, it attains to two or three times that size, when it produces one or several, usually the latter, leading shoots that are hardly continuous, the bottom portion of the tree, however, still retaining its low, decumbent, semi-creeping habit of growth. The leaves, which are in pairs and thickly arranged on the branches, are fully 2 inches long, stiff and curved, and of a rather dull green. Cones ovoid or bluntly egg-shaped, produced sometimes singly, sometimes, and usually, two or three together, about 1¼ inches in length by three-fourths of an inch in diameter at the thickest part.

Pinus Pumilio: cone, scale and seed. Leaves and terminal bud all natural size.

As a covert plant for bare, rocky, high-lying districts this Pine is invaluable, and has been turned to good account in several outlandish parts of our country, and where, from the rocky character of the ground and scant supply of soil, few other plants could succeed. In ordinary mountain woodlands, where shelter for game, particularly the woodcock, is desired, nothing will succeed equal to the Pine in question, the low, spreading, evergreen branches being at all times a warm and pleasant resort for mountain life generally. When plantations are being formed at high elevations, it would be well if the owners of such could be induced to have the more rocky portions, where the ordinary run of forest trees will not succeed, or at least produce timber, planted here and there with clumps of this Pine, which would not only serve as shelter, but be valuable in preventing the naked appearance of uncovered patches in the woodlands. For this purpose small plants should always be used, as these are not only more readily placed *in situ*, but, owing to the generally scant supply of soil in such situations, these succeed much better than when larger-sized ones are used. Damp soil would seem to suit this Pine best, for its straggling nature is considerably increased when growing alongside mountain streams, or at the base of trickling rocks where an abundance of moisture is constantly supplied. This should, however, be no deterrent from planting it in drier soils, where its growth, although generally not equal to that in the damper soil, is sufficiently luxuriant to serve the purpose intended.

Penrhyn Castle, N. Wales. A. D. WEBSTER.

JAPANESE RETINOSPORAS.

I AM seeking information respecting the Retinosporas, their culture and varieties. Can you give a note respecting them in THE GARDEN?—E. PEWTRESS.

*** All the Retinosporas are natives of Japan, where some of them occur as large trees, sometimes 100 feet high. There are about half a dozen species in gardens, and these have produced several varieties. Those named R. obtusa and pisifera are the largest in growth, but of both dwarf compact specimens may be met with. The principal recognised variety of R. pisifera is that in which the foliage is golden, but of R. obtusa there are several varieties. Amongst the best are aurea and gracilis aurea, compacta, and pygmæa. R. plumosa is of rather dense habit, with delicate feathery branchlets. In colour it is a bluish shade of green. Of it there is a variety (alba picta) in which some of the shoots are marked with white, and two others, argentea and aurea, in which the young growth is suffused with white and gold respectively. R. squarrosa is a pretty low tree or bush, noteworthy on account of the beautiful silvery hue of the foliage, which makes it distinct from the rest. R. filicoides is a good deal in the way of obtusa, but the branchlets are unusually short and stout, and the colour a very deep green. R. lycopodioides is of loose, irregular growth, with branchlets curiously flattened at the tips. It seems to be more particular as to its requirements than the rest, as it frequently fails to grow satisfactorily. R. leptoclada is a densely pyramidal plant of slow growth, with cheerful greyish green foliage. It is well suited for cultivation in pots or for winter bedding, as it will not outgrow its bounds. R. filifera when 6 feet or 8 feet high forms a handsome specimen for lawns of limited extent. When larger, its growth is, as a rule, more irregular in character. When young it is a somewhat globular bushy plant, but as it increases in size it acquires a tree-like character. What makes this Retinospora different from all others is the long pendulous thread-like branchlets, often terminated by tufts of little shoots. R. ericoides is a dense, upright shrub, seldom more than a yard high, with long pointed leaves, green during the summer, but changing to a purplish brown in autumn, a colour which it retains throughout the winter. R. tetragona aurea is a little dwarf plant, with spreading branches and bright golden-coloured leaves. It is very desirable for planting on rockwork. For small gardens these Retinosporas are particularly valuable, as they are so elegant, and so neat in growth, and being slow growers, there is no fear lest they should outgrow their allotted space. They are specially adapted for rockeries, as they are all quite hardy in this country, and require no attention when once well planted in good soil in open spots. If by chance they do outgrow their bounds, they can be reduced by means of the knife without destroying their beauty, as, if cut back, they all again break freely into growth. They are among the easiest classes of Conifers to strike from cuttings, the quickest to root being R. ericoides and R. squarrosa, the two that bear only juvenile foliage; then come R. pisifera, plumosa, leptoclada, squarrosa, and filifera; while the slowest rooting, but still by no means difficult, are R. obtusa, filicoides, and lycopodioides. If you wish for further information, we will endeavour to help you.—ED.

Spiræa Lindleyana.—Lindley's Himalayan Spiræa is, during July, a most beautiful object in a shrubbery. Its large Fern-like leaves, retaining a refreshing green throughout the summer months, added to which the long, elegant spikes of small white flowers, render it exceptionally beautiful at this particular season. A specimen I have here in bloom at this date (July 12 to 29) surrounded with a dense margin of St. John's-wort (Hypericum calycinum), also in full flower, has a very pleasing effect. My partiality for it has caused me to plant it amongst wall Pyracanthas, the sombre foliage of which, now that the flowers are past and the berries green, being greatly enlivened by contrast. Spiræa Lindleyana is a deciduous shrub, and requires free culture in good soil to render it attractive.—W. EARLEY.

THE IRISH JUNIPER.

(JUNIPERUS HIBERNICA.)

As everyone is probably aware, this Juniper originated in Ireland, most probably from seed, and on account of its singular habit of growing in a slender, compact column it has proved to be a most useful evergreen tree for utilising in Italian and other geometrical gardens, where stiff and formal looking plants are needed to please the tastes of those who cultivate this style of gardening. This Juniper is not only strikingly distinct in form, but its foliage also affords a decided contrast in colour to that of most other Evergreens, being a mixture of light green and silver glaucous hues. It is effective when planted alternately, or in conjunction with the Irish and Golden Yews and standard Portugal Laurels. As a dwarf tree for planting sparingly in a cemetery or churchyard it is peculiarly suitable on account of its comparatively slow growth, as well as its slender form, occupying but little space; it is, moreover, perfectly hardy, and will grow in any common garden soil, but doubtless prefers a moist, rich, heavy soil to a dry, gravelly, poor one. J. hibernica compressa is similar to the above in habit and colour, but very much slower in growth, and smaller in all its parts. It forms a compact, slender pyramid. For parterre winter gardening on a small scale this little Juniper would be invaluable. It is not difficult to transplant; indeed, it is so dwarf a tree that it could be grown on for years in a moderate-sized flower-pot, thus insuring its safety when removed from its summer to its winter quarters, and *vice versa*; the rate of its growth I do not believe exceeds 1 inch in a year. J. excelsa stricta is an erect variety of the handsome Crimean Juniper. Its foliage is beautiful in colour, being light green and glaucous, and contrasts charmingly with dark green, wide-spreading Evergreens. It is quite hardy, having stood the test of the past few trying winters without injury. J. thurifera, the Spanish Juniper, is another hardy upright-growing tree with glaucous leaves, suitable for giving effect where formality in gardens is studied. G.

Spiræa ariæfolia.—One of the most beautiful hardy shrubs now in flower in gardens is the white S. ariæfolia. Its elegant flowers seen among our common shrubs have a beautiful effect. At present such noble shrubs are usually thrust into a shrubbery, and there allowed to take their chance. Obviously such fine subjects would look much better isolated on the turf, or associated in small irregular groups, so that each might show its character, and the whole have a picturesque effect. When we pay as much attention to tastefully arranging such noble and long-lived shrubs as we do to those which last only a few months in beauty, we shall find a rich reward.—W.

The Monterey Cypress.—The illustration given last week of Cupressus macrocarpa at home, at Monterey, California, suggests memories of pleasant hours spent in studying, among others, the identical trees therein depicted. The Monterey Cypresses planted in this country have probably been derived, directly or indirectly, from the Monterey habitat, and though differing considerably in habit, they (excepting, of course, unhealthy individuals) present a uniformly bright green colour. But I have an impression that I observed a greater variety of forms in the individuals under cultivation in California than I have noted in Britain. I observe that one of the most recently published of our popular books on Conifers limits the habitat of this Cypress to the neighbourhood of Monterey. I have myself seen a grove of this species about a hundred and sixty miles to the north

of that town, and within a few miles of the mouth of the Russian River. The trees, especially the young ones, were of a greyish-green hue, yet not quite so grey as McNab's Cypress. In habit and size they were similar to the Monterey trees, and were specifically identical. The colour of the nursery plants was decidedly a glaucous green.—Geo. Syme.

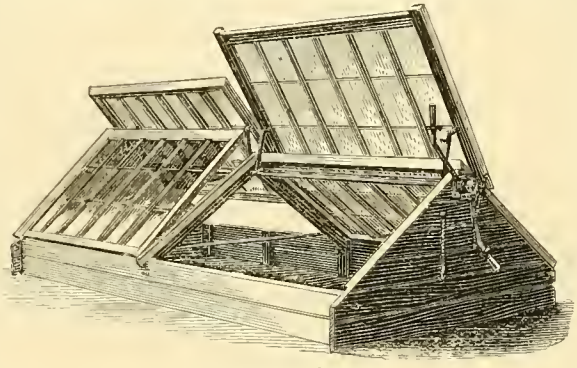
BERBERIS REPENS.

The question often arises as to a suitable permanent edging other than the common Ivy, and I can recommend this little dwarf Barberry as suitable for the purpose. Two or three-year seedlings, planted in two or more lines 6 inches apart, will, with a little attention and management, make an edging superior to Ivy and most other materials commonly employed. Although not at all particular as to soil, like everything else, it does best when well treated: therefore the ground should be trenched up and well prepared some time before planting. The plants may be planted deeper than is desirable with most hardwooded plants, as it will soon strike root from the buried portions of the stems. It will bear trimming in with the shears, but it is far better to do the necessary pruning with the knife, as the leaves that remain are left intact, and will not present a ragged appearance as when the shears are used. It may be kept for years in a dwarf compact condition by cutting well back every spring after flowering, and pinching out the point of a shoot occasionally during the summer. Of course, this close cutting back would prevent its fruiting; but, although this might in one respect be a loss, in others it would be a gain, as a heavy crop of fruit has a tendency to exhaust the plants, and might cause them ultimately to assume a ragged outline, which in the case of a verge or edging of this kind would not be desirable. Although I have only spoken of this plant as useful for verges or edgings to shrubberies, it might also, now that the advantages of introducing more variety of a less ephemeral nature into the flower garden is beginning to be recognised, be used as edgings next the Grass, in either a straight or any other outline. If this and other plants of a kindred character were more used, there would not be such a dreary blank when the frost came; and with a few additions from the reserve garden of spiral-growing plants, with bulbs and annuals, a very respectable winter display might be got together with little expense. But when nothing but tender plants are used for bedding, and these have to be entirely replaced, any attempt at winter or spring gardening becomes expensive. E. H.

Idesia polycarpa.—This handsome and most interesting Japanese tree was not known to science until 1866, when it was described by the Russian botanist Maximowicz, who met with it in cultivation at Nipon and Yedo, and ascertained that it was a native of the island Kinsiu, at the foot of a mountain called Hikosan. It is a handsome tree-like spreading shrub, with fine foliage; but, according to Professor Maximowicz, it attains in Japan the dimensions of a large tree. The leaves, which have crimson stalks, are irregularly serrate, slightly cordate at the base, the larger ones measuring about 6 inches across, bright green above, and whitish or almost glaucous beneath, with five prominent branching nerves, which are reddish towards the base. The flowers are dioecious; the males have from four to six yellowish green spreading sepals and an indefinite number of pale green filaments with orange anthers. Each blossom is about half inch across; they form long, gracefully drooping, branched racemes, springing from the axils of the upper leaves. The female flowers are similar in appearance, but are succeeded by very numerous orange berries, which appear, from dried specimens communicated by the discoverer to the British Museum Herbarium, to be about as large as a small Cherry. The flowers are deliciously fragrant, their odour resembling that of a Vanda; and although their colouring is not brilliant, their effect, combined with the red leaf-stalks, the varying green of the leaves, and their elegant drooping habit, is extremely pleasing. The tree belongs to the Order Bixineæ (or Flacourtiaceæ), to which our gardens have not hitherto been largely indebted. It was named by M. Maximowicz in commemoration of a Dutch traveller named Ides. It appears to be quite hardy about London, and a good sized specimen of it may be seen in the arboretum at Kew, in the part known as "The Dell," where it forms a fine object.—W.

A NEW PLANT FRAME.

Among the multitude of hothouses, frames, and other garden appliances shown at the Royal Horticultural Society's recent show at Liverpool, there was very few that could lay claim to originality. One of the few things that could be called novel was the opening gear of a new adjustable plant frame, invented by Messrs. Halliday, of Middleton, and of which the accompanying engraving is an illustration. Practical men may see at a glance the advantages possessed by this arrangement of the opening gear over others. The frame has provision for top and bottom ventilation which may be given at will. The lights are secured in any position and cannot be blown off; and they can also be turned right over one on to the other and securely fastened with chain and hook, and in that position easy access can be had to the plants, and there is no fear of the lights falling down, as is the case sometimes in frames with the lights held open by props. The frames are constructed in a very simple manner, and may easily be taken to pieces and stored away under cover when not in use. Such frames are invaluable for many classes of plants, and particularly for hardening off plants in spring; while for plants of doubtful hardiness and for delicate alpines liable to perish in winter they are an invaluable aid.



New garden frame.

NOTES FROM LEHENHOF.

I was particularly interested in the beautiful engravings you gave in The Garden of Mr. Otto Forster's garden at Lehenhof. Throughout my travels in various parts of Central Europe I have not met with a prettier garden or one more artistically arranged than that at Lehenhof, while it abounds with interest for plant lovers, who find there a vast collection of plants, both native and exotic, from the highest mountain peaks to the hottest jungles. As I have not before had an opportunity of publishing the few notes I made in Mr. Forster's garden when I visited it, I should like to do so now, although M. Max Leichtlin's account of it was so interesting. Lehenhof is situated in the midst of charming scenery, with long extended views on all sides, particularly to the south and south-west, where peak after peak with snow-clad summits, clothed on their lower sides with various kinds of forest trees, form one of the most charming views imaginable. The extent of the pleasure grounds and garden is about twenty acres, exclusive of the farm land. The winter garden, the fernery, the Rhododendron house, the Orchid house, and several other houses are in striking contrast to the surrounding scenery. The conservatory is about 60 feet long by 40 feet wide and 25 feet high. Here I noticed some fine examples of Tree Ferns, among them being Cyathea dealbata with a stem 8 feet high, bearing aloft a fine head of its beautiful fronds covered with a silvery whiteness beneath. Alsophila australis had a stem fully 10 feet high. There is also a fine example of Kentia Forsteriana with twenty-seven finely developed leaves; Brahea dulcis and another Brahea nearly as large.

The rockwork and waterfall in this house are most picturesque and nicely clothed with plants suitable for such positions. Another house has been specially constructed to accommodate the Sikkim and other species and varieties of Rhododendron with admirable success. It is about 60 feet long and 36 feet wide. Although it was in the winter season when I saw it, it was a great pleasure to see this house of Rhododendrons, every plant being in the rudest health, evidently enjoying the pure air from the surrounding mountains. Rhododendrons have been Mr. Forster's special study for many years, and he has been a successful hybridiser, and among them one interesting cross he effected was between R. hirsutum and R. ferrugineum, the offspring of which was pointed out to me growing on the outdoor rockery. The greatest of his successes, however, is, I think, the Rhododendron named after himself, R. Otto Forster, of which he possesses some fine specimens. The blossoms of this fine hybrid are as large (possibly larger) than R. Veitchi, creamy white on first expanding, then becoming snow-white and of wax-like texture. Of Rhododendron Aucklandi there are fine plants fully 11 feet high and nearly as much through, and of R. Nuttallianum there are several fine specimens also. R. Jenkinsi and R. argenteum are fully 8 feet high. Another remarkable specimen 10 feet high or more was R. Sesterianum. It would take me a long time to enumerate all the fine specimens and rare species of Rhododendrons brought together in this house, besides the hosts of seedlings which have yet to be flowered.

Azaleas are also a speciality, and hybrids of them are raised. Among these there is one called Hexe, which is a most beautiful variety, being raised by crossing A. amœna and A. Duc de Nassau. It is very floriferous and of an exceedingly pleasing colour. Orchids seem to revel in the mountain air at Lehenhof, and of cool Odontoglossums especially Mr. Forster can show large numbers of beautiful specimens, and besides cool Orchids there are collections of Cattleyas, Vandas, Aerides, and the like. An interesting house to me was that devoted to the raising of rare alpine plants and for wintering those which would be likely to suffer by long winters. Here I noticed amongst many rarities, such as Haberlea rhodopensis, growing luxuriantly, Saxifraga florulenta, Primula Allioni, Daphne rupestris, &c.

The rock garden is about half an acre in extent, where very many rare alpine plants have found most congenial homes, notably the rare and beautiful Ramondia pyrenaica alba. It was not in flower, but Mr. Forster kindly gave me a photograph of one of the plants taken when in full beauty, showing a dozen or more flowers open at one time on the plant. The plants of this rare gem are growing together nicely arranged on an almost perpendicular piece of rockwork in deep shade. Artemisia pedemontana was a noteworthy plant. It has silvery leaves, and is dwarf and compact. The garden is very rich in alpine Primulas; growing on the rockwork, and also in pots, amongst many others the following were noted: Primula algida, Auricula, Arctotis, Balbisi (Lehn.), ciliata (Moretti), biflora, capitata, cashmeriana, carniolica, calycina, ciliata (Schrank), Clusiana (in fine masses), Dinyana, Facchini, Göbeli, flagellicaulis, Fkerkiana, glaucescens, japonica, Kitaibeliana, longiflora, marginata, minima, pedemontana, pubescens, pumila, rosea, scotica, villosa, venusta, Venzoi, viscosa, Weldeniana, and Wulfeniana. The following, I believe, are new species: P. Kingi, reticulata, and intermedia (Portenschlag).

Besides being clothed with a variety of native trees, the garden is planted with fine specimens of Picea, Cupressus, and other rare ornamental Coniferæ and deciduous trees all arranged in tasteful harmony. No doubt many besides myself have experienced the same feeling of regret in leaving such a charming spot as Lehenhof, whose beauties cannot fail to impress one, whether a plant-lover or not. TOURIST.

INDOOR GARDEN.

CULTURE OF TUBEROUS BEGONIAS.

THE great advance made with these plants during the past few years is truly surprising, and the little care they require should lead to their universal cultivation. When the first species were introduced they were treated as stove plants; now they are treated more like hardy plants, and so numerous are the varieties, that anyone can obtain fine forms from a packet of seeds; but to succeed in this some little care and attention is required.

BEGONIA SEED should be sown about the last week in January on slight bottom-heat, the soil they prefer being a mixture of loam and leaf-mould, but carefully avoid peat. Sow the seeds upon the surface and cover with glass. In a very short time the seeds will germinate, and as soon as they are sufficiently large to handle the young plants should be pricked out, and as they increase in size place them in pots or pans; if they are intended for planting out of doors, boxes will be found most convenient.

THE SOIL should consist of turfy loam, leaf-mould, and well decomposed manure in about equal parts, carefully avoiding the use of peat, as Begonias will not succeed in this soil. The pots or pans should be well drained, as these plants are great water-lovers, and unless the drainage is good the soil soon becomes sour and the plants dwindle away. From the time of sowing the seed until they have made some few leaves these plants should have a slight bottom-heat. The atmosphere in the house should be kept cool and airy.

PLANTING OUT OF DOORS may commence about the first week in June. The seedlings will be quite small things, but still they will soon grow vigorously in their new situation. Have the beds prepared with the soil already named. Put a little Cocoa fibre refuse into the mould with them, and cover the surface of the ground with the same material when planting is finished, leaving them about a foot of space to fill. Keep them free of weeds and well supplied with water, when they will soon commence to flower and produce a magnificent show up till the frost cuts them off in autumn. When this occurs carefully lift the tubers, dry them, and store them away in a cool place, with a slight covering of dry Cocoa fibre refuse or sand, until the following spring, when the same treatment may be pursued as recommended for seedlings. As rock plants they should be freely used with other things, as they will thrive admirably in such situations and appear to better advantage than when on a flat surface like beds and borders.

FOR THE CONSERVATORY, Begonias have few, if any, rivals, their rich and varied colours making a brilliant display, and continue to keep the house gay until the flower of autumn (the Chrysanthemum) takes their place. Those who have sufficient space will probably prefer to grow the plants for this use through all their stages in pots, shifting them from time to time as occasion may require, but where space is limited they may be planted out of doors and lifted when the conservatory is getting empty and dull. The varieties of Begonias are now so numerous, that a rich display may be depended upon from seeds; there may be some, however, who require certain colours, and, therefore, would continue to propagate their stock from cuttings; we therefore give the names and colours of a few of the best: Countess of Rosslyn, bronze-orange; Distinction, crimson, white centre; Earl of Chesterfield, vivid crimson; Earl of Rosslyn, orange-scarlet; Golden Queen, golden yellow; Her Majesty, blush, centre rosy pink; Lady Brooke, dark rose shaded violet-magenta; Lord Salisbury, red shaded crimson; Magenta Queen, bright magenta; Mrs. Laing, pure white; Star of Gold, bright yellow; Thomas Bell, bright salmon.

AS BASKET PLANTS, Begonias are extremely ornamental; their large and richly coloured flowers hang as gracefully as Fuchsias, but they have the advantage of Fuchsias in the greater variety of shades of colour. For baskets the double forms are superior to the single, but the doubles are also very fine treated as pot plants and bedders. The following are a few of the very best doubles suited for baskets: Alba plena, pure white; Comtesse de Trielhart, bright apricot; Formosa, deep rosy carmine, white centre, edges maroon and fringed; Glory of Stanstead, deep rose, white centre; Goliath, soft crimson; Louise de Goussaincourt, soft rose; Marquis of Bristol, bright yellow; Madame Arnoult, salmon-rose; Marquis of Stafford, carmine-crimson; M. Brissenden, intense scarlet; Miss Amy Adcock, salmon red, white centre; Prince of Wales, rich crimson; Princess of Wales, pure white full flowers.

AS MARKET PLANTS, Begonias, I consider, are specially suitable. The great ease with which these plants can be grown in the open air and lifted when in bloom, added to their large and attractive flowers, should make them great favourites with the market growers and their customers. For this purpose seedlings would be the easiest and best. As before stated, Begonias may be grown into good specimens in one season, and they produce a crop of flowers at a time when blooming plants are few. W. H. G.

Gloxinia buds abortive (*H. L. B.*).—The Gloxinias sent are similar to those frequently observed on plants from bulbs five or more years old, which often produce abortive or partly deformed flowers, although as far as the foliage alone is concerned they appear in excellent condition. The same deformity in the flower may, however, be attributed to some other causes in case of younger bulbs, such as dry state at the roots while the surface only of the soil is kept moist, or exposure to too strong a light, or again to too much air. All these points should be carefully watched and noticed, as they are, or one of them most likely, the cause of the bad result of which you complain.—S.

Amphicome Emodi.—Of the two species of the little known genus Amphicome, A. Emodi is a more remarkable species than arguta, which was first introduced in 1837, and is indigenous to the Himalayas. A. Emodi was introduced much later; but the size of its flowers, which are of a beautiful rose colour, has enabled it to assume and hold a more prominent position in our gardens than its congener. It is tolerably hardy, and will doubtless live in the open air in most of the southern counties. It is, however, all the better for a little protection in winter.—B.

Sibthorpia europæa variegata.—This elegant little trailing plant has obtained a reputation for being delicate. I consider it, however, very free, having grown it in large quantities for some years without the slightest trouble. I grow it in a compost of half loam and peat, taking care that the pots are extra well drained. They are placed full in the sun, where very little, if any, shade is afforded them during the day, but they are always kept wet, and this, I believe, is the only secret which has led to success, for I have observed when a plant has been missed and been drier than usual it rapidly begins to dwindle. Again, although this little plant is such a water-lover, the moment the drainage becomes clogged it shows signs of distress and quickly dies. It is a veritable little gem for surfacing large pots, or for small hanging baskets.—W. H. G.

A beautiful winter plant (Holmskioldia sanguinea).—This is a bold-growing, handsome winter flowering member of the Labiatæ, which, although introduced about a hundred years, has hitherto escaped much attention. I look upon it as one of the finest ornaments for the intermediate house during December and January that can be grown. When vigorous it attains a height of from 3 feet to 4 feet, and the growths for about half the length will be laden with flowers, but it does flower well when not more than a foot high, though in this state it is not very effective. The leaves are opposite, somewhat ovate, crenate on the edges, and dark green. Its flowers are borne in terminal and axillary clusters and are scarlet, surrounded by a large cup-shaped bright red calyx. It is a plant of the easiest culture; it strikes freely from cuttings at almost any season, and does not require strong heat to grow it into a handsome shrub. Pot in about equal parts of loam, leaf-mould, and peat, making the whole sandy, and drain well.—W. H. G.

Dracæna Alexandræ.—This is one of the best kinds with white variegation. It is free in habit and the leaves are very elegant. It is peculiarly fitted for table decoration—in fact, it is a plant worthy a place in any garden. There is, however, a rival in store for it. Fancy a Dracæna with more elegance than D. gracilis, and with leaves nearly covered with silvery whiteness!

Aristolochia ornithocephala.—This is one of the strong-growing and free-flowering kinds. Its flowers, too, are very handsome seen hanging from the roof of a stove as we saw it the other day at Waddon House, where it is highly appreciated. This species, although a robust grower, has been so restricted in its roots, that it really is making almost more flowers than foliage. It should be potted in good loam.

Camellias as stove plants.—We have frequently seen these plants in the open air in various parts of the country where they grow and flower most freely, and have proved themselves sufficiently hardy to withstand unharmed a very low temperature; but, on the other hand, we saw recently at Beddington House the back wall of a stove covered with Camellias, perfectly healthy and well set with buds. Formerly this house was kept cool and used for greenhouse plants, the same Camellias being on the wall and planted in the border. When the house was converted into a stove, the Camellias were allowed to remain where they still thrive. The only effect the change of temperature has had upon these plants is it causes them to open their flowers earlier, so that, judging from the above facts, Camellias should force easily.

Clerodendrons flowering twice in one season.—I have a case under notice somewhat remarkable. Very early in the spring I had in flower Clerodendron Balfourianum, C. Thomsonæ, and C. fragrans. Some time ago, however, I thought one day they were getting rather too shabby to occupy the prominent position they held when in bloom, so I resolved to cut them back and see if they would flower again. I did so, and repotted them, the result being that I have them blooming again splendidly. I often think it a pity that plants that bloom for a very limited period should be put away for the rest of the year to remain dormant. Therefore if plants, especially short-lived ones, can be induced to flower twice a year, what a boon that would prove.—W. A. COOK, *Holme Wood*.

SHORT NOTES—INDOOR.

Saxifraga tricolor.—This beautifully variegated Japanese Saxifrage is now in fine condition at Messrs. Laing's nursery. It has hitherto proved somewhat difficult to cultivate; here it thrives in strong bright light under glass.

Vines diseased (*A. B.*).—We regret our inability to point out the cultural reason for some of the leaves prematurely bronzing, or some of the points going blind. There is no disease on the examples sent. Without seeing the house we should have attributed the affection to bad ventilation, but you say there is "plenty of air."—W. G. S.

Clematis coccinea.—Referring to the note on this in THE GARDEN (p. 163), allow me to state that some years ago I saw a plant of this in M. Max Leichtlin's garden at Baden-Baden; the impression made upon me by it I have never forgotten. Its dark green foliage and mass of interesting flowers are a sight well worth seeing.—LOUIS KROPATSCH, *Lavenburg*.

Lilium longiflorum.—We saw this week in a Surrey garden some large masses of this Lily, bearing a large crop of blooms for the second time this season; the bulbs were potted up last autumn and forced, and flowered during the month of April; after these were past the pots were removed to a cool frame, where they have remained to the present time, when a second crop will soon be in full beauty.—W. H. G.

A pretty basket plant.—I find that the alpine Strawberry is a pretty plant for house culture, and in a moderately low temperature will produce fruit continuously. I have taken up and potted a good number of plants of both the red and white alpine, and expect that their fruits and flowers will, during the winter, amply repay the little care required in their culture. I should think that those who take so much delight in window plants would try the alpine Strawberries. The varieties that produce runners are very pretty when grown in hanging baskets, for the long pendent stems produce a bunch of leaves, flowers, and fruit at every joint, and I am sure the whole appearance of the plants is equal, if not superior, to Aaron's Beard (Saxifraga sarmentosa), Tradescantia, and scores of similar plants that are generally cultivated for such purposes.—W.

Clothing plant house walls. — To turn everything to account and to make every part of the back walls of plant houses enjoyable should be attempted by everyone. That this may be done more easily and effectively than by the usual system of brackets I am confident, from the luxuriant appearance of the back wall of a plant stove in these gardens. The wall in question is covered with strong wire about 4 inches apart and the same distance from the wall; the space next the latter is filled with turfy peat, &c., and in this are large masses of fine-foliaged Begonias; the Stag's-horn Fern and other plants also luxuriate in this situation, and the groundwork is densely covered with Adiantums, Pterises, Lycopods, Panicums, &c. Fern fronds, always in request, may here be gathered in any quantity; and beyond frequent syringing these walls are scarcely any trouble; in fact, by pegging in the Lycopods and filling up any cracks in the soil with a little fresh material, they will last for a number of years.—G.

Tropical Balsams.—All the tropical species of Impatiens are plants of the highest value in the garden, and I am glad to find I. Jerdoniæ again coming into repute. Thirty years ago I grew it in large quantities, and it made such an impression upon one grower, that he bought a stock of it, intending to try it for market purposes; as I never saw it brought out, I suppose it did not succeed. The following two species belong to the same section, and both being winter bloomers are the more valuable. Their names are I. Walkeri, a free-growing plant from Ceylon, attaining a height of a foot or more, with somewhat swollen stems and alternate, ovate-lanceolate deep green leaves; the flowers are borne in large corymbose panicles, each upwards of an inch long and as red as a soldier's coat. I. bicolor, a vigorous grower, reaching 18 inches to 2 feet in height, with large, coarsely serrated, ovate, pale green leaves. The flowers are produced on single stems, but in large clusters; they are some 2 inches long, much inflated, pitcher-shaped, and rich deep plum colour, with a white throat and upper petal.—W. H. G.

Passiflora princeps (racemosa).—There are few more beautiful climbers for a warm conservatory or intermediate house than this and few more easily managed if given reasonable root room. It grows rapidly, and soon clothes the house it is in with festoons of handsome bright polished green leaves, for which it would be well worth growing, if it never flowered. The tips of these festoons, however, soon become clustered with bright red buds, in various stages of development, springing from rather conspicuous purplish bracts. These expand one or two at a time, forming large, light scarlet blossoms with a small white corona. From the older parts of the stem spring numerous leafless racemes of flowers, which blossom sometimes on the very benches. On a small plant obtained two years ago at a nursery, and only last year planted out, I have just counted more than a score of racemes in various stages, many nearly a foot long (the floriferous portion) and bearing innumerable buds and flowers. These latter are very effective in small glasses on the dinner table, as they do not close till very late, and look very bright under artificial light. The house in which the plant is growing contained a miscellaneous collection, and often falls under 50° in winter. Not the least good quality of this Passion-flower is its apparently complete immunity from insect plagues, neither thrips, scale, nor bug having seemingly any fancy for it. As it is procurable at almost any nursery for about one or two shillings, everyone who has a warm house should grow it.—Greenwood Pim.

ALPINE PLANTS ON WALLS.

In a few old gardens visited lately we have been much struck with the success in the cultivation of certain kinds of alpine plants on old walls, which in many cases were crumbling away from age. On these we saw plants clinging to them with surprising tenacity, pictures of health, and with roots often no thicker than whipcord; while the same plants growing in the ordinary border or rockery, even when well attended to, have entirely lost that characteristic growth which makes them so beautiful on walls. Much can be

learned, far more indeed than most people seem to be aware of, from a study or imitation of the old plant-clothed walls, for, if we strive to be successful cultivators, we must be always ready to take a lesson from Nature's sown plants. It is true that we cannot always find in our gardens old walls for the various selections of alpines, but in places where space can be allowed for a rockery, a little could be spared in which to imitate an old wall, and it is surprising what a large number of plants can be grown in the space of a square yard, and those, too, such as will thrive well under few other conditions. In many gardens there is plenty of waste ground that could be utilised for such a purpose, such as boundary walls, &c., instead of being built in the modern square fashion, something in the way of the old dry stone dykes, used for dividing the marches on the moors, with plenty of good soil built in, would serve the same purpose, be less expensive, and when well clothed with vegetation, be in accordance with the garden which the walls enclose. In many old places sunk walls are used to divide the flower and pleasure gardens from the park; these could be made alive with these charming little gems at a small cost, and requiring little or no attention after having been planted. The new rockery at Kew shows in a large way what may be done in miniature, even in the smallest garden; and one of the best examples of wall gardening at private gardens about London is in Mr. Latimer Clarke's garden at Sydenham, which has always been famous as a hardy plant garden. On such walls as we have alluded to Iberises, Helianthemums, Linarias, Sedums, and all the crusted Saxifrages are quite at home, making a display that repays the cultivator tenfold for his trouble at the outset. It does not necessarily require stone in building these walls, though it is best—old pieces of brick, cement, &c., being quite as useful, and, under ordinary circumstances, quite as lasting as stone. On such a structure we have seen such alpine gems as Potentilla nitida, crusted-leaved Saxifrages, Sedums, and Houseleeks. Trailing plants, however, are the subjects most suited for walls, such as Campanula garganica, isophylla, and Tenorii, Androsace sarmentosa, lanuginosa, many of the Dianthuses, Fragaria indica, Linaria alpina, &c., as well as such plants as Origanum Dictamnus and Tourneforti, Onosma taurieum, Silene acaulis and alpina, Polygonum vaccinifolium, Veronica officinalis, rupestris, &c., Cistuses, Cytisuses, Linaria Cymbalaria, white and purple, Convolvulus Cneorum, Alyssum saxatile, and many others.

K.

Ferns.

VARIATION IN BRITISH FERNS.

In my wanderings through the woods and downs of this part of Carnarvonshire I have often met with rare forms or varieties of native Ferns, and as the subject is at present exciting some comments in The Garden I have thought that a few notes on such as I have found, specimens of which are preserved in the herbarium of the University College here, may be of interest to some of your readers.

Among the Hart's-tongues (Scolopendrium) two distinct and constant forms have been found, S. crenulatum and S. multifidum. The latter occurs in considerable quantities in at least two places, but in one of these stations many of the plants have been destroyed in the course of repairing the wall and bridge on which they grew. In at least nine-tenths of the plants all the fronds are more or less multifidly divided at the apex. Crenulatum is a very desirable form, but I have only met with a couple of specimens.

Blechnums, above all others in this district, seem prone to deviate from the normal form, for I have found no less than half a dozen of the recognised varieties. B. multifidum, having not only the apex of each frond divided three or four times, but the pinnæ constantly bifid, I found some years ago. It has remained constant under cultivation, and I may add that fronds sent to Mr. Wollaston were considered by him to represent a very good form. B. imbricatum occurs plentifully in a farm hedge, and there seems to have quite ousted the typical plant; while B. strictum, also named by Mr. Wollaston, and B. anomalum I have come across on more than one occasion. B. strictum, of which there were several plants in a confined area, is a pretty form, and one of the most constant under cultivation. B. bifidum I have likewise found. In a high-lying rocky wood, where the blue Anemone and pink wood Sorrel grow, I have oft stopped to admire the multifid form of our common Bracken (Pteris

aquilina multifida), which in that guarded spot grows by the acre. This is a very distinct plant, but to transplant it successfully has puzzled more persons than myself.

The Polypodiums are, perhaps, next to the Blechnums, most liable to sport, and within a radius of one mile from Bangor, P. bifidum, P. acutum, and P. crenatum (all better in form than I have purchased under the same names) have been found, but usually in company with the original plant, P. vulgare. P. acutum, with its long acutely-pointed fronds, is very distinct, but not so attractive as acutum Stansfieldi, which occurs in a single tuft near the sea-coast at Port Penrhyn, and within a short distance of it an old Ash stump is literally covered with a very constant form of the well-known bifidum. Near Aber Waterfall I have seen a very good bifid variety of the Oak Fern (P. Dryopteris), and I am not aware that such has been before recorded.

Ceterach officinarum crenatum occurs very plentifully on an old wall I know of, where, strange to say, not a plant of the type is to be found. In another district both are found together, or at least within a short distance of each other. Under cultivation this is by far the most desirable plant, being of more robust growth and ornamental in appearance. Polystichums, although unusually plentiful, do not vary in the least, and the only departure I have noticed is P. aculeatum lobatum, but this, again, is reckoned by some botanists as a distinct species.

Three well-marked and distinct varieties of Lastrea Filix-mas I have picked up more than once. They include L. pumila, a dwarf and neat alpine form; L. fluctuosa, a very desirable plant and one that is true to character under cultivation; and L. interrupta, which occurs rather plentifully in a wood. Another form of L. Filix-mas, with irregularly divided fronds and pinnæ, almost monopolises an old Oak wood on the banks of the Menai Straits. Some of the specimens are very handsome, the dividing up of the apex of each frond being regular in a marked degree. The normal form also occurs in the same wood, but is not so plentiful as the plant under consideration.

I sent to THE GARDEN some time ago a description, with specimens, of a beautifully crested form of Hymenophyllum Wilsoni that I was fortunate enough to meet with on the top or roof of a damp, dripping cave. It was, in truth, a lovely plant, every frond being multifid or crested, and, sorry am I to say so, most of these were given to enquiring friends. I searched all the ground where it was found over and over again, but although the typical plant occurred in plenty in several places close at hand, only one small patch of the variety could be detected.

Asplenium Adiantum-nigrum acutum may be seen in plenty on a shady hedge bank not a mile from Bangor, while a variegated form of the species used to occupy, in no mean quantity, the side of an embankment close to the old Roman camp at Bethesda, or rather, I should have said, near to that place.

Some years ago a single specimen of the forked Spleenwort, A. septentrionale, which was found on the Snowdon range, was brought home, potted, and placed with other Ferns in a cold greenhouse. Gradually the young fronds developed into those of A. germanicum, and the plant, half of which is now in my possession and half in that of the finder's, would to an ordinary observer be classed as that species. Fronds intermediate between the typical A. septentrionale and A. germanicum (none of the former now exist) are not uncommon, some of which resemble very closely drawings sent to a contemporary recently from fronds collected by Dr. Lowe, of King's Lynn, near the Maloja Pass in 1882. Dr. Lowe, in a note which accompanied the drawings, says he found several specimens bearing on the same root every intermediate form between A. germanicum and A. septentrionale. It has likewise been stated that A. septentrionale and A. Ruta-muraria have never been found in company with A. germanicum, but this is wrong, for I could point out a wall on which the two former are growing almost side by side, and the latter with only the road width between them. I have picked fronds from a plant of Ruta-muraria that have on more than one occasion passed off as those of germanicum.

Can it be that two of the three plants, A. germanicum, A. septentrionale, and A. Ruta-muraria, are but forms of one species? From the above, as well as the observations of the late Professor Balfour and Mr. Boyd, it is certainly not at all unlikely. A. D. WEBSTER.

Penrhyn, Bangor.

ORCHIDS.

SEPTEMBER BLOOMING ORCHIDS.

THE following are now in flower in Mr. Bull's nursery, Chelsea, affording proof, if that were wanted, that even at this season of the year there is plenty of material among this tribe of plants to maintain a brilliant display, and when associated with Maiden-hair and other Ferns, as they are in this establishment, the effect produced by them is greatly enhanced. The secret of success in this case lies in maintaining a cool atmosphere, giving plenty of moisture and air, and in paying strict attention to cleanliness:—

Acineta densa
Aerides quinquevulnerum
Anguloa Clowesi
Brassavola nodosa
Calanthe Dominii
  mastica
  pleiochroma
  veratrifolia
Cattleya citrina
  crispa superba
  Dowiana
  Eldorado
  E. aurea
  E. carnea
  E. splendens
  E. Wallisi
  Gaskelliana
  gigas
  Harrisoniæ
  Leopoldi
  Loddigesi
  Mendeli
  Mossiæ
Cymbidium Lowianum
Cypripedium Ashburtoniæ
  barbatum
  b. grandiflorum
  b. nanum
  b. nigrum
  b. pictum
  b. pulcherrimum
  caudatum
  ciliolare
  Dayanum
  Dominii
  Harrisianum
  Hookeræ
  insigne
  javanicum
  lævigatum
  Lawrenceanum
  œnanthum superbum
  Sedeni
  Spicerianum
  Stonei
  superbiens
Dendrobium bigibbum
  Dearei
  formosum giganteum
  infundibulum
  Pierardi
Disa grandiflora
Epidendrum Christyi
  cochleare
  nemorale
  prismatocarpum
  vitellinum majus
Galeandra Baueri
Lælia amanda
  Dayana
  elegans
  Lindleyana
Lycaste Deppei
  Skinneri
Masdevallia amabilis
  militaris
  inflata
  Lindeni
Masdevallia maculata
  Peristeria
  Reichenbachiana
  Wallisiana
Maxillaria venusta
Miltonia Regnelli
  R. purpurea
  bicolor
Odontoglossum Alexandræ
  bictoniense
  b. album
  b. rubrum
  baphicanthum
  citrosmum rubrum
  Coradinei
  cordatum
  facetum
  hastilabium
  nebulosum
  Pescatorei
  Roezli
  Rossi majus
  Sanderianum
  Uro-Skinneri
  vexillarium
Oncidium Barkeri
  chrysomorphum
  cornigerum
  crispum
  cucullatum
  dasytile
  excavatum
  flexuosum
  incurvum
  Jonesianum
  Kramerianum
  Lanceanum
  longipes
  luridum
  macranthum bastiferum
  obrysatum
  ornithorhynchum
  Papilio majus
  prætextum
  Schillerianum
  Rogersi
  Weatworthianum
Paphinia cristata
Peristeria elata
Phalænopsis amabilis
  rosea
Promenæa stapelioides
Renanthera coccinea
Rodriguezia planifolia
Saccolabium Blumei majus
  B. longiracemosum
  B. pulchellum
  Hendersonianum
Spathoglottis Fortunei
Stanhopea grandiflora
  Waroi
Thunia alba
Trichocentrum albo-purpureum
Vanda suavis
  tricolor
  t. cinnamomea

W. H. G.

Oncidium Jonesianum.—This invaluable and beautiful Oncidium we lately saw in perfection at The Firs, Laurie Park, Sydenham; some two dozen plants, from an importation last February, were blooming freely. The plants generally bore from three to five spikes each; one plant with five spikes is bearing sixty flowers, two of the spikes carrying eighteen and sixteen on each spike, being the largest amount we have seen at present. Mr. White attributes his success to starting the plants gradually in the Cattleya house on the west side of the roof, removing them into a higher temperature as the roots and growths advance. The plants are fastened on teak rafts, bulbs downwards, and have received copious syringing three times a day. They are quite a mass of roots. Surely if this lovely and cheap Oncidium can be so easily grown, it must become very popular in the Orchid house, seeing that it lasts fully three weeks in perfection.—B.

Cattleya gigas Hardyana.—Mr. Hardy, of Pickering Lodge, Timperley, writes to say that the Cattleya shown at the last meeting of the Royal Horticultural Society was not the true C. gigas Hardyana, but another form of C. gigas, which he considers very good. Of the true variety named Hardyana there is but one plant, and that was exhibited by him at South Kensington in August of last year, when it obtained a first-class certificate.

Twin-flowered Cypripediums.—I send you a specimen from one of my plants of C. niveum, bearing two flowers, and a third in bud. The same plant bore twenty flower-stems, almost all of which have two flowers. I send you also a very dark form of Miltonia Regnelli, and flowers of the beautiful old Oncidium Lanceanum from a spike carrying ten flowers—a very fine variety.—J. C. PARR, *Grappenhall Heyes, Warrington.*

Cypripedium Godefroyæ.—This species appears to be almost a perpetual bloomer. It was first exhibited in this country in the month of May. We saw it again this week flowering freely in Mr. Laing's nursery, where it and its allies, C. concolor and C. niveum, are flourishing vigorously, so that it may be regarded as an autumn bloomer. The variety we saw was exceptionally fine; its large sepals and petals were broad and full, creamy white, profusely spotted and blotched with crimson-magenta, the long pouched lip being similarly marked, but in a less degree. Orchids generally are growing strong and flowering freely in this nursery. They are treated in a moist, airy atmosphere and moderate heat. We observed a total absence of stone or bricks in the pathways, these being simply clean ashes, and we believe the less stone and metal used in houses for these plants the more genial will the atmosphere be and better the health of the plants.

THE death is announced of Dr. HENRY FLETCHER HANCE, F.L.S., which took place at Amoy. He has long been well known, especially in connection with his important contributions to the study of the flora of China and Hong Kong. Dr. Hance was born in London in 1827, and entered the Civil Service of Hong Kong in 1844. His chief scientific work was in descriptive and systematic botany, to which he early devoted himself, and he has left behind him a collection numbering nearly 20,000 species of oriental plants, chiefly Chinese.

MR. SHEPPARD, the gardener at Woolverstone, writes to inform us of the death of his employer, Mr. J. BERNERS, at the ripe age of 86. Mr. Berners was an ardent lover of his garden, and has really made Woolverstone what it now is—one of the finest gardens in this country. The work of improvement has been gradual from the time that Mr. Berners came into possession up to the time of his death.

Book.—*S. R.*—"Mushrooms for the Million." 171, Fleet Street, E.C.

Names of plants.—*G. F.*—Stapelia grandiflora.—*H. M.* (*Roscoe*).—Lathyrus sativus.—*H. L. B.*—1, Asplenium lucidum; 2, Polypodium appendiculatum.—*W. and H. S.*—1, Sempervivum arvernense; 2, S. Braunii; 3, S. speciosum; 4, S. Boutignyanum; 5, S. Duellianum.—*L. Rondebosch.*—1, Erica sp.; 2, E. Plukeneti; 3, E. decora; 4, E. miliflora. We cannot undertake to name foreign Grasses. All named for you last year.—*C. Barker.*—Astrantia major.—*J. Harris.*—Name of Anemone next week.—*W. M.*—2, Plumeria lutea; 2, one of the Scabiosas; specimen insufficient.—*W. E.*—1, Helianthus decapetalus; 2, Campanula urticæfolia alba.—*T. M.*—Saponaria officinalis.—*Adare.*—1, Erica cinerea (dark); E. tetralix (pale).

Names of fruits.—*J. B.*—Plums: 1, Orleans; 2, Victoria; 3, Jefferson; 4, apparently Morocco.

WOODS & FORESTS.

LARCH SEED, NATIVE V. FOREIGN.

There is no foundation, says "J. F." (p. 183), for the statement that "the younger plantations from home seed are the most diseased," but he admits there is some truth in the statement that the best Larch forests in this country are those that have been acclimatised and produced from foreign seed. The lack "of foundation" specified exists, he writes, in the fact that young plantations are raised "chiefly from foreign seed." I doubt this, because it implies that our nurserymen deceive their customers by selling trees from foreign seed as from home-raised seed, and there is really no occasion for them to do that, as stock from home-grown seed is plentiful and can be had by those who want it. Then "J. F." goes on to furnish some rather inexplicable information as much against as for his own argument. "Even if," he writes, "the young Larch plantations were from home-raised seed, this does not prove that that is the cause of the disease. No; it only proves negligence and a want of judgment on the part of those employed who gather seed to discern between that which is fit and that which is not." This I call a distinction without a difference, but it proves that seed that is "not fit" is found in greater abundance than any other, which speaks volumes against home-raised seed, even without "J. F.'s" testimony as to an actual case wherein he saw the "cone gatherers bearing away great burdens of these bad cones until he stopped their work." Does "J. F." expect his readers to believe that these "great burdens" of bad seed were selected because they were bad? Far more likely is it that good seed was scarce and bad was taken in its place. Very strong testimony this to the danger of using home-grown seed! It is general results we have to deal with. Truly the interest of the seed gatherers "ends when they get their bags filled," but they are not filled intentionally with bad seed, but with what is most readily procurable. Next, we are assured that Larch from foreign seed does well at first, but dies away in the end, after being transplanted to the forest, while the home-raised lives on, which is an open contradiction of "J. F.'s" admission at the outset that "the oldest and best Larches are those that are first introduced" and raised from foreign seed. If foreign seed produced good trees once, why not now? I would like to hear of, or see, a properly managed Larch plantation from foreign seed that is dying away in the manner "J. F." states. Can he refer us to one example that can be certified? The fact of the matter is, this scare about the Larch disease and its causes that has been promulgated by foresters for years back has not a leg to stand upon. There can be no doubt about there being two or three diseases affecting the Larch, but there is no reliable data as to the causes of the disease. In the evidence given before the forestry committee one of the witnesses said that the Larch was still a very good tree to plant if people would only plant it in the right situations, and he gave evidence to show that plantations of Larch, otherwise equally grown, failed and died away, while others throve amazingly, the cause being the difference in the situation, although the plantations were in the same locality.

Yorkshireman.

Preparations for planting.—The present time is the most suitable for pushing forward the preparation of ground for autumn planting, by fencing, draining, opening pits, and trenching where necessary. In opening pits, they should be formed of sufficient size to hold the roots of the trees to be planted without cramping, as this is a matter of vital importance for the welfare of the trees in after life. Pits should always be made of such a size that when the tree is placed in the centre the roots can be spread out in a regular manner from the collar of the stem to their full length, by which means they will be enabled to derive food from all quarters, and support and keep the trees in an upright proper position during a storm. In cases where notch-planting is intended, and where the soil is of a poor and hungry nature with a crust of hard till below the surface, the places where the trees are to be inserted should be broken up and pulverised with a pick, by which means the plants will get a good start at the commencement, which is always a matter of much importance in the successful formation of young plantations. On bare exposed situations where wire fencing is being used for the protection of the plants, it is a good plan to warp some branches through the fence on the most exposed points, which breaks the force of the wind and ameliorates the climate till such time as the trees take to the soil and get established, when they will then be able to bear the blast with impunity and afford sufficient shelter to protect themselves. Take advantage of dry weather to open pits and convey soil or clay to peat bog ground to be planted in spring. Leave a small portion of soil at each pit to be exposed to the ameliorating influence of the weather during winter, by which means it will be rendered more fertile and in better condition for mixing with the bog at the time of planting. In trenching ground for ornamental plantations, see that the hard subsoil is thoroughly broken up and pulverised with a pick, and that drainage has been properly executed, in order to render the soil dry and warm for the roots of the trees. In cases where the soil consists principally of poor inorganic matter, such should be improved by mixing a quantity of soft, boggy earth, in order to establish a proper ratio between the organic and inorganic constituents of such a soil, by which means it will be rendered more fertile for the healthy development of the plants.—J. B. W.

THE FORESTRY REPORT.

Owners and managers of woodlands.—It was stated by some of the witnesses examined by the committee that the woodlands in England belonged to private owners mainly, and that practically the people who have to manage them are land agents, who know little or nothing of forestry, often being factors or lawyers residing in towns who "have no practical means of getting information" on the subject. This is a subject that has been dwelt on before in *Woods and Forests*, or rather the danger of trusting matters of practical woodcraft to agents at all, for those who occupy the position of factors and agents on estates have seldom either the time or the desire to attend to such matters any more than they have to attend to the practical duties of the garden or the farm. We are, of course, speaking of large estates on which woodlands of any extent can be said to exist. The proper person to look after the woods is the woodman, and it is he who must be educated for his work.

Mature forests.—Colonel Pearson gave some evidence on this head that may be questioned. According to him, the German theory is that the most profitable time to cut down a tree is when it is two-thirds grown. Formerly matured timber took the place iron does now. When a forest is about two-thirds grown there is the greatest volume of timber on the ground, and this witness said there "was no doubt about that, because, supposing you have 1000 trees growing upon a certain piece of ground, when they are twenty years old some of them, the weaker ones, begin to disappear, and at forty years you will only have on that space 500, and at sixty years more will disappear, until at last you will only have 50 or 60 mature trees. . . . Therefore, it is more profitable to cut the crop down (when they are two-thirds grown) and to replant it, because you have to count compound interest on the value of the crop as it stands upon the ground from the moment of its removal up to the time when it would have arrived at maturity." The time or age when it is most profitable to fell a crop of timber depends, we think, altogether on the demand, the purposes for which it is intended, and other circumstances not depending upon the maturity or age of the crop. But it is an extravagant estimate that a thousand trees will dwindle down from 1000 to 50 in about as many years, even if left to themselves. We would be confidently disposed to estimate the final residue at a much greater number—say 300 at least.

Planting Oak pure.—On the subject of "scientific management," Colonel Pearson said that there was no doubt that the fault of our public forests was that they have planted Oak pure. He had no hesitation in saying that Oak is not, and cannot be, successful alone. It must be said that the Oak planted alone in the New Forest has been a failure. There was one spot in the forests of Compeigne, in France, that used to be shown as an example of the result of planting Oak alone, and Oak with Fir, and Oak with Beech. The pure Oak plantations are now fast disappearing from the ground, although only 100 years old; while in the mixed plantations the Oak is magnificent. In regard to such evidence as this, we can only say here that we believe the witness to be wrong in his conclusions regarding the cause of the failure of the Oak, because there are Oak woods in England that have been Oak woods and nothing else for centuries that have not behaved in the above manner, while there is no physiological reason for Oak refusing to grow alone that we have ever heard of.

M. Boppe's report.—The "report on a visit to the English and Scotch forests by the professors and students from Nancy Forest School" forms an appendix to the committee's report, and is by far the most interesting piece of reading connected with the inquiry. I only note a few of the most interesting items it contains. The Frenchmen, as foresters of the Continental school accustomed to live among forests regularly managed, and having for their sole object the production of timber, "had no little difficulty in understanding the widely different motives which actuate forest cultivation in this country. Everywhere they found the forests fenced in on all sides with walls and hedges, and, as a matter of fact, that the forester or agent carried the keys of the gates in his pocket. They learned that these costly enclosures were erected, not for the purpose of keeping out the cattle and deer, as in the Jura, but for the purpose of keeping them in. It appeared to them like shutting up the wolf in the sheepfold." The French foresters have been misled on this point by their English conductors, for cattle are not fenced into woods "everywhere" in this country, nor, indeed, anywhere, except in some Scotch woods and here and there a neglected wood in England.

It is curious to find these French experts condemning "the monotonous regularity in the height and age of the trees" in English plantations as "an unmistakable sign of their artificial origin and want of methodical management," seeing that the efforts of the woodman in this country is directed to that end in culture and thinning. Under such circumstances M. Boppe declares "when the time arrives for the trees to be cut down, or should they be uprooted by a hurricane, the forest disappears in its entirety, owing to the total want of young growth, which is necessary as a link between the old forest and the new one." It will not appear clear to experienced English or Scotch foresters that creating plantations of trees of all sizes from saplings up to mature trees is a desirable practice in this country. The modern German practice of growing plantations in solid blocks and felling them in the same way is preferable in the production of timber. M. Boppe, however, saw many things that Sir John Lubbock's committee failed to discover, or rather about which they put few or no questions. "Scotch foresters," he writes, "are not responsible for the present regrettable state of affairs. They are powerless to effect any improvement so long

as the landowners and the general public have not learned to appreciate the manifold advantages to be derived from a regular and methodical management. They have to struggle against many adverse interests and hindrances, such as grazing, game routine, pecuniary exigencies, and the fancies of sportsmen from all parts of the world"—things that have been dwelt on in *Woods and Forests* many a time.

Our French visitors conclude by stating that among all the forests visited by them (in England and Scotland) "there is not a single one suitable for the treating of sylviculture (forestry) on that broad basis so essential when pupils are called upon to apply it in all quarters of the globe."

Readers of the parliamentary evidence given before the committee, we may just remark in conclusion, will be struck by the fact that little or nothing has been asked or elicited on such subjects as the ravages by game, the kinds of timber planted, value of different kinds of timber, the kinds of trees that succeed best, effects of climate, and other matters closely related to the subject, and which would have thrown a flood of light on our forest management. YORKSHIREMAN.

PLANTING UNDER COVERT.*

In the planting and management of shrubs as ornaments in plantations, or as under-wood for game, it should be kept in mind—first, attention to the application of general principles on which to found proper directions for guidance in planting and culture; second, a consideration of local peculiarities as to soil, situation, or climate.

Regarding the distance that trees should be left apart where it is intended to grow shrubs as undercover, very much depends upon the size and form of trees of which the plantation consists. It is sufficient to say that the trees should be standing so far apart as to allow the under-wood to be mostly out from the drip of the overhanging branches. This is very essential, that the shrubs may have the necessary supply of light and air for their healthy development, without which we can hardly expect them to thrive luxuriantly, more especially when they are planted in a soil already occupied and partly exhausted by the roots of existing trees.

When the shrubs are planted in a healthy soil, beyond the drip of the branches and free from the action of the strongest roots of the trees, they very soon become so thoroughly established in the soil, that under proper management they can be easily made to extend underneath the shade of the trees to the very base of the stem. It is not desirable, however, to have the whole plantation thinned, but only those parts where it is intended to place groups at intervals throughout the plantation. These groups should be made of various forms, and of a size that will correspond with the situation and extent of plantation, as also with the number of plants that are available in the hands of the planter. When the primary object is to get up under-cover for game throughout a plantation, the groups of plants should be placed from 50 yards to 60 yards apart.

After having determined where the various groups are to be placed, the ground should be prepared by cutting out a sufficient number of trees, and trenching over the soil from 12 inches to 18 inches deep according to its character and quality. If the subsoil be bad it should not be turned up at all, but well stirred with the pick or fork. It is a great advantage to prepare the ground during summer, and then plant in autumn; or to prepare in winter, and plant in spring. In either case exposure to the influences of the atmosphere will tend to pulverise the soil and bring it into a suitable condition for receiving the plants. If, however, it is not intended to trench the ground for the groups, large-sized pits should be opened for them some months previous to planting; all this tends to encourage their growth, and they never fail to thrive under this treatment.

An open, properly selected piece of ground as a home nursery for the rearing of large-sized plants will be found advantageous. With a home nursery, small-sized plants can be bought at a low rate, and reared under such local circumstances as will produce the essential requisites and functions required to enable the plant to overcome the immediate effects of removal. Frequent transplanting, and at the same time a liberal dressing of turf, sandy peat, or leaf mould, encourages the formation of rootlets and spongioles. Under such a system of treatment the plants may be kept in the home nursery till they are from 3 feet to 4 feet high, and of a wide-spreading bushy habit, having large fibrous matted balls of earth. When brought to this condition, they suffer less from the attacks of hares and rabbits, and a less number of plants are required to plant a group of sufficient size.

Time for Planting.

The season of the year best suited for planting Evergreens is the latter end of August and the month of September. At this season the temperature of the earth is usually greater than that of the atmosphere, and this at once promotes the formation of spongioles, enabling the plant speedily to take root in its new situation, and secure itself against risk of injury from the evaporating winds of spring. Another good season for Evergreens is the latter end of April and early part of May. At this season the dry and frosty winds are generally past, and the temperature of the soil is such as at once to promote a growth of the rootlets.

When planting is resolved upon in early autumn or late spring, the best method to follow is to have the pits all dug and made ready for the plants, and then choose a dull, dampish day for the removal. In spring, if the weather is not dull and moist, and if the plants are rather barely rooted, to prevent flagging pour water over the roots after the finer soil has been packed, and this will form a sort of puddle about the roots, and at once promote their activity. This method of watering employed previous to filling in the whole of the soil into the pit leaves the surface soil open and pervious to the most gentle showers; whereas watering after the soil is all filled in binds the surface and tends to form a crust, which is somewhat impervious to rain.

Mode of Planting.

When planting is proposed, good large pits should be made. The size must in all cases be regulated by the nature of the soil, and in proportion to the size of the plants. On hard, stiff, poor soils the width of the pit should be increased, and the soil in the bottom well stirred with the tramp-pick. It is needless to expect that plants can grow so vigorously when their roots are crammed into a pit in the form of a bowl, with their tender extremities pressing hard on the undisturbed sides of the pit, as they will do when they are planted into square-shaped pits, so large that there will be a portion of prepared earth between the roots and the hard sides of the pit, to encourage the formation of spongioles. In sheltered plantations, under a crop of deciduous trees, where the soil is naturally good and annually enriched by the fall of leaves, shrubs may succeed very well without much previous preparation of the soil or assistance to its fertility, but in more exposed situations, where the soil is thin and poor, and not much benefited by decaying leaves, it is imperative that the soil should be thoroughly prepared—first, by being deeply trenched and exposed to the atmosphere; and second, by digging large pits, and giving them a plentiful dressing of peat or decayed vegetable matter. It is a great benefit to dig the pits deeper than is required for the plant, and then lay the turf in the bottom, where it should be chopped into small pieces and mixed with the soil, for the purpose of fostering the roots. When this is done on good soils, there is often no other assistance required; but on poor soils, such as gravel or stiff clay, a good dressing of peat, turf, or leaf-mould will immensely benefit the growth of the plants, as it will greatly assist the formation of rootlets, and enable the roots to become more fibrous, and matted into a sort of ball. This method of treatment will be found of very great advantage in the future management of the shrubs, because the plants, after several years' growth, will be found to have a fibrous ball of earth, secured by the roots of the plants forming a net-work through and round the body of leaf-mould and turf, and will thus be made suitable for safe transplanting when it is considered to be necessary to thin the clumps. The greatest possible activity should be displayed during the time of planting, and the utmost care taken to have the roots exposed as short time as possible. For want of sufficient care in this respect, many plants are very much injured and their after growth much retarded; while some of the more peculiar or fastidious, such as the Holly and Portugal Laurel, have their vitality by exposure almost completely destroyed, and instead of taking root and at once beginning to grow, often are found to die down to near the root. We have known instances where planting was conducted so carelessly, and during weather so unpropitious, that many plants died solely from exposure. One other important matter is to lift the plants from the nursery with the least possible mutilation of the rootlets, and then have them carefully "sheughed" in near to the planting ground till they are required. In this department of practical forestry there is room for considerable improvement, but all that is needed is a little more energy and expedition in handling the plants to prevent the drying of both roots and branches, so that their naturally succulent condition may as little as possible be injuriously affected.

A dressing of peat or leaf mould at the time of planting causes the plant to retain a ball suitable for transplanting for a number of years. But where this has not been attended to, the plants should be prepared for transplanting by digging a trench round the roots a year previous to removal. When filling up this trench leaf mould, or the best of the soil, should be put in next to the roots, and, if possible, the plant should be pulled a little to the one side, so that part of the mould may be put underneath the roots. In transplanting plants that have been pegged down, those branches that have taken root, and are sufficiently strong to thrive without the parent stem, may be cut off and taken away to be planted similarly to nursery-reared plants; or, in order to prevent a bare appearance when the parent plant is removed, a few of the rooted branches may be left to grow for a time and be afterwards removed.

In very old plantations, where the trees are mostly deciduous and standing far apart, as also in younger plantations composed chiefly of tall, bare, over-drawn trees, with here and there open spaces of ground, it is often desirable to keep up the ornamental appearance of the plantation, although the trees are so slender as to be past becoming any better value as timber. In these, and similar situations, some recommend the promiscuous planting of shrubs as the best method of keeping up the appearance. But from experience, I consider it far better to plant one or more specially prepared trees (from 3 feet to 4 feet high) in the larger vacancies, and then intersperse a group of shrubs here and there throughout the plantation.

One of the trees best suited for this purpose is the Silver Fir. This tree grows well, even though it is a little shaded by over-hanging branches when in its young state. The soil and situation most suitable for this tree is a rich moist loam, but not saturated with water, in deep glens or slopes of hills. But it also grows profitably on dry soils, and it is very well adapted for planting as a succession crop. Another excellent tree for being planted in the largest openings is the Abies Douglasi. If it is not overhung, or too much shaded, but planted in a healthy loamy soil, and somewhat cool situation, it becomes one of the most rapid-growing trees. It will not stand anything like the amount of shade or drip from the branches of other trees that the Silver Fir will do. But when planted, as it ought to be, in an open space entirely free, it has no equal in rapid growth and beauty, or as a timber-producing tree.

Overgrown Evergreens should not be cut down during the winter months. The latter end of April or May is the best time. The reason of this is obvious, for when they are cut over in winter, the plant being then dormant, the lengthened exposure to the weather causes the inner bark to get dry and to separate from the wood, and when spring arrives

* Extracts from an essay read before the Highland Society "On Planting and Rearing Shrubs, &c., in Plantations for Ornament, or as Under-cover for Game," by A. Gilchrist.

any shoots that do come strike out through the side of the stump, and are weakly when compared with spring-cut plants.

When the cutting is not done till spring, the inner bark never loses its naturally healthy condition, and the vital functions of the plants becoming then active, strong shoots are quickly sent right out from the top, as also from the sides of the stump and surface of the ground. Several examples have come under notice illustrative of the benefits that accrue from spring cuttings, and others have proved plainly that it was most injudicious to cut in winter.

Another point in the management of shrubs as under-cover, worthy of more attention than is usually paid to it, is to have the management of the shrubberies and groups of under-cover methodically arranged, so that a portion will fall to be done each season. It will be generally found that two years is long enough to be allowed to pass without cutting back a branch here and there, pegging down, or transplanting some of the shrubs, so that those that are adapted for standards or fine specimens may have room for greater development.

When shrubs are planted as under-cover at the time the plantation is formed, they may be placed from 8 feet to 12 feet apart, in groups of 3, 5, 7, or more plants, with Larch or Spruce as nurses that can be cut out as the shrub requires room. This saves transplanting of shrubs, and enables a tree to be left in the centre of a group if desired. Trees, such as the weeping Birch and some of the Poplars, have a fine effect in a group of shrubs, as also Cupressus Lawsoniana, C. nutkaensis, and some of the upright growing Junipers. In managing these plants, and many others of a similar habit, they should never be allowed to grow with more than one leading shoot; timely pinching of rival leaders and all strong side branches will prevent this. If this were more regularly attended to, there would be no necessity for having plants, such as the Irish Yew, Arbor-vitæ, and Juniper tied up with wires. The plants would have one stout stem that would be able to resist the wind without being destroyed or made unsightly.

Select Covert Plants.

In detailing the plants best suited for under-cover, the Azalea pontica is very hardy, and will thrive best in a peaty soil and sheltered situation. It flowers profusely in early summer, and in autumn its foliage becomes very ornamental. There are several excellent varieties of this plant well suited for low groups in ornamental grounds. Rhododendrons are well-known evergreen flowering shrubs, possessing several peculiarities that make them an excellent class of plants either for cover or ornament. They luxuriate in peat, moss, sandy loam, or in decayed vegetable soils, such as in low-lying moist situations, where the leaves of deciduous trees have accumulated. In fact, they grow well on most kinds, except cold, stiff, or thin moist soils; but even if such unfavourable soil is in a sheltered situation, and thoroughly prepared for their reception, by being trenched and exposed to the action of the weather until thoroughly pulverised, and if at the time of planting a plentiful dressing mixed together of leaf-mould and peat is employed, Rhododendrons will then thrive. They will bear transplanting very well, even after they are large. They are never injured by hares or rabbits, and their bushy habit makes them favourite plants for under-cover. As soon as they are fairly established after planting, attention should be paid to have some of the strongest branches pegged to the ground every year, and at the same time a few plants may be transplanted from the group. When treated in this way they grow very rapidly. For example, a group of hybrids containing upwards of 200 plants, from 9 inches to 12 inches high, planted in April, 1869, were in spring of 1870 reduced by transplanting to less than one-half that number, many of them having grown upwards of 12 inches that season. Most of the hybrids and fine named varieties are very attractive both in their flowers and foliage, and are all very useful where a low group is desired on a well-kept lawn.

Mahonia aquifolia is another useful low-growing shrub. It grows freely on any kind of loamy soil if not too damp. When planted in a prepared soil, if kept clear of weeds and coarse Grass, it has a fine bushy habit of growth, but otherwise it gets bare below.

The Bay Laurel (C. Laurocerasus) grows best on a light loam, with dry subsoil, but it thrives on a great variety of other soils. When properly attended to in thinning and cutting back over-strong branches, it assumes a reclining habit, and is well suited for being pegged down. This plant seems to grow the faster the more it is treated in this way; attention should every second or third year be paid to this. It is easily propagated by layers or cuttings.

The Portugal Laurel (C. lusitanica) is more particular as to soil than the former. The soil most suitable is a rich loam in a rather sheltered situation. It is of a compact bushy habit, and very well adapted for growing as large-sized specimen shrubs. They are rather difficult to transplant, unless previously prepared; but bushes from 3 feet to 6 feet high, when planted amongst turf or peat, as recommended in the former part of this paper, can be successfully transplanted after six years' growth.

Common Holly (Ilex Aquifolium) is a very hardy shrub, and the best of all the Evergreens for planting in exposed situations. It thrives well on soils of various qualities; it is also rather difficult to transplant, unless frequently moved or treated similar to the Portugal Laurel. There are several cultivated varieties of the Holly, very beautiful and fast growing, and all well worthy of a place in every shrubbery.

The English Yew (Taxus baccata) is also a very hardy shrub. It thrives best in a sandy loam, having a cool and moist situation and a northern exposure, and is well suited for being planted in a group or as a single plant. At first it seems to be of a compact habit of growth, but as it increases it sends out a number of horizonal spreading branches. The Yew is naturally fibrous-rooted; hence, with ordinary skill and treatment, it can be transplanted of a large size. It is well adapted for forming ornamental hedges in pleasure grounds. It can be clipped to almost any shape; some fine examples may be seen at Hopetoun House, Edinburgh. Being a very hardy plant, it makes an excellent boundary or screen-fence in grounds where shelter from cold and cutting winds is desirable; but owing to the poisonous nature of this shrub, it is not suited for being used as a hedge within the reach of animals. There are several variegated and other varieties of Yew that are scarcely as hardy, but are very beautiful and handsome shrubs.

The Privet (Ligustrum vulgare) is a plant that is very well adapted for forming clumps of under-cover. It is a fast grower, and not particular as to soil, and thrives in a sheltered situation. It should be regularly pegged down to the ground, and the strong branches in the centre cut back. It is easily propagated from layers or cuttings, and altogether is one of the cheapest and best plants that can be got for game cover. There is a broad-leaved variety of this plant recently sent out from nurseries, possessing all the good qualities of the old variety, and, owing to its broad foliage, is a more ornamental plant.

Cotoneaster Simonsi is well worthy of being extensively grown as an under-cover. This plant is a very rapid grower, four-year-old plants being sometimes upwards of 3 feet high. It is not very particular as to soil, if dry and not too much exposed. This Cotoneaster should be regularly cut back and pegged down every two years. If this is carried out properly, there are very few shrubs that will extend more rapidly. It is an Evergreen, and bears fruit very abundantly, which is an additional ornament during the winter. The fruit is useful as food for pheasants and other birds. Other varieties of the Cotoneaster are also useful as under-cover and ornament.

Hypericum calycinum (St. John's-wort) is an excellent plant for covering banks, where low-growing shrubs are wanted. It has few equals, and extends itself over the ground very rapidly, forming first-rate under-cover. It is easily propagated by lifting up a spadeful here and there, breaking it up, then replant it in small portions. It is an improvement to thin out masses of it in this way. It has very pretty yellow flowers, which continue in full bloom from July to November. From experience of this plant, it is well worthy of being more extensively planted.

The Aucuba japonica is another very ornamental plant, well suited for good soil in a cool situation. The same may be said of the Daphne Laureola and Berberis Darwini, the latter being a free-growing beautiful flowering shrub. Several other varieties of the Barberry are also worth attention.

The Sweet Bay, Laurustinus and Arbutus, are all beautiful plants, when grown near the sea coast, in a warm and sheltered situation. The Elder is a useful plant, suited to withstand the sea breeze and cold cutting inland winds. This forms one of the best of all plants for producing shelter.

The Sea Buckthorn (Hippophae rhamnoides) is also very suitable for maritime situations. The Snowberry and Syringas of sorts should be recommended as useful for planting, as nurses to the more valuable shrubs, to be gradually cut away as the finer sorts grow. These plants are readily raised from suckers. Ribes and Dogwood of sorts make also good under-cover; both are rapid growers, and well suited for being cut back and pegged down, the treatment previously recommended. Both are easily propagated by cuttings.

The Mountain Pine (Pinus montana) is admirably suited for under-cover. It is a low-spreading bushy tree, with long creeping branches, which generally take root in the ground, and then the extreme points, rising to the height of 3 feet or 4 feet from the surface, gradually turn down again. This hardy tree is specially suited for being planted as an under-cover on those poor moorish parts of land that are planted for the most part with Scotch Pine. It is well known that Scotch Firs soon lose their lower branches, and cause a want of under-cover. This evil would be remedied if a number of the Mountain Pine were planted at intervals throughout the whole plantation at the time of its formation, as they would make very fine cover by the time the plantation was thinned for the first time, and the oftener it was thinned the better would these plants extend. I have seen Pinus montana growing beautifully (after twenty years' growth among Scots Pine) on a light mossy soil only a few inches deep, resting on a grey freestone. Each tree had a number of stems, all a little reclining towards the ground, the lower branches spreading out on all sides, and reaching from 12 feet to 15 feet out from the centre of the plant, with numerous branchlets thickly covered with foliage, forming a regular thicket. Some of these plants are growing between Scots Pine 12 feet apart, and although their centre branches are more drawn up than those that have had more room, still their lower branches spread equally. This Pine grows on almost any soil; it thrives very well on poor, thin soils and high exposures, such as rugged shelves of rock where hardly any other plant can thrive. In fact, on the most favourable soils it has no inclination to become a tree. In its native habitat it never grows much above 20 feet, but forms a large spreading bush.

All the shrubs and trees here mentioned will grow vigorously, even when partially under the shade and drip of trees. Numerous other sorts equally deserving of attention for individual characteristics might be named, but a sufficient number of kinds has now been referred to to enable anyone with a little practical experience to select suitable plants for under cover for any district.

Before concluding, I would mention a few of the trees that are most suitable for planting in large vacant spaces in woodlands, or for planting amongst severely thinned and overdrawn or branchless trees. The Silver Fir is among the best for general purposes, especially in larger openings and most sheltered situations. Abies Douglasi, the common Spruce, Corsican and Austrian Pine are also suited for this purpose, and the latter will thrive on high exposures and poor soils. Abies nigra is also a very hardy tree, and is well adapted; so is Abies alba, though scarcely so hardy. Both these trees suit well for nurses. All these trees bear transplanting very well after they are upwards of 3 feet high.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

GOOD STRAWBERRIES.

Strawberries a Sure Crop.

MY opinion is that no one should fail in producing good crops of Strawberries every year, once they have found out the varieties that suit the soil and locality, provided a few plain rules of culture are observed. Under these conditions there is only one cause of failure to be apprehended, and that is late frosts when the plants are in flower, and that is a danger that need seldom be feared, because the Strawberry blooms, as a rule, after late frosts are over. These are facts that must be considered of great importance to market growers, seeing the Strawberry is such a remunerative crop. To have a good crop every year means profit just according to the ground laid under crop. Market gardeners wisely like to have more than one string to their bow, but if I was confined to one string, I should make it the Strawberry. It has the advantage over the Raspberry and all other small fruits that it produces a good crop the year after planting, and that it may be planted after the ground has borne its crop for that year. It is all a question of culture, and the culture is simple. I can testify, as has been testified before in THE GARDEN, that for over a score of years we have never missed a good crop of Strawberries out of doors—that is such a crop as would have paid the market gardener or anyone else well.

THE ESSENTIALS OF CULTURE are, first, the production of good runners; next, the planting of them in time; and, lastly, manuring and keeping the stools in order. To have runners early is an easy matter in the south, but in the north and in late seasons it is not so easy, but still runners can be secured early enough anywhere by a little forethought. The Strawberry produces an offset at the first or second joint of the runner. Usually the first good offset is procured at the second joint, and beyond that in succession; but if the runner is allowed to extend beyond the first offset, the latter is never so early or strong. Here, in our late district we are compelled, in the case of pot plants, to pinch the points of the runners as soon as they can be got hold of beyond the offset and before leaves appear. This causes the plants to form roots considerably earlier than they would do if the points were allowed to grow till good leaves appeared. In this way there is no difficulty in securing good, young, well-rooted plants by the beginning of August at the latest, and if they are planted in their permanent quarters then, a heavy crop of fine berries is assured the following season. Such plants never fail, and the crop will just be in proportion to the vigour of the plants. It is well to layer the runners in a ridge of good soil, to begin with, laid between the rows; from this they lift easily with good roots, and suffer no check.

AS TO THE GROUND AND PLANTING, sorts can be found to suit all ordinary soils, and they should be at least deeply dug and well manured; but, as much can be done by mulching and surface dressing, I do not attach so much importance to deep trenching as some do, and it doubles the cost of preparing the ground. Strawberries will produce good crops for several years in soil that is only deeply ploughed or dug one spit deep, a fact of some significance to small market growers who are short of labour. The ground being ready, the mode of planting and distance between the plants is the next question. I have little or no faith in planting very wide and trusting to "snatch" crops of vegetables between the rows. Devote the ground to Strawberries alone, and make the most of it. The distance between the rows depends on the sorts—kinds like the Black Prince succeeding in rows 2 feet apart and 18 inches between the plants, but for ordinarily strong-growing kinds like Vicomtesse Héricart de Thury, 2½ feet between the rows and 2 feet between the stools is not too much after the first year, as the heads get large and meet between the rows if planted closer. Nothing can be worse than thick planting, as in that case the crowns are never so productive, but the worst consequence is the loss of crop caused thereby through the depredations of slugs and beetles, and, above all, by wet, if the weather be at all moist when the crop is ripe. Every grower knows how soon a good crop spoils in wet weather, how important it is to gather the fruit dry, that when the plants have plenty of room all round a few hours will dry the crop, and that when the beds are crowded by foliage it will not dry before it rots. In a case that once came under my notice it was estimated that at least half the crop was lost one rather wet year owing to thick planting, and all the profit as a matter of course, if not more. This happened in the case of the older plantations, perhaps three years of age, with large crowns. On the autumn-planted quarter where the plants had room little or no loss happened, as the fruit dried during the intervening blinks of sunshine or dry weather, and was gathered as it ripened. My advice, therefore, to growers is have every stool standing clear. Then it ripens its crowns thoroughly, produces fruit all round, and the crop is safe.

MULCHING AND GENERAL CULTURE.—A good crop of Strawberries, safely gathered, depends a good deal on the mulching applied and the time it is put on—far more than some would imagine. I find it best invariably, for the production of good growth and crop, to mulch early in spring with stable litter, which soon gets washed clean, and serves just as well as clean straw beneath the ripe fruit, and which is usually put on later. But an early mulching of this kind has one decided drawback—it encourages black beetles greatly, and also slugs, and the amount of damage they do to the earliest and finest fruit is most serious. These pests seem to breed under the loose surfacing of litter, and when the Strawberries are ripe they literally swarm. Naturalists have declared that the common black "clock" does not eat fruit, but I know better. It is, in fact, one of the worst enemies of the Strawberry, and early mulching encourages it. When straw is put on later in the old way, beetles are not nearly so bad; but without the mulching neither the crop nor the growth is so good. If it was not for the trouble and expense, I would prefer tiles or slates under the fruit. As to general culture, once a Strawberry plantation is established the labour of culture is not great. It consists in cutting off the runners with the spade after the crop is gathered, and keeping the soil between the rows clean and free from weeds without digging or forking. If a good mulching of manure can be put on at the same time in autumn, all the better for next year's crop; for it should never be forgotten that the quantity and size of the fruit depend mainly, if not altogether, on the treatment the plants receive the year previous. The number of fruit on each scape and the number of pips to each fruit, and on which size depends, are all settled, as a rule, before growth is finally matured in autumn. S. W.

ROOT-PRUNING BEFORE LEAF-FALL.

THERE does not now appear to be so much difference of opinion respecting the advantages of root-pruning fruit trees as there was at one time. Those loudest in condemning the practice now admit that favourable results follow this method of correcting over-luxuriance. In fact, it is generally allowed that, with the exception of the little toy trees that are dwarfed by incessant shoot-pinching, there is no way of keeping fruit trees within the size it is often desirable to confine them to, and still have them in a condition to bear freely, except by taking them up and replanting or by root-pruning them. The advantages attending the latter practice in preference to taking them up wholly are so obvious, that it does not require much consideration to enable anyone to decide which course is best. The principal objections to taking up and replanting are, that if the trees have attained a considerable size, the check they receive is often too great, and is followed by a stunted condition that lasts longer than is desirable. In addition to this the labour of taking up and replanting, if the work be done as it should be, and if the necessary staking to keep them from being disturbed by the wind is carried out, is fourfold that of root-pruning. Beyond this, trees that have attained a size, say, of 12 feet or 14 feet in height, and consequently too big to remove when it can be avoided, can by root-pruning be brought into a fruitful state, and kept so without allowing them to increase further in size. It is scarcely necessary to say that, as regards the root-pruning of fruit trees, the practice is most applicable to such as are bush or pyramid shaped, and that require to be kept within a limited size, such as in kitchen gardens, where trees unrestricted in size are objectionable. In the case of standards in orchards it is only in exceptional cases, such as where there is a disposition to bring them sooner into bearing than would occur with their roots unchecked, that root-pruning is necessary.

TAKING VEGETABLE GARDENS as they exist throughout the country, large and small, in much the greater number, fruit trees, more or less, are grown by the sides of the walks, the presence of which contributes much to the effect in taking off the uninviting appearance inseparable from ground occupied by culinary vegetables only. But the advantage attending the cultivation of fruit trees in vegetable gardens is not confined to matters of appearance and the bare interest attached to their presence alone, but to something of more importance, which is, that under such conditions their roots participate in the cultivation bestowed on the vegetables to an extent that enables the trees to bear much finer fruit than that which is produced in orchards. This fact is so patent to anyone who has any acquaintance with fruit growing as not to require comment. Still, if proof was wanted, it was furnished at the Apple exhibition held at the Royal Horticultural Society's Gardens, where the Apples that took the lead in the various competitions were the produce of trees that were located in vegetable gardens. And in respect to Pears, the fruit that is forthcoming from trees in kitchen gardens, bush shaped or pyramids of medium size, is usually as large again as that which is borne by orchard trees. Yet where fruit trees are grown in kitchen gardens it is obvious that they must be restricted in size, otherwise the dimensions they attain are such that they soon not only destroy the character of the garden, but also interfere with the growth of the vegetables, which they overhang and shade in a way that does too much injury to make their presence admissible where anything like good gardening is attempted. The miniature fruit trees kept to Lilliputian size by persistent shoot-pinching may do for those who are fond of fads, but they would never be likely to find favour with the majority of people engaged in gardening who require the best return they can get for the outlay

they incur, and who find in trees kept to medium size, such as are obtainable by root-pruning, just what they want.

The work of root-pruning is so simple and generally understood and the labour involved, even where a large number of trees has to be gone over, is so little, that it seems strange to see the numbers of places where gardening in other respects is well carried out, yet where there are quantities of fine young trees that have reached a size as large as it is advisable to allow them to grow to, and which keep on year after year producing little besides wood, which, as a consequence of the constant shoot-pruning they are subjected to without a corresponding reduction of their roots, they make in such quantities as to prevent the formation of fruit buds. Hence their barrenness, a condition in which they are likely to remain for time indefinite, unless means are taken to secure a more equal balance between the roots and the tops. Fruit trees that are located in kitchen gardens owe much of their over-luxuriance whilst young to the manure which is applied to the ground for the vegetable crops, to which their roots have access, and it is the presence of this manure, coupled with their restriction in size, that enables the trees to keep on producing large fine-looking fruit after they have reached an age when the produce of ordinary orchard trees is undersized and of proportionately less value. It is only whilst the trees are in the full flush of youthful vigour that they require restriction of their roots, as after this in soils of ordinary character the crops they carry keep down any disposition in the trees to run too much to wood. It, therefore, follows that those who root-prune need not be under the impression that they have begun work which will require unceasing repetition. So much finer are most kinds of Pears and Apples, especially the best dessert varieties of the latter, when grown on trees confined in size by restriction of the roots, that if I was going to plant with the intention of marketing the fruit I should have no hesitation in adopting this form of tree in preference to standards, as, excepting the biggest varieties of Apples, the fruit from standard trees, after they have been some years in bearing, comes so much smaller that it does not fetch more than half the price of that from trees confined to medium size.

During a course of years I have carried out the work at different times, extending from the latter end of August, through the autumn and winter, up to so late in spring as when the buds had begun to move, with a view to ascertain what influence the difference in time had on the trees operated upon, with this result that when the work was carried out whilst the leaves were still green and full of life it tended to the formation of a much greater quantity of bloom-buds the following season, and to a better condition of the trees in every way. This is shown in Apples, Pears, and Plums where the trees are subjected to this treatment, but most in the two first-named fruits, in the case of which a reduction of root power to induce fertility is oftener required than with Plums. When the operation is carried out whilst yet the leaves are in a condition to act the trees at once show a disposition to form bloom-buds, which become fully developed the ensuing summer to an extent that does not occur when the pruning takes place after the fall of the leaves. When these are off the trees do not appear to be affected by the time they are operated on, provided it is not deferred until the buds begin to move, which in mild winters frequently takes place earlier in the new year than is often supposed; consequently if the pruning is not effected before the leaves fall it is well to do it before the end of the year. Some trees that I purposely left untouched until the buds were swelling were so weakened—though the roots were not shortened more than those of others operated on earlier—that they were two or three years before they recovered, although plenty of fertile buds were formed the ensuing summer, but these were thin and weak, and the fruit they produced, both Apples and Pears, was so small as to be useless for two or three years, the leaves being alike affected in size.

It is not good practice to root-prune young trees too soon or too severely, that is before they have attained enough size to produce fruit worth taking into account, as if they are thrown into premature bearing there is a loss of time in their reaching a size that will admit of their carrying sufficient crops. The right course is to regulate the root power for a few years before the trees have reached the size they are to be grown to in a way that will secure as much fruit as is consistent with the necessary top growth to admit of the gradual increase of their heads, and never to let them get into a condition that will cause the production of too much wood after root-pruning is once begun. T. B.

Magnum Bonum Plum.—This is without doubt one of the finest Plums in cultivation, though not of such a continuous bearing habit as the Victoria and some of the popular market kinds. It should, nevertheless, find a place in private gardens as a wall tree from the fact of the fruit making such a noble dish on the dessert table. I find that this variety is most fruitful after it becomes well established, or at least half a dozen years old, as it grows so vigorously in its young stage that strong wood is produced more than fruitful spurs; a rather hard soil, not much enriched, should be selected for these kinds of Plums, or they run too much to wood and leaf growth at the expense of the crop. The Magnum Bonum Plum needs to be fully ripe before it is eaten, when its flavour is very good indeed—in fact, little short of that of the Green Gage; on walls, if a little care is exercised in putting the leaves aside so as to fully expose the fruit to sunshine, a beautiful pink tinge is imparted to the fruits that makes them very attractive on the dessert table. —J. G. H.

Madresfield Court Grape.—I have never seen Madresfield Court Grape so extensively and well shown as it has been this season. Cultivators generally are surely improving in their ways of producing it, as the majority of the bunches recently exhibited have been large in size, beautiful in form, handsome in berry, and altogether attractive. The flavour, too, is excellent, and although few samples are seen without a green tinge at the footstalk of many of the berries, this is the whole that can be said against it; and if it can be grown and shown year after year in the same excellent condition as it has been this season, it will certainly take the position of the leading black summer Grape after the Black Hamburgh. It was very conspicuous in many instances at the recent Shrewsbury show. It was shown in most of the prize-winning collections, and in the class for three bunches of any black Grape it gained the first prize amongst eighteen exhibits, beating Black Hamburgh, Muscat Hamburgh, and several other black varieties; and it merited its position. It was also shown as a dish in several collections of fruit, there being upwards of two dozen exhibits of it, and there was not an inferior one amongst them. The excellent state in which it was seen here will be sure to induce many amateurs to plant it, and I feel sure they will have every reason to be satisfied with it, as in size of bunch and berry, and especially in flavour, it is capable of giving the highest satisfaction.—Cambrian.

Six good Apples.—According to The Garden fruit reports, Apples are a thin crop generally. That dwarf or pruned trees or bushes are recorded to be better cropped than tall, wide-spreading standards is an important fact. I am well aware of the grand crops that can be produced on large orchard trees, but I do not think that the merits of dwarf bush trees have yet been fully tested. Looking round my little bushes that are loaded with fine fruit, I noted half-a-dozen that may be useful for anyone requiring that number of really good, reliable sorts, viz., Lord Suffield, New Hawthornden, and Small's Admirable for kitchen; Summer Golden Pippin, Cox's Orange Pippin, and Court Pendu Plat for dessert. These seldom fail, and, taken collectively, are useful for a small garden. I may here remark that the number of times some of these kinds receive favourable mention is sufficient of itself to fix their character as the best of our excessively long list of Apples. And, happily, there is now such a wealth of really good kinds, that there is no need for growing second-rate or worthless varieties. It is not owing to the expense of the trees, for they are now obtainable at a price that only a few years ago would have been thought impossible. Now is the time to prepare the soil for planting, and be sure and select your bushes early in the season, for the best always go first.—J. G., *Gosport*.

RASPBERRY CULTURE IN AUTUMN.

Where any old rows have become useless and are to be rooted out and thrown away, this work should not be deferred until autumn or winter, but clearing should take place at once to have the ground ready for another crop. As a rule it will be found that ground which has been occupied with Raspberries for some years has become very poor, especially a little way from the surface, and it is generally necessary to trench the ground after them and manure it well. As many spent vegetables are now being cleared off, a quantity of these might very profitably be trenched into the subsoil of old Raspberry ground. If this was done now and the surface left rough during the winter, the soil would be in excellent condition to produce a fine crop of early Potatoes next spring. Where Raspberry rows have become rather blank and only consist of a good plant here and there, it would never pay to retain these in their present state, and the best way of dealing with them is to lift them during September and make up the vacancies in some of the other rows with them. In this case the worst of the rows should be cleared to make good the best ones, and it will be found to be better to have two or three rows fully furnished than half a dozen with only a plant here and there. Some of the young suckers which have been thrown up from the strongest of the stools may also be lifted to make up blanks, and wherever any planting is done the piece of ground in which the roots are to be inserted should always be manured and dug up before planting. Several of our rows will shortly be treated in this way, and the whole of them will be gone over at once with the object of cutting out the old growths which produced the fruit this year, but which are now useless and withered. These old growths are sometimes left until pruning time in winter, but this is a mistake, as September is one of the best months of all to ripen the young rods, which will produce the crop next year, and they cannot have too much light, sun, and air just now, but when the old rods are left they partially obstruct all these. Where the canes are tied to wire or fences of any kind it is an excellent plan to tie them into their places now, but where this cannot be done at present the cutting out of the old rods should on no account be neglected, as this is one of the most important points in successful Raspberry culture with which I am acquainted. Where the stools are very strong and many young growths have been emitted, some of the outer ones may be shorter and weaker than the centre or main ones, but these may be dug up further on to form new plantations or fill up blanks, and where not wanted for these purposes they should also be cut out with the old ones and allow none to remain, except those required for fruiting next year.

J. Muir.

Apricot Musch-Musch.—This is unquestionably the hardiest and most reliable sort that can be grown. Our tree of it now reaches the top of a wall 14 feet high, and has a proportionate diameter of branches. It is now carrying as many fruits as some half-dozen trees of the Moor Park variety. The form of the tree is that of almost a perfect fan, for it has never lost a branch larger than one's thumb, and very few of them; while trees of the

Moor Park are terribly disfigured through the loss of large branches. Our Musch-Musch tree has never failed to bear a good crop since it was large enough to do so. It is quite a distinct variety, the leaves of which are slightly glaucous. Its only fault is the fruit not being quite so large as that of the Moor Park; but surely a good crop of rather small fruit every year is better than larger fruits which are uncertain. I prune Apricots on what I call a rough-and-ready system. What pruning our trees get is done in the summer time. Most of the young wood is nailed or tied in, only the young shoots for which there is no room being cut away. Early in the spring all dead wood is cut out, and that is about all the attention they get, except covering them with a wide glass coping and old fish net while in bloom. The glass is taken away again as soon as all danger from frost is over. —J. C. C.

Scalded Peach leaves.—Allow me to send you some leaves from young Peach trees growing in a cool house in which they have been planted about two years. They have not as yet borne any fruit, though they appear to be in good health. Within these last few days, however, the leaves are dropping off fast, and they have a scalded appearance. They decay round the edges, and there seems to be little black spots about them. They have had abundance of air day and night, and about three weeks back they were syringed with a weak solution of sulphide of potassium (quarter of an ounce to a gallon of water). I might add that I syringed Rose and other plants with the same solution, and they show no appearance of being hurt by it.—Selly Oak.

*** Your Peaches were doubtless perfectly healthy up to the time of the mishap in question, which is simply a case of scalding. The cause without seeing the borders it is impossible to define with certainty, but, judging from the tender nature of the leaves sent, it is more than probable that the roots, insufficiently supplied with water during the intensely hot weather which has prevailed, have been wholly unable to sustain the rapid perspiration. Yet another conjecture. Your trees, which you say are never shut up, may have been syringed too early in the afternoon; a circulation of air combined with intense sun heat would speedily injure the unusually tender leaves. Sulphide of potassium, quarter of an ounce to the gallon of water, would not harm them, as we have applied it double that strength to the tender tips of young Melons. Mulch your trees, give them plenty of water, and syringe well to induce a free growth of laterals, which will prevent the main buds now destitute of leaves from bursting into wood or flower. Reduce the laterals when the trees show signs of ripening, and they will break satisfactorily next season. A word as to the use of sulphide of potassium under glass. Always apply it late in the evening, and syringe thoroughly with pure water, and give air very early the following morning.—W. Coleman, *Eastnor Castle, Ledbury.*

Cordon Apples.—These are largely grown at Beddington House, Surrey, and, as usual, this year again they are producing a large crop of fruit of good quality. The principal kinds we observed were Bedfordshire Foundling, Ribston Pippin, Keswick Codlin, Scarlet Nonpareil, Cellini Pippin, and Hawthornden. The trees are heavily mulched annually.—G.

SHORT NOTES.—FRUIT.

The Dorchester Blackberry.—This variety has proved the most desirable for exhibition purposes in America, although it is said there are others equally, if not more, desirable for general cultivation. It is claimed for the Kittatinny that it is more hardy, a good cropper, and produces good sized, saleable fruit.

Peach house (*Ellingham*).—There is no reason why you should not build a Peach house in the position you name. The heat from the house on the other side of the wall cannot possibly affect the Peach trees. Have the house constructed so that the lights may be taken entirely off the roof after the crop is gathered.

Plum Cox's Emperor.—This fine all-round Plum is far too seldom seen. It may be grown successfully either as a pyramid or trained upon the wall. It may be depended upon for a crop, and is a large handsome fruit, flavour excellent, and fit for culinary purposes or dessert.—G.

Diseased Melons.—Our late Melon plants are suffering from a disease an example of which I send, and I would be glad if you would tell me the cause of the disaster and the way to cure it. I have noticed numbers of small black specks on the part affected very much resembling those on the Potato leaf when attacked by disease. The plants previous to the attack were very strong. I first noticed a small drop of moisture which seemed to exude from the stem. Presently the bark became brown and the disease continued to spread until it reached round the stem, and also worked through it, bursting the tissues and splitting the stem, which eventually collapsed and the plant died. I have tried to check the disease with lime, and also with sulphur, but neither appeared to do any good.—J. W. L.

*** Yours is one of the baffling cases so often described in this paper. There is no possible remedy; the diseased condition must, if possible, be prevented by good ventilation, a free circulation of air, and perfect root action in good compost. When the fungi peculiar to the Cucurbitaceæ once fix themselves on their victim, cure is hopeless. Sulphuring is very good when fungoid diseases are attacked in their early stage, but no amount of sulphuring will replace rotten tissue with sound, or stop the progress of internal decay. —W. G. S.

NOTES OF THE WEEK.

Nerine Fothergilli major.—From Mr. Mansell's garden in Guernsey comes a very fine spike of this plant. His gardener, Mr. Peters, describes it as having been taken from a potful of bulbs bearing ten such spikes. He also remarks that this variety always blooms a few days earlier than any others. Some, we hear, are relinquishing the cultivation of these beautiful plants because they do not produce their spikes together, but in succession; such, however, does not appear to be the case in Guernsey. This is certainly one of the best of the Nerines.

Hymenocallis macrostephana is already the acknowledged best of the cultivated plants of this genus, but it may not perhaps be known to all who grow it that when planted out in beds in shaded places and where there is always plenty of moisture, this fine species is perfectly happy and flowers abundantly. Some clumps of it now flowering in the Palm house at Kew prove conclusively that the treatment here recommended is not only safe, but probably the most suitable for this grand bulbous plant.

Antirrhinums. — These old-fashioned plants are now in great beauty at Swanley, where Mr. Cannell has for some time past been paying more than usual attention to them, and the results obtained are very satisfactory. We like the self-coloured ones best, or those with white throats; but amongst flakes and stripes we also noticed some good things. Although Antirrhinums will grow in almost any soil, some little attention paid to their requirements will be amply rewarded by increased vigour, and flowers larger and finer than they otherwise would be.

September flowers from Dublin.—Do you remember telling me that the rose-scarlet Picotee Painted Lady grew abundantly in Peel Park, near Manchester? It is very like, but larger and not so fine in make or colour as the true old Painted Lady which we grow here, and, as you can see by the specimen sent herewith, it is a very sportive plant. The one stem sent bears two distinct forms and intermediate gradations between them. The curator at Peel Park sent me cuttings last season, and I find his form a better grower than ours, which is delicate, and apt to die out unless stopped from flowering too freely. Amaryllis Akermanni is again in flower here, along with the lovely rosy Crinum Powelli. I send also three seedlings of Gladiolus Lemoinei, now in bloom from seeds sown in October, 1884. We sow as soon as ever the seed ripens in a light and well-prepared open-air bed. The seedlings are very pretty, and good as cut flowers. Tupa Feuillei is an old favourite here, and is now flowering at 3 ft. in height. I enclose a small cluster of Mrs. Clarke, a sweet-scented, creamy-white Viola, which is much admired by nearly all our visitors. The Colchicums and Cyclamen hederæfolium album are now quite lovely, making our Indian summer seem like a second spring-time.—F. W. Burbidge, *Trinity College Gardens, Dublin.*

*** The Viola is very sweet-scented, large, and, with the exception of a small yellow eye, pure white. The Pink, too, which is scarlet fringed with white, is in its best form a charming variety. —Ed.

Lilium auratum Wittei.—I send you a spike of this Lily cut from one of the borders in my garden. It seems to me to be one of the finest forms of L. auratum. The unspotted purity of its flowers, relieved, or rather illumined, by the bright yellow stripes, is very charming. It grows as freely with us as L. auratum, but does not grow so tall; it appears, too, to be quite as hardy. The spike sent you is, of course, from a bulb which went safely through the last severe winter in the open ground.—W. H. Tillett, *Sprowston, Norwich.*

*** A noble spike, or rather two spikes joined together, the stem being fasciated. The number of blooms is eighteen, and, as Mr. Tillett states, their purity of colour—white, with yellow stripes —is quite charming. They are compactly arranged, and in size somewhat smaller than that of most of the varieties of L. auratum.—Ed.

Crinum angustum is worth noting as an easily grown noble stove Crinum which flowers freely and is pleasant to look upon all the year round—more than can be said of a good many species of Crinum. A plant of it now in flower in the Palm house at Kew has a thick stem-like neck to the bulb, broad-channelled bright green leaves 5 feet long and holding themselves up as boldly as those of C. asiaticum do; its flowers are on a flattened stalk, the upper part of which is red, and about a score of long-tubed, fleshy, crimson and creamy-white flowers are arranged in an umbel on the top of each stalk. For large warm houses there is no better Crinum than this. C. giganteum, C. asiaticum, C. Hildebrandti, C. Commersoni, C. Mooreanum, and an unnamed kind from Queensland are also now bearing handsome flowers in the houses at Kew.

Tuberous Begonias at Swanley. — The Begonias in Mr. Cannell's nursery form just now, in themselves, quite an exhibition, five houses, each house 100 feet long, being full of them. Here may be found flowers of almost all colours, from the purest white to rich yellow, salmon, rose, maroon, crimson, and scarlet, whilst others exhibit almost all shades to suit the tastes of those having a preference for less decided colours. The flowers, too, are remarkably large, some of them measuring as much as from 6 inches to 8 inches in diameter, round and full in outline, and firm in texture. This strain of Begonias is, moreover, distinguished for dwarf compact growth. Amongst novelties for this season with single flowers, the best, perhaps, are Charles Fellowes, crimson suffused with red and orange; Henry Cannell, deep rosy scarlet; M. Brisson, deep orange-red, with a crimson centre; gigantea, fiery crimson; Miss Cannell, rosy pink suffused with purple; Crimson Circle, intense crimson; Lady Kirk, soft salmon; King of the Begonias, deep maroon-red; Countess of Bessborough, rich clear golden yellow, edged with soft red; Marquis of Salisbury, large clear scarlet: W. E. Gumbleton, bright magenta-rose; Mrs. H. Cannell, pure rose, with a light centre; W. E. Gladstone, fiery crimson; and Shirley Hibbard, brilliant scarlet, with a pure white centre. Amongst single flowers not considered novelties the following were the most distinct and effective,

viz., Albert Crousse, rosy red; City of London, deep rosy lake; Countess of Kingston, glowing crimson-red; Mrs. Laing, pure white; Trocadero, bright scarlet; General Roberts, amaranth-crimson; L'Abbe Fromert, bright golden yellow; Rosea magnifica, large pure rose; Royal Standard, deep crimson; Lady Emily, amber-yellow; Alba floribunda, pure white; Wonder, yellowish buff and orange; and Sir Stafford Northcote, large red, shaded with lake. The best novelties in doubles are, we consider, Louis d'Or, a very distinct and effective shade of yellow; Leon de St. Jean, scarlet-red; M. Paul de Vicq, bright carmine-cerise; Susanna Hatchett, fine rosy pink; Notaire Moens, bright carmine; Dr. Baillon, deep salmon; and M. Legouvé, light creamy buff. Amongst double flowers not considered novelties the following are a few of the best, viz., Louis Banchet, brilliant orange-scarlet; Blanche Duval, creamy white; Othello, deep reddish crimson; Intermedia plena, soft orange-scarlet; Coquette, rich carmine; Candidissima plena, pure white, with a sulphur centre; Flamme de Punch, rich rosy pink; Lucie Lemoine, pure white; Gabrielle Legros, clear sulphur white, changing to soft yellow; Pæoniflora, salmon-rose; Madame Castigny, rosy pink; Madame Arnoult, pinkish blush, with deeper edge; Octavie, pure white; Virginalis, pure white, with a yellow centre; and Madame Crousse, nankeen-salmon. These are mostly beautiful Camellia-shaped and full-sized double flowers, suitable, when wired, for button-holes, shoulder-sprays, or bouquets.

Pentstemons.—We have received some beautiful spikes of these from Mr. Forbes, of Hawick; some of them were upwards of 18 inches long, and well furnished with flowers the whole of that length. Conspicuous amongst them were: Herbert Cutbush, deep crimson, with a pure white throat; Mrs. Milne, flesh-coloured, throat pure white; Lady Margaret, rich crimson-maroon, throat white flaked with crimson; William Robinson, deep red, with a white throat, streaked with scarlet; Mrs. Sharp, lilac or mauve, throat very open, white flaked with carmine; Helen Wood, crimson-scarlet, with large open pure white throat; Provost Watson, rose, throat white, streaked with deep rose; Mrs. Bowley, crimson-purple, throat very large and open, white flaked with crimson; William Forbes, a large scarlet flower, with a white throat; Mr. P. Brydon, creamy white, tinged with pale rose, buds before opening bronzy; Pearcy Wynne, crimson, throat white, with crimson streaks; Gem, deep scarlet, throat white, flaked with crimson; and Samuel Johnstone, soft pink, with white throat.

Solanum atro-purpureum.—A plant at Kew thus labelled will have to find some other name, as the above is already given to a comparatively worthless garden plant, which was introduced by the late Mr. Wilson Saunders from Brazil, and was named and figured in the *Refugium Botanicum*. The new and spurious atro-purpureum is, however, a handsome foliaged plant, for which we are indebted to Messrs. Makoy and Co., of Liège; it has large-lobed, horizontal leaves, which are deep olive-green above and vinous purple below. It is evidently a good plant for summer bedding, as the plant at Kew is in fine health in a border out of doors. A collection of ornamental-leaved Solanums is now a grand show in front of No. 3 museum at Kew, and as the plants are named we call attention to them, so that anyone in search of handsome foliaged plants for summer bedding may make note of the kinds which would best answer their purpose. Solanums are amongst the easiest managed of annuals, but one may easily grow a number of kinds which lack beauty and interest unless he first of all sees what the plants are like by inspecting such a collection as that at Kew.

Passiflora gracilis.—The relationship between the Passiflora and Cucurbit Orders is much more evident in the foliage and fruit than in the flowers of the plants of the two Orders. We noted several of the edible-fruited Passion-flowers a week or two ago, and recommended them as garden plants because of the ornamental character o their large and, in some, prettily coloured fruits, which are usually produced in abundance on strong plants; in addition to these there are some which, although neither edible nor large-fruited, are yet strikingly pretty when seen covered with their bright-coloured berries, P. gracilis being one of these. This species has thin stems, green, smooth, three-lobed leaves, greenish white flowers an inch across, and deep scarlet fruits about as large as and shaped like Damsons. We saw this in the stove at Kew a few days ago, where it is fruiting very freely. Near to this plant there is also a pretty, small-fruited Passion-flower, the leaves of which are three-lobed, rugose and silvery in the middle, and the fruit, which is about 1½ inches long, has prominent ribs as in a Chinese lantern, and coloured blood-red. P. cinnabarina is also fruiting freely in the Palm house; its fruits are as large as bantam's eggs and coloured bright red when ripe.

Helianthus multiflorus maximus.—Here is a plant for the million, but how many gardens—if we except the few where all good herbaceous plants are grown—are graced with its glorious blossoms? Certainly it ought to be in every garden where flower borders are, for it is, in our opinion, the most beautiful of all known Sunflowers. It is as superior to the common Sunflower (H. annuus) as the single Dahlias are to the heavy-headed double ones, and it is a perennial species, too, so that when once planted in a border it remains for ever a noble summer beauty. On good soil it grows 8 feet, or even more, high, and a strong plant will have nearly half a hundred flowers open at one time. Such flowers they are, too, being 6 inches across, the broad ray florets overlapping each other and just irregular enough to be graceful, and the disc not more than 1½ inches across, yellow, with black anthers, so that the whole flower looks almost uniform lemon-yellow. If I had room to grow only one Sunflower I should not hesitate to choose this before all others. Three of its large flowers are now in front of me with their round faces looking almost white in the gaslight. The typical multiflorus is not the variety maximus—a hint that beginners with this plant should take note of.

Lilium auratum at Kew is now in great beauty, and is worth going a long way to see. Grand as this Lily is in pots and treated as a conservatory plant, it is plain that it loses much of its beauty in such when compared with its effect when planted out of doors amongst suitable surroundings, and in masses large enough to make a bold display. Two large beds of dwarf Rhododendrons in one of the most conspicuous parts of the garden at Kew have been planted with bulbs of this Lilium, and there are now towering up high above the Rhododendrons dozens of stout stems, some of them over 6 feet high, and bearing massive clusters of flowers. Here the powerful odour of this Lily is not disagreeable, because the position is an open one, and this openness enables one to see the tall spikes of flowers from a long distance in various parts of the garden. The golden Lily in a corner loses much of its charms, its proper position being that of a prominent feature in a landscape. Such, at all events, is the lesson taught by the effectiveness of these beds at Kew. The life and beauty such plants as this are capable of adding to dull, sombre places in a garden do not appear to be fully appreciated by many gardeners. Liliums have not yet got full hold of the horticultural world, being still confined a good deal too much to the pot and greenhouse. Probably a Lily conference would do much to bring the dozens of beautiful, but almost unknown, species of this genus into prominence. What is to be the subject of the next of the Horticultural Society's conferences?

5516.—**Clematis montana.**—"E. L. R., Halifax," in The Garden of August 28, says this Clematis grows luxuriantly, but will not flower with him. Clematis montana flowers on the ripened wood of the previous year, and should be closely pruned in June after its proper season of bloom, and in wet summers, when the growth is unusually strong, the young shoots should be nipped off from time to time. Some years ago I allowed two plants of this Clematis to grow naturally on my house without pruning, and no bloom was the result. This climber is very accommodating as to soil, and will hold its own with Ivy and tree roots. I have a large plant here growing over and festooning a Holly tree. The effect in early summer is fine, the top of the Holly being covered with white stars. Of course, I presume that "E. L. R." grows his Clematis in a tolerably sunny place; without sun I am afraid no treatment would be effectual.—J. B. W. Thomas, *Belmont, Carlow.*

RHODODENDRON VEITCHI.

To Mr. Robert Veitch, of the New North Road Nursery, Exeter, we are indebted for the photograph from which the annexed illustration was prepared. It is that of a very fine specimen of Rhododendron Veitchi, grown at Watermouth Castle, Ilfracombe. Mr. Parkhouse, Mrs. Basset's gardener at Watermouth Castle, the grower of the plant in question, has kindly furnished us with the following particulars as to its size and his mode of culture: "When the photograph was taken," he says, "the plant was in a 12-inch pot; its height was 6 feet 4 inches, its breadth at 3 feet from the top 4 feet, and it was bearing no fewer than 300 fully developed flowers, some of which measured 8 inches across. The soil in which it grows consists of lumps of fibry peat, a good sprinkling of sharp sand, and very finely broken oyster-shells. It flowered in an ordinary conservatory, after which it was removed to our Camellia house, which is well shaded. It was kept rather close and moist till it had completed its growth and set its buds; after that it was gradually given more air, and now (September 3) the house is open night and day and its contents fully exposed to the sun. To-day I have counted the 'breaks' of this year's growth, and find that they number 130; therefore I am in hopes of having a still better display next year."

A good basket Fern (Gymnogramma schizophylla gloriosa).—The variety of this very beautiful form is much superior to the original introduced to gardens some few years ago, which, on account of its proving difficult to grow, did not find much favour with amateur Fern cultivators. When suspended in baskets this newly introduced form, with its long, pendent, finely divided fronds, is very elegant. The fronds are a light bright green above, sparingly sprinkled beneath with a white farinose powder. This plant is a very free grower, and, like all the Gymnogrammas, easily obtained from spores. To grow it successfully the compost should be rough fibrous peat and Sphagnum Moss. It requires careful attention in watering, otherwise its delicate pinnules soon shrivel.

Trichomanes radicans.—At Waddon House there is a grand plant of the Killarney Fern. It is upwards of 5 feet in diameter and perfect both as regards colour and form.

Microlepia hirta cristata with Mr. King at Waddon is finer than we have seen it elsewhere. It proves to be more beautifully crested than we expected it would be, judging by specimens of it which we had hitherto seen.

Pteris aquilina.—We saw a few days ago, upon a lawn in a Kentish garden, a large clump of this Fern, the effect of which was charming. The fronds, which were 5 feet or 6 feet high, are just now beginning to assume their beautiful autumn tinge.

Adiantum Capillus-veneris.—Doubts are often expressed as to the hardiness of this species. We have recently seen a beautiful mass of it on a wall in a garden at Tooting, on which its spores, escaped from a stove, had doubtless fixed themselves. It has been in its present situation for at least ten years.

Hardy Ferns.—Two beautiful hardy Japanese Ferns are in great beauty at Beddington House—Lastrea prolifica and Polystichum polyblepharum, bold and massive in outline, yet the pinnæ are finely divided, sufficiently so to give them a graceful appearance. Both are desirable additions to a fernery.

Trees and Shrubs.

TREE TRANSPLANTING.

Now that the season for transplanting is at hand perhaps a few practical remarks bearing upon the importance of carefully preserving the roots of trees may be useful to those who contemplate transplanting. The art of transplanting trees has long been in general practice, although not always carried out in a thoroughly scientific manner. Much disappointment from failures often arises from the non-fulfilment of certain principles which are absolutely necessary in order to obtain satisfactory results. Transplanting shrubs may be done, and is done, with adherent balls of earth varying from 8 lbs. to 10 lbs. in weight to as many tons, according to the lifting appliances at the command of the operator. The simplest of all methods is lifting a shrub or tree with an ordinary garden spade, and even by this simple process the greatest difference is observable in the execution of the work by different operators. This is easily seen by the way in which some parties go about such work. Some, from long practice, particularly in nurseries, will lift a small-sized shrub with a good adherent ball, while another, from want of the requisite skill in guiding his spade, will allow the ball to fall to pieces. Retentive soils and frequent transplanting have often much to do with the successful lifting of certain plants. With many deciduous trees and some shrubs it is not always necessary that they should be lifted with a ball of earth, even when of medium size, unless in the case of very rare or delicate specimens, when successful transplanting is absolutely desired. Deciduous trees, both forest and fruit, varying from 4 feet to 6 feet, or even 10 feet in height, where the roots have been prepared by previous cutting or frequent transplanting, can be moved with safety even without a ball, and at any time during the transplanting season. If transplanted without any previous preparation, particularly if 10 feet or 12 feet in height, such trees are apt to lose many of their branches, frequently getting into a sickly condition, and having ultimately to be uprooted.

To carry on the work of transplanting trees and shrubs with some prospect of success, especially with exotic trees, it is of the first importance that every care should be taken to preserve the roots; however favourable an appearance a tree may have at the top, if the roots be mutilated by careless or unskilful lifting, it is not even half a tree, and will have a long struggle for bare life. To lift trees well, the characters of the roots of the various kinds must be studied—their texture and mode of growth. The various aspects of the foliage and branches of trees and shrubs are familiar to all who take any interest in their culture, but I may venture to affirm that but comparatively few are equally familiar with the aspects and peculiarities of their roots. This experience could not be acquired, I grant, except by those who have been much engaged in transplanting; but it is of much greater value to the planter, so far as success is concerned, than any other kind of knowledge. There is a proper way to prepare a site for a tree, and a proper way to plant it; also a proper way to fasten and protect it when planted. If I were to be held responsible for the success of a piece of planting, I should be very careful to see that the lifting of the trees was well performed; for this kind of work the best hands should be employed. I have no hesitation in saying that bad lifting is at the bottom of three-fourths of the failures after planting. It might be stated as an axiom in the lifting of trees, that if the roots be well secured the labour of moving an unwieldy ball of soil may be entirely dispensed with. In practice it will be found, except in comparatively few instances, that to move a tree with a very large ball of soil is a great mistake, as the unwieldy mass of earth attached to the roots dislocates and distresses them; but a small ball of soil, by way of ballasting the top with the roots, will ensure a far greater probability of success in the future growth of the tree after transplantation; in fact, a small covering of earth round the roots of a tree whilst being moved is undoubtedly preferable to no ball, and vastly superior to a large ball of soil that can only be removed with great difficulty.

Rhododendron Veitchi: a specimen grown at Watermouth Castle, Ilfracombe. Engraved for THE GARDEN from a photograph.

While lifting large deciduous trees without balls, or even with balls, it is absolutely necessary that all injured roots be cut off, particularly those partially broken through. The cut parts should afterwards be smoothed over with a sharp knife, as well as all surface-skin damages, instead of having them planted with their roots hacked with the spade, a system which is not unfrequently pursued. It will be found that all clean knife-cut roots will put out young fibres much freer than those that are cut with a spade and planted without any smoothing.

The branch-cutting system, on an extensive scale, is frequently practised on forest trees from 20 feet to 30 feet in height. The roots, although not damaged, ought all to be cut; that is, in cases in which no adherent earth can be removed with them. Large trees so treated often succeed well, and ultimately make as good shaped tops as unpruned specimens removed either with or without a ball of earth. The foreshortening causes them to break more rapidly from the old wood than they otherwise would do; besides, foreshortened specimens do not require the assistance of ropes and props, which are generally

necessary in the case of large deciduous trees where no branches are removed. The percentage of unsuccessful transplants is often very few in point of number compared with trees in which no branch or root-pruning had been carried out.

In order to transplant comparatively rare specimens, both large and small, it is in most cases desirable to resort to machinery or other appliances, however simple, such as surrounding the ball with canvas, staves, and ropes, particularly in cases in which balls of earth must accompany the plants.

Among the many different trees and shrubs that exist, the possibility of lifting them with balls of soil, or even securing their roots, varies much with different individuals, for out of the same description of soil some species will move easily with good balls, while with others it may be almost impracticable. This arises simply from the mode of growth the various roots assume; some ramify in all directions, like the Rhododendron or Holly; others take a horizontal course, as some Conifers. On lifting with a particular aim in view to secure the roots, there is one rule which applies to all sorts, whether small or large, and that is to begin by inserting the spade at a sufficiently wide radius from the stem of the tree or shrub, to work round in a circle, and at once to go down sufficiently deep to be below the roots before approaching nearer to the tree. I have seen a consignment of ornamental trees, excellent so far as the appearance of the tops went, but utterly spoiled from the manner in which they had been lifted, the roots having been cut so short off by the spade that only snags were left, the really vital roots having been left behind. The first cost of lifting should not be considered when it is a question of life and death with the plants. I have found, from considerable experience in lifting shrubs and trees of all sizes, that to get well below the roots in the first instance, and gradually approach the tree, is the simplest and easiest way of securing the roots and reducing the bulk of soil, so as to make a ball manageable. W. D. M.

The Labrador Tea (Ledum latifolium).—This bush reaches a height of from 4 ft. to 5 ft., but flowers freely in a young state. It is not such a regular growing shrub as L. thymifelium, and as the undersides of the leaves are clothed with a rusty coloured tomentum, it is less attractive when out of blossom. The flowers are white, and when in the bud state are not so deeply tinted as are those of L. thymifolium. In a cut state the flowers possess the advantage of lasting a long time in perfection, especially if they are gathered just before expansion; besides which they are so neat and pretty, that they can be associated with the most select.—H. P.

Liquidambar styraciflua. — The brilliant autumnal effects as seen in the landscapes of North American forests are derived chiefly from the Liquidambar tree, a tree of slow growth in this country, but yet perfectly hardy, and one that should be largely planted, not only in the pleasure grounds, but in the woods and plantations on estates, if only for the sake of its autumnal tints. It is very like the Sugar Maple as regards foliage, save in the autumn when its leaves turn to a purplish red, and should frosts be late in coming, this beautiful tree has a fine appearance, which with trees of other colours is most telling in our woods in autumn. The Liquidambar does best planted early in the autumn, just as the leaves begin to turn, which is about the middle of September. Having tried both autumn and spring planting, I have found the former best suited to the Liquidambar.—W. C. Leach.

Catalpa syringæfolia.—This beautiful tree, of which there are several growing in the grounds here, has for the past few weeks been one mass of bloom, its lovely blossoms being borne in hundreds on each tree amidst its large leaves, which are of a beautiful shade of green, a shade peculiar to itself and seldom seen in any other tree. These fine trees have been a sight worth seeing, the more so just now when most other flowering shrubs and trees have long since shed their flowers. The Catalpa is a tree that should be extensively grown for ornament. There are many large places in England where fine collections of trees exist and yet this fine tree is often absent. There is no doubt but what the sunny south suits it best, yet in sheltered places this tree will thrive. It starts into growth very late in the season, and should the summer be cold and little sun, the young wood does not get thoroughly ripened; hence its liability to be cut back with frost should the winter be severe. Yet, for all that, it is, I consider, one of the finest trees in cultivation.—W. C. Leach, *Albany Park.*

CEPHALOTAXUS PEDUNCULATA FASTIGIATA.

At a casual glance this fine tree is readily mistaken for the Irish Yew, but a closer inspection reveals several well marked and distinct generic differences. By several botanists this Cephalotaxus has been placed under both Taxus and Podocarpus (Taxus japonica, Loddiges; Podocarpus koraiana, Gordon), but recently M. Carrière has cleared up the difficulty; he has found that the tree in question is neither a Yew (Taxus) nor a Podocarpus, but belongs to a small, though nearly allied, genus, the Cephalotaxus of Siebold.

The interest attached to this tree is therefore considerable, and it is a curious coincidence that the same means of identification as those employed by Carrière, and described in "Traité Général des Conifères," are now plainly visible in the case of a large specimen in the grounds at Penrhyn Castle, a matter which has induced me to add to M. Carrière's statements regarding this Conifer.

At this point, however, it may be well to explain that in the typical Cephalotaxus pedunculata the branches are horizontal and the foliage distichously arranged; whereas in the present form the leaves are irregularly placed in whorls or spirally arranged, and the branches strictly fastigiate, these wide differences having given rise to the conflicting opinions advanced by several botanists, and to the number of genera under which the tree has been placed. The matter was cleared up by Carrière noticing that a plant of the above produced at a short distance from the ground the usual spreading branches and distichous foliage of C. pedunculata, while both above and below the upright habit and irregularly arranged leaves of the now C. pedunculata fastigiata were prominently revealed.

In a large specimen growing in the park here this peculiarity of growth is just now particularly noticeable, for at 3 feet and 6 feet from the ground several branches are growing in a perfectly horizontal manner or almost at right angles to the main stem, while both above and below these the branches are strictly fastigiate; indeed, nearly as much so as in a perfect specimen of the Irish Yew. The leaves on the horizontal branches are distichously arranged or in two opposite rows, while those on the other portions of the tree are irregularly scattered or nearly spiral by their closeness along the shoots. It is here worthy of remark that in several Coniferæ, notably the tree in question and the Irish Yew, when a fastigiate habit of growth is assumed the leaf arrangement becomes altered from distichous to whorled, with occasionally a normal branch as if to show the parentage. In the common Yew the foliage is arranged in two opposite lines, while in the Irish form, or rather variety, the leaves are tufted or scattered along the shoots, thus presenting an analogous case to that under consideration.

As this Cephalotaxus is little known in British collections, and large specimens but rarely met with, the following description of the principal distinguishing characteristics taken from a full grown tree may be useful to some of your readers. In habit and foliage it nearly approaches the Irish Yew, but the branches are rarely so erect and adpressed nor the leaves of such a deep green as in those of that tree, while it never attains a greater height than about 8 feet. The leaves are bluntly falcate, or more usually sabre-shaped, less than 2 inches long by two-sixteenths of an inch broad, thick and fleshy, and usually furnished with short foot-stalks. Above they are of a deep glossy green with a distinctly raised narrow mid-rib, while beneath two rather indistinct silvery bands run along their full length. Both branches and branchlets have a peculiar channelled or tuberculated appearance, caused by the long decurrent base of the leaves, these, in most instances, reaching half an inch in length and persistent after the foliage is removed. As a compact growing shrub or small tree this Cephalotaxus is well worthy of attention, and, being perfectly hardy and of free growth, may be planted almost indiscriminately, but particularly where a warm, sheltered corner and free loamy soil can be supplied. A. D. Webster.

Penrhyn Castle, North Wales.

TRANSPLANTING EVERGREENS.

From the middle of September to the middle of October, all things considered, is the best time to move Evergreens. The soil at this season works so cleanly and free, that it may be packed in round the roots firmly without becoming hard and unyielding in the future; when a heavy soil has parted with its elasticity, things do not thrive in it. There is, too, at this season more earth-warmth than at any other time of the year, a circumstance which encourages new fibres to spring forth from the lacerated roots. In some localities the soil is of a soft, silky nature, and whenever a plant is moved to a fresh situation in such soils root action recommences at once. In such a soil, too, planting may be done almost at any time. But on heavy adhesive loam or clay, healing wounds or fractures takes some time after removal, let the work be done ever so carefully; therefore early autumn is the best time to plant, especially if numbers of plants have to be shifted. In moving plants larger than one can lift with one hand, it is always desirable, if the soil be of a holding character, to transplant with a ball in proportion to the size of the plant. In light sandy soils balls cannot be had that will move a hundred yards without the greater part falling off. Therefore, the best way is to secure as many roots as possible without attempting to move with a ball.

In making new beds or groups the soil doubtless will have been trenched, as no one deserves success who plants in a hard, unmoved soil. In planting isolated specimens, however, this cannot always be done, and in that case the hole should be made considerably larger than the space which the roots will cover in order to afford room to lay them out straight, and provide a suitable bed for the young fibres to work into at first to fix the plant in its new position. An old-fashioned plan practised by the seaside, and a good one, too, is to place a layer of boulders over the roots as soon as the earth is all filled in. The stones keep the earth moist and cool, and by their weight steady the plant and prevent injury from wind-waving. All newly planted shrubs and trees require water, and the watering should be repeated until the autumn rains set in. Sprinkling the foliage with the garden engine will help to check evaporation till the roots get somewhat established in their new quarters. A mulching with long Grass at this season, immediately after planting, will keep the earth cool and moist, and encourage early root-formation. The staking or otherwise supporting the stems of shrubs and trees of a size likely to be injured by wind should never be postponed.

In purchasing plants from a nursery make sure that they have been regularly transplanted. If this has been done, every plant will grow, but if they come to hand with long naked roots it is a

sure indication that they have not been transplanted lately, at any rate, and unless well looked after some of them will die. I have known instances in which a good many have died. Such plants are generally dear at a gift because of the labour involved in getting them to grow. There is some danger in moving large specimens from a sheltered situation to an exposed one; whenever I have done so I have always improvised some kind of shelter the first year till the plants have become in some measure acclimatised. Transplanted plants should not be placed deeper in the ground than they formerly were; sickly-looking specimens often owe their brown appearance and ultimate death to the 3 inches or 4 inches of extra soil thrown out of the bottom of the hole to fix the plant well in the soil. E. Hobday.

SOME RARE TREES AND SHRUBS.

Crataegus brachyacantha (Hog's Haw).—From Minden, La., and Concord and Longview, Tex. Extremely rare. Our specimen is a bushy little plant only 8 inches high, but who has a bigger one? It has now been planted a year, and was unprotected last winter; but it got a good deal winter-killed, and I am rather solicitous about its hardiness near New York.

Philadelphus microphyllus.—From S. Colorado and southward. Among shrubs, one of the gems of our garden; hardy here also at Boston. The flowers are pure white and deliciously fragrant. Our specimen is a dense little mass, between 2 feet and 3 feet high and 3 feet across; nevertheless, Prof. Sargent tells me that it is the biggest plant of the kind he knows of in cultivation. It blossoms every summer.

Rhus cotinoides.—Our plant is 5 feet 5 inches high, and consists of one unbranched stem, but it is leaved from the base to the tip. It formed several side branches, but I rubbed them off in order to strengthen the main stem. What lovely foliage! This species is extremely rare in cultivation. I hope it may prove hardy. We got our plant last autumn; it was then 8 inches high. I planted it out of doors in rich ground and a sheltered situation, but did not cover it up in any way. It was not winter-killed. When it began to grow in spring, a branch started from every eye, but as I wanted a little tree rather than a bush, I rubbed off all the branches except one.

Stuartia japonica.—Our specimen is 5 feet 4 inches high, 4 feet in spread of branches, and densely furnished. It has beautiful foliage at any time, but most beautiful in autumn, when it assumes a brilliant crimson and gold tint that completely eclipses anything in the way of our American species of the same genus. It has not yet blossomed here. So far it has not been hurt by the winter with us, but at the Arnold Arboretum, near Boston, it suffered a little last winter.

Texas Walnut (Juglans rupestris).—"Valley of the Colorada River (near Austin), west through Western Texas, Southern New Mexico, and Arizona, from 5000 feet to 7000 feet elevation, and in the California coast ranges, from the San Barnardino Mountains to the neighbourhood of San Francisco Bay and the valley of the Sacramento River."—Prof. Sargent. Our largest plant is 6 feet high, of pyramidal form, very branchy, and 6 feet in spread of branches. We have several plants, now two years planted, and they seem to be hardy enough; in some cases the tips of the young wood get winter-killed. Its slender branches and narrow leaflets are in striking contrast to the stout limbs and large leaves of our common black Walnut or the English Walnut. —W. F., in *Country Gentleman*.

The Lombardy Poplar does not appear to be so fashionable with planters now as in years gone by. About a century ago no plantation was made without it, and for shutting out unsightly buildings, &c., in the landscape it was considered invaluable. Even now it may to a limited extent be introduced into plantations of round-headed trees, to give them life and interest, especially when looked at from a distance, its pointed head producing a pleasing contrast to its less aspiring companions. This effect is more particularly apparent in Cheshire, Worcestershire, Herefordshire, Gloucestershire and Somersetshire than in other counties. It associates well with old churchyards, cemeteries, old ruins, amongst pointed-headed Cypresses and Yews; a plant or two of it has also a homely look at the entrance to a village, or it may be on its green. At the same time it would be out of place to plant this Poplar largely anywhere except where it is wanted to shut out unsightly objects.—J. B.

NOTES.

White Lilies.—In the Bronze room of the British Museum there is a mask of Aphrodite which I used to admire as the finest work of art known to me as a gardener until last May I saw the marble Venus de Milo in the gallery of the Louvre. The connection between things artistic and the best of our white Lilies is perhaps nearer than one might at first suppose; at any rate, I never see the one without at once thinking of the other, for as these works of art are irreproachable in their way, so are the white Lilies as seen at their best—the very finest and most satisfying of all the garden flowers known to me. L. candidum, or Madonna Lily, of which there are two distinct single-flowered forms, is perfectly hardy on nearly all soils, but, like the forms of the Japan L. longiflorum, such as eximium, Harrisi, and floribundum, it may be forced into flower for Eastertide if so desired. It may be worth while saying that now is the best time to dig and transplant the bulbs of L. candidum for next year's flowering. Other fine Lilies quite distinct in form are the white varieties of L. lancifolium or L. speciosum, such as Kraetzeri, album, and album corymbiferum. A large bed of the typical L. longiflorum in peaty soil amongst Rhododendrons and hardy Heaths is now a sight worth seeing. Well-grown stems bear from three to five flowers, and these are of glossy whiteness, reminding one of silver trumpets. L. Browni can scarcely be classed with the above as white Lilies, since the back of the flower-tube is of a dull claret colour, but this only serves to intensify the purity of the inner part of the perianth. The best of gardens lacks much beauty unless white Lilies are well grown therein.

The Irish flora is in some ways peculiar, and in all ways interesting—at least to a stranger. We have naturalised in Ireland by the acre, amongst other things, such introductions as Hypericum calycinum, Tussilago fragrans, Sisyrinchium anceps, Arbutus Unedo, Pinguicula lusitanica, Mimulus lutea, and Ophioglossum lusitanicum. I might point out the fact once more that many Narcissi have existed here for years uncultivated and uncared for, especially such of the white kinds as are generally believed to rightly and naturally belong to Spain. As peculiar to Ireland, or nearly so, we have Trichomanes radicans, Polypodium vulgare var. semilacerum (=P. hibernicum), Pinguicula vulgaris var. grandiflora, in white, rosy lavender and dark violet forms. Only two years ago three fine specimens of the North American Huntsman's Cup (Sarracenia purpurea) were found in an isolated and unfrequented bog in Queen's County by a party of sportsmen. I am sure of the plant, having had leaves sent to me for examination, but how it got there is still a mystery to everybody. As a fact, I believe that Sarracenia is there still. But of all the plants of Ireland we took especial pride in, that form of the proliferous Lady's Tresses known as Spiranthes hibernica (=S. Romanzoviana) is the one. This grew in one or two rushy meadows near Castletown, Bearhaven, and was known to exist nowhere else in the world except in North America. Whether it really exists in Ireland to-day no one truly knows. Its former habitats have been cultivated—the one field is sown with corn, the other planted with Potatoes! There are some things too deep for words to express, and this uprooting of a rare plant is one of them. If perchance the plant really does exist to-day in Ireland, it is to be hoped that some steps will be immediately taken to render its extirpation impossible.

Crinum Powellii.—Without a doubt this plant is one of the very finest introductions of recent years. It is a long, broad-leaved species, not unlike those semi-tropical kinds which one may see well grown in the Palm house at Kew. The great advantage of this rosy C. Powelli (and of its snow-white variety) is that it is perfectly hardy in the open air. If planted deeply in sandy soil at the foot of a south wall, so much the earlier and better will its great flower-scapes appear. Here and there in England, as in Devon and Cornwall, or near the Hampshire coast, or over in the Isle of Wight, and in Scilly, in Valentia, in the south and east of Ireland much may be done with reputedly tender bulbous plants, especially if the soil be deep and dry. In such soils one may plant bulbs 12 inches to 18 inches deep with a certain hope of their coming up alive and vigorous after the coldest winter we are ever likely to experience. The whole secret and mystery of a bulb's dying is more often too much wet rather than too much cold. But this noble Crinum will withstand both wet and cold, and become stronger and more floriferous year after year in at least seven gardens out of ten that are in England and Ireland.

Juncus zebrinus.—We have several plants of this zebra-striped Rush, best described, however, by saying that it is like a long quill stolen from the back of the "fretful porcupine." A gentleman visitor, the other day, told me that its right name is Scirpus Tabernæmontani foliis variegatis zebrinis. I remember Mr. Nicholson, of Kew, pointing out this correct nomenclature some months ago in a contemporary paper, but Juncus zebrinus serves all practical purposes, and is as much as I ever want to write. The plant is from Japan, the home of variegated leaves. I shall never forget the variegated plants which I saw in Siebold's nursery garden at Leyden, where nearly everything was variegated in some way or another. Our best plant of Juncus zebrinus has some of its longest quills now at least 5 feet high and many of them 4 feet, and, as so seen, everyone is struck by its beauty, distinctness, and decidedly ornate character. We grow it in good loam, and the pot is standing in a saucer of water. It is growing in a close plant house warmed by sun-heat only, and gets plenty of subdued sunshine. There is no difficulty in growing the plant either in a pot indoors or outside in a pond, provided that it be planted below the water level. Not having heard much of this plant lately, I wish to say that, when vigorously grown, it is very effective.

Pothos celatocaulis.—This is a plant with a decided "call" or mission. Naturally, in Borneo, it grows up the shady side of moist tree trunks in the damp malarial forests, but its mission in English gardens is to cover bare damp hothouse walls in a beautiful manner. When it first made its *début* at the Chelsea Nursery, it was fairly well grown, but, nevertheless, I am afraid that no one thought much of the little stranger with its soft green velvety leaves. But at last someone received inspiration, and a few pieces of it were planted to cover the bare gable end of a wall inside the wonderful Nepenthes house. That simple action, accidental as it might have been,

decided the fate and future of this plant. With it Ficus stipulata (Ficus repens, Hort.) had been planted, and the two plants grew up the moist warm wall together. The little crumpled leaves of the "Creeping Fig" set off to perfection the rich soft larger leaves of the Pothos. The sight was as lovely as when beauty of sweet seventeen walks abroad with a protector in the shape of her pretty little sister of seven. Everyone who went to see the wonderful Pitcher plants stayed a moment to admire the leafy picture embroidered on the wall, and so Pothos celatocaulis is a good plant to have in stock to-day. The moral is plain: Beautiful as a plant in itself may be, when seen in a suitable position it becomes ten times more charming.

Double Tiger Lilies.—As seen really strong and happy—say 8 feet in height, with twenty to thirty flowers on a stem—the double Tiger Lily is a noble garden flower, and a worthy companion for the more popular gold-rayed species of Japan. I used to think the double Tiger Lily rather a poor and undecided plant until I saw it in peat earth near the margin of an ornamental pond at Newry, where it grew fully as high as I have just stated, and bore its flowers aloft in the most perfect manner. It is now flowering here in deep rich loam amongst Brake Fern and the effect is lovely, but one can easily see that a few sods of peat would be an improvement. When planted in amongst other things its bulbs are apt to be preyed on, especially during winter, by little black slugs, but a handful of Cocoa-nut fibre around each root is a preventive worth adopting with these and other bulbs vulnerable by snails. I used to lose Iris reticulata year after year until a friend told me that Cocoa-nut fibre refuse thwarted these silent little robbers, and since then our patches of the netted Iris have increased year by year. Planted in a deep peaty soil amongst Bamboos or Rhododendrons, the double-blossomed Tiger Lily is well worth a place in the garden.

Helianthus and Ricinus.—Some of the most effective of plant arrangements in the garden are chance ones, and by noting the best of them as they occur one may often make permanent improvements on these accidental successes. The note-book is invaluable in all good gardening, since by its use we should strive to fix in the memory not only the best plants to use, but also the worst ones to avoid. A good strong clump of the large single-flowered perennial Sunflower had a bare circle of earth around it as it grew up last May, and somebody planted around it some seedlings of Gibson's purple-leaved Ricinus. The effect is now a very bold and satisfactory one, which is worth repeating another year. Formerly we used to manure the earth where this Sunflower was planted. The result was we had more big leaves than golden blossoms. Now we dig deeply and merely add a little old lime rubbish, and the result is a more floriferous display. The same treatment causes a great improvement in many other robust-growing things, Dahlias and Hollyhocks to wit, which here with us grow leafy and out of all bounds if manured. On nearly all soils this judgment, founded on experience, is necessary if hardy flowers are to be grown and seen at their best. The thing is to find the medial line between starvation and overfeeding.

Telekia speciosa.—One of the most robust and effective of all the golden-rayed Composites now in bloom is the above, which bears enormous corymbose heads of rich orange-yellow flowers on stalks, 6 feet in height, the lower stems being clothed with large soft green heart-shaped leaves. Individually, the flower-heads remind one of those of Inula glandulosa, and they are very effective in colour and good in form as arranged in vases or tazzas indoors. The plant is very vigorous in habit, and may well be added to the list of good hardy herbaceous plants which luxuriate under the partial shade of trees. We raised a strong lot of seedlings some years ago and planted them out under trees, and their beauty, as so seen, has surprised some of our visitors. It is readily increased by division, but is a little too leafy and coarse-habited for the best of beds or borders. As a hardy sub-tropical plant it deserves attention, or it might be very effectively employed in plantations near the house, or beside the more frequented of woodland walks or drives. A friend of mine planted the large Crimean or Hungarian Bindweed (Calystegia sylvatica) in his home plantations two or three years ago, and the effect just now as contrasted with common red Torch Lilies in the more open and sunny positions is very beautiful. There is a whole world of beauty in the right use of common things.

Good leaves for vases.—There was a time when Maiden-hair Ferns only were considered the right thing for associating with cut flowers. Now-a-days we are broader in our sympathies, and some of us find more difficulty in obtaining beautiful foliage for indoor uses than is experienced in the providing of flowers. For the Iris flowers, especially for the bulbous kinds of May and June, we use the leaves of Typha or Bulrush. The bronzy leaves of Heucheraare lovely in their own way for shallow vases, as are also those of Tellima; but for the lovely Gladioli and Torch Lilies, now so plentiful, nothing for grace equals the leafage of Eulalia zebrina, or for fresh greenery the leaves of the common Maize or Indian Corn. Both the last are free-growing Grasses, the Eulalia being a hardy perennial, and the Maize an annual, easily raised by sowing the Indian Corn in the open air during March or April. The common Mahonia affords plenty of good, clean, bronzy foliage, and the golden leaves of the Wistaria are very useful just now along with purple Clematis or blue Bellflower. The different kinds of Ruscus, as R. racemosus or R. androgynus, are very fresh and durable, and even those of the common Butcher's Broom may now and then be utilised with good effect. Purple or bronze-leaved Ivies are especially welcome in the winter, and harmonise well with Violets, or contrast effectively with snow-white Christmas Roses. Will someone give us a good list of hardy plants worth culture for their beautiful foliage?

Hybrid Orchids.—One of the most recent of hybrid Orchids is that raised in the Royal Exotic Nursery at Chelsea, between Sophronitis coccinea (=S. grandiflora) and Cattleya intermedia, named Lælia Batemanniana. Only a year or two ago such a production would have been called a bigeneric hybrid, but now-a-days good things are more valued than arbitrary and artificial names. Lindley's first guess at the plant now known as Sophronitis grandiflora was that it was a Cattleya (Cattleya coccinea, Lindl., Bot. Reg., xxii. (1836), p. 1919). If he had perchance counted the pollen-masses, he would have seen that having eight instead of four it was a Lælia. But this does not matter, since Mr. Dominy long ago proved that Cattleyas and Lælias breed together freely, and now we can also reduce the whilom genus Sophronitis to Lælia. If any should think this too marked a change, I should like to remind them of Cattleya citrina, which in habit and structure is far more distinct from Cattleyas generally than is Sophronitis from the dwarf Lælias. Apart altogether from the beauty, rarity, or garden value of these hybrid Orchids, their teaching value is incalculable, for by hybridisation or by grafting only can real botanical relationships be definitely settled. In a word, what the botanist guesses or assumes the gardener can actually prove beyond all questioning. This is the theory and practice of botany as united to that of gardening.

Gloxinia maculata.—Why is this fine old plant so rarely seen? The old, old story, I suppose, is accountable, viz., with the constant influx of novelties, old friends are sometimes neglected, and then disappear. Mr. Douglas, when at Loxford Hall, used to grow this plant to perfection, and in the Cambridge Botanic Garden Mr. Lynch has it planted out in some of the stoves with the best results. As a pot plant it is always interesting from the moment the great dark bronzy leaves appear from the big caterpillar-like corms in spring until the stems die down during the winter months after blooming. In a word, apart from the soft lilac, dark-throated flowers altogether, there are far less effective plants grown, especially for their foliage, than this spotted Gloxinia. It is a South American species, figured in the Bot. Mag., t. 1191, and is said to have been introduced as long ago as 1739. It grows well in a well-drained compost of loam and peat on a well-drained bottom, and when in full growth a little weak manure water adds freshness and vigour to its leaves. The flowers are solitary in the axils of the upper leaves or bracts. A well-grown specimen, in a pot, 3 feet in height and as much or more in diameter, is worth seeing when in bloom, or at any previous period of its growth.

Gladiolus Lemoinei.—All the now numerous varieties of G. Lemoinei are perfectly hardy on our deep light soil, and are very interesting when in bloom. The two original forms, G. Lemoinei and G. Marie Lemoine, are even yet, as I believe, the best of the group, all things considered. They are quite distinct from the florists' hybrids in shape of flower, and increase more rapidly by offsets from the parent bulb. Mr. W. E. Gumbleton, of Queenstown, who has made a speciality of these hybrid Gladioli, kindly gave me seeds from his collection for the past two or three years. These seeds bloom the second or third year after sowing, and we have now seedlings in bloom which we think better than the named kinds if we except the two just named. The seeds should be gathered and sown as soon as they ripen in a deep rich bed of light soil. They come up the following spring, and some of the strongest of them will flower the first year, but most of them will do so the second, so that the amateur has not long to wait for results. The long and graceful spikes of these hybrids are very useful if cut just as the lowermost bud expands and placed in water. So treated every flower expands to the very tip of the spike, and, what is more, the flowers endure fresh and perfect in shape longer indoors than they would have done on the plant outside, and the bulb itself is relieved of a great strain, and so bettered in condition.

Torch Lilies (Tritomas). — I wish Mr. N. E. Brown, of Kew, would let us have his long-promised monograph on these beautiful flowers. The distinctions among the garden species—or species so-called—are so slight, that I expect, as is usual in such cases, the gardeners will have to christen their best forms for themselves. Here we have five or six varieties of the common T. Uvaria, some of which are actually out of bloom even at this early date, having thrown up their spikes late in July, while others are not even yet in flower. T. media begins to bloom in November, and its spikes keep on in flower until April if the weather be mild during winter. Then in May and June the stately T. caulescens throws up its stout scapes of red and

yellow flowers. T. Saundersi is one of the best, free in growth and brilliant in colour. Two of the prettiest little kinds in the whole group are T. Macowani and T. corallina, both in bloom on a dry rockery, and their scapes are not more than 15 inches to 18 inches in height. There are other species and varieties, but so far the above have done better with us than any others of the group. I should like to meet with the true Tritoma pumila (Bot. Mag, vol. xx., t. 764), which, if the plate is to be trusted, as I believe it may be, must be a very beautiful and desirable plant. M. Max Leichtlin, of Baden-Baden, has made a cultural study of these showy flowers, and I wish he would tell us something about the rarest and most beautiful sorts.

Gaillardia hybrida.—Seeds of this sown about eighteen months ago now repay us for the little trouble they took in the rearing, and we find the rich yellow and red flowers most serviceable and effective for cutting and use indoors. There are several varieties, but G. hybrida grandiflora seems the hardiest and best, yielding a richer harvest of blossoms here with us than does any other form. The flowers are 3 inches to 4 inches across, the broad ray florets being dentate at their apices and of a rich yellow colour stained with dull crimson or dark red at the base and arranged around a dark centre. On a warm sunny day these flowers show out most brilliantly from amongst the stems of other things, which serve to support them in a more natural way than stakes and ties would do. In a gentle warm breeze the flat florets of these gorgeous flowers flutter up and down in a very pretty way, reminding one of the wings of a Red Admiral butterfly sunning himself as he feasts on an over-ripe Pear. One great advantage possessed by these perennial Gaillardias is their continuous habit of blooming. Our plants have been in bloom since June, and seem prepared to go on until the frost king comes with his scythe.

Senecio pulcher.—This capricious Groundsel from South America is now in flower again, and is interesting as an earnest of the many beautiful hardy or half-hardy plants yet to come to our gardens from the highlands of Chili and Peru. I call it a capricious plant, although here, in a deep, light, moist soil, it grows freely and flowers from August until cut down by the frosts of November. Wherever it is grown in quantity, however, plants may be well watered a day or two in advance, and then, if dug up and potted firmly and shaded in a close cold frame for a day or two, they will go on blooming until Christmas and make quite an addition to the conservatory at that late season. The plant was introduced by Mr. Tyerman years ago, and is most readily increased at this time of the year by making inch-long cuttings of its thick, quill-like roots in pans of sand. The cuttings should be nearly covered with sand, and kept in a cold frame near the light where they will form leafy growths, and may be planted out in the open air in May or June. In habit and colour this plant is quite unique among the numerous Daisy-like blossoms of the autumn season, and it is well worth treating as a pot plant in situations where it will not grow well outside. Veronica.

Weeding walks.—Weeds never grow upon a solid walk so plentifully as upon a loose one; we therefore gave up hand-picking, and applied clean agricultural salt for two seasons. The result is, not a weed in a hundred yards; the walks are hard and smooth, and never looked so well before. I admit that sometimes the Grass at the edges suffers, but this is owing to heavy rains dashing the salt on to the Grass. This may be remedied by taking a fine rosed watering pot and just dissolving the salt with water near the edges of the walks. The cost of salt is not near so much as that of hand-picking.—D.

Flower Garden.

IRIS PALLIDA.

If among the Flag-leaved Irises one had to choose a queen, the crown of royal beauty would, no doubt, be awarded to Iris pallida, the subject of our engraving. Taller and statelier than any among the several species and numberless garden varieties broadly classed together under the name of Flag Iris, this one is always conspicuous for beauty and importance. The pale lavender-blue flowers are carried proudly on strong, straight stems, and the flat sheaves of sword-like leaves, broader and larger than those of others of the family and of a pale glaucous colour, proclaim the identity of the plant when out of flower.

The Great Purple Iris. Engraved from a photograph for The Garden.

Ivy on walls.—It has often been said that Ivy has a tendency to make buildings damp; but, wherever that has been the case, it arises from neglect in not having it properly trimmed in, or in allowing it, and this it soon does if neglected, to take possession of the water gutters or pipes, and so cause an overflow. To have Ivy in good condition it should be cut in close to the wall, taking off all the old leaves every spring. About the end of April is the best time, as it breaks into growth, almost immediately covering the walls with a beautiful mantle of bright green foliage, the leaves so placed one above the other that no rain or damp can ever penetrate. In the case of old walls or ruins, it is not necessary to trim it so closely as on an inhabited dwelling, as, by so doing, its fruiting is prevented; and thus one of its most beautiful features at this season of the year is lost.—H.

ROCKS AND ROCKERIES.

I notice that the professional rockery-maker lays great stress on imitating Nature, and, as a rule, he prefers to proceed on the "stratification" principle of building ledge upon ledge, providing accommodation for the plants as well as the circumstances will permit. This is all very well, and a rockery so constructed may look well enough, but it is troublesome and expensive to make, and it is the worst kind of rockery for plants that require something more than a bare scarp and a handful of soil to make them grow. Nature's rockeries are not always made on this principle. On precipitous cliffs there is often a top ledge in which the strata preserve their natural forms, and such formations are usually almost bare of plants; but at the base of such cliffs rocks of all shapes and sizes are usually tumbled about in the greatest confusion, and it is in such places that the plants and shrubs are found growing most abundantly. I could show anyone miles upon miles of Derbyshire and Yorkshire scenery of this kind. In some places the Heaths and Bilberries fill up all the crevices among the stones, the grey Lichen-covered faces of which project prominently here and there, and sometimes the rocks project from the smooth green turf above, sometimes thickly and sometimes thinly, but always in an irregular manner, but in almost all cases in a way that can easily be imitated artificially, and that without much study. It is only necessary that the stones selected be of different sizes and shapes and shot on to the space where they are to lie without too much scheming after effect. This done, it is wonderful what a charming aspect can be given to the spot by filling up some of the spaces in the background at once with good flakes of Blackberry bushes, Heath, and other low and suitable shrubs, and the rest of the spaces with Grass or plants, as may be desired. It is an expensive plan piling stones upon stones to form a rockery, ending in but a pigmy heap at the best, but any ordinary slope, be it a steep or only a gentle incline, may be made into a rockery with comparatively few good sized stones half buried in the soil here and there. A background of Firs or coniferous trees is, of course, desirable, though not indispensable; but the greatest pile of rocks should be at the top of the mound, and the others should be scattered thinner and thinner towards the bottom, as if the ridge had been suddenly upheaved and the fragments had toppled down the hillside. This is the way many natural scenes of the kind have been formed, and when the delicate-tinted Bilberry shoots and the Heather are pushing up among the stones in early summer the picture is delightful, and so is it in autumn when the Heather is in bloom. Of course the addition of a greater variety of suitable plants would enhance its beauty, and can be easily introduced into such places. W. S.

Verbascum olympicum.—I send you a photograph of a plant of this Mullein which I had blooming in my gar-

den this summer. It was about 5 feet high, and attracted the attention of everyone who saw it. The great drawback to its usefulness is the length of time it takes to produce a blooming plant from seed. The seed from which my plant came was sown in March, 1884, and this plant is the only one which has thrown up a spike; all the others are waiting another year.—A. R., *Bowness*.

SEPTEMBER FLOWERS FOR CUTTING.

The present season has been very favourable for hardy outdoor flowering plants, for although the spring was so late, the summer has been cool and moist, with the exception of one short spell of tropical heat; consequently flowering plants have made a long and uninterrupted blaze of colour. The second bloom of Roses and many other plants has been more lasting than the first. The following is a brief list of plants specially suitable for cutting from. First on the list is Achillea Ptarmica, a clear white, very double flower, that continues to send up its branched heads of bloom for weeks in succession. It is of very easy culture, the roots running in the soil like Couch Grass—a real gem for every purpose for which cut flowers are grown. China Asters of various kinds, but especially the Victoria, are about the best of flowers raised annually from seed. We sow in March in gentle heat and plant out in April on a warm border for early supply, and in April we sow in cold frames for a late supply, planting out in May in open ground, and very few plants grown give such a variety of colour or such beautiful lasting blooms as a good strain of Asters. We find a bed of clear white sorts invaluable for wreath-making. Campanula persicifolia alba is one of the very best of herbaceous plants, either for cutting in large spikes or in single blooms for bouquets; when well grown and mounted with leaves of green Euonymus, the flowers very much resemble Gardenias. This year they are flowering freely long after their usual season, the rains having induced a second crop of bloom to spring from the old flower-stalks. Among the Cactus Dahlias now so popular, Constance, a good white, and Juarezi, scarlet, are the best. We grow them to a good size under glass, and when planted out in May they commence flowering at once and continue the whole season. Of Harpalium rigidum, the Prairie Sunflower, I planted half a dozen small plants last year in August, and the quantity of bloom they have produced this season has surprised me—a single clear yellow flower with very dark disc and good long stalks, so that you can cut the expanded bloom without cutting any buds. Helianthus multiflorus is another good Sunflower. It has clear golden yellow double flowers of a suitable size for cutting. I find these perennial Sunflowers do best when replanted once in two or three years. The Flame flower (Tritoma Uvaria) forms striking masses of colour at present. The large spikes of bloom are most useful for harvest festivals and other massive floral decorations. These plants stand for several years without removal, and the larger the clumps the more bloom. The variety called Burchelli appears the most persistent bloomer. J. Groom.

Gosport.

Kniphofia Leichtlini var. distachya. This curious and pretty plant received from Herr Max Leichtlin, of Baden-Baden, in the autumn of 1884, is now blooming with me for the second time. But this year the specific variation from all other varieties of this family known to me of the second or subsidiary flower-spike branching off from the main stem, at a height of 2 feet 4 inches from the ground, is much more distinctly marked than it was last year, when only a rudimentary pip or two were produced at the base of the main spike instead of a distinct second spike, as this year. The height of the flower-stem from the ground is just 3 feet 5 inches, and it also differs from all other varieties of the family in commencing to expand its flowers from the top instead of from the bottom of the spike. The type K. Leichtlini is figured in the 109th volume of the *Botanical Magazine*, plate 6716, but the figure there given hardly gives an accurate representation of the deep orange colour of the flower as seen in Nature, which consists mainly in the deep shade of the protruding stamens, which are more conspicuous than the paler tubular flowers from which they come. This variety is a native of Abyssinia, whence it was sent to Baden-Baden by the traveller Schimper. It is quite deciduous, and also appears to be perfectly hardy in this climate.—W. E. Gumbleton.

SOME USEFUL ANNUALS.

In following up my note on useful herbaceous plants I desire to supplement it by adding the names of a few useful annuals, and would keep the same object in mind; in so doing, I would interpret the word "useful" in the same sense as in the former paper—useful, that is for cutting for home decoration. I think that annuals ought to play rather a more important part in the garden than they have done. As long as the bedding-out system was *de rigeur*, annuals were almost banished from gardens. Where the Geranium, Calceolaria, Ageratum, &c., reigned supreme, there was no place for them, however beautiful they might be; but now, when in early spring and on to June the borders are pretty full of plants, bulbs, &c., there must of necessity be considerable gaps in them. Some persons are in the habit of filling these in with Geraniums, and a few of them are doubtless effective, but I do not think nearly so much so as annuals, and while all credit must be due to Mr. Thompson, of Ipswich, and others who have of late years so largely enriched our seed catalogues with their introductions from various climes, it must be noted that a great many of the old-fashioned annuals are still unsurpassed for beauty and perfume. One might go through a carefully bedded-out and carpetted garden and not get one whiff of sweet odours. Not so now-a-days. Some of the "banished ones" have been restored, and one's olfactories are delighted by the fragrance of such old-fashioned flowers as Sweet Peas and Mignonette. In the list that I shall now give I shall take note of those which are useful for both purposes. There are many which, very beautiful in the garden, are of little service when cut, as they shut up. Nothing can be more lovely than the blue of Convolvulus minor or more bright than the yellow of Eschscholtzia, but, unhappily, when cut and put into a vase, they close up their petals. All such flowers, then, are unsuitable for this purpose, and, however beautiful in themselves, I must exclude them from my list. In the same way the beautiful scarlet Flax (Linum grandiflorum), although very useful for the garden, is of no use as a cut flower.

Marvel of Peru, too, deliciously fragrant as it is at night, shuts itself up during the day, and even if it did not, there is so much foliage about it, that it is hardly a good flower for cutting; but those who wish to have a bed of sweet fragrance would do well to try this old-fashioned plant, so easily grown and so very vigorous.

Brachycome iberidifolia (the Swan River Daisy) makes a beautiful dwarf clump either in the front of the border or on the rockery. It is of a delicate silvery blue colour, and covered with flowers, and continues in bloom for a very long while.

Chrysanthemum Dunnetti and Carnation bicolor.—There are small varieties of these annual Chrysanthemums which are very useful for cutting. Some are very remarkable in the arrangement of their colouring, and contrast well with other flowers. The old Cornbottle, too, is very beautiful, much more so, I think, than that which is called an improved variety of it, which is apt to come semi-double, and then its beautiful, simple character is destroyed. There is also a double variety of Dunnetti, which is not nearly so pretty as the single one.

Gaillardia picta.—This and its variety nana are very beautiful in their bright orange and crimson colouring and are always very much admired in bouquets as well as in the garden, where their bright colouring always shows up well. They are far more effective, I think, for both purposes than the new double one, Lorenziana, which, although curious and even remarkable, is not at all equal to the type; in fact, there are very few double flowers which are as good for decoration as single ones of the same species; they are too heavy when put with other flowers, and by themselves never form a pleasing object. It is for this reason, I think, that bouquets of Roses are so seldom effective.

Centaurea moschata (Sweet Sultan).—There are three varieties of this, white, lilac, and yellow. Of these the last is the most beautiful, and I have been surprised to find how little it is known. Whenever I have had visitors, they have always asked what is that beautiful fluffy-looking yellow flower. It is not only good when mixed with other flowers, but forms a very pretty bouquet by itself. The lilac and white are also useful, but not so much so as the yellow, which no garden ought to be without. Why it has its name of Sweet Sultan I cannot quite understand, for there is nothing very fragrant about it, although I find the honey bee likes it much.

Cyanus minor (the Cornbottle).—This has become a very favourite flower, both naturally and artificially, especially since it became known that it was the German Emperor's favourite flower. Although not quite so popular with ladies as the Marguerite, it may still be seen in all manner of decorations. It is very effective for bouquets, too, as its delicate blue is a colour most needed, but amateurs must beware both of this and the Corn Marigold; they are native plants—weeds, we may say—they will scatter their seed all over the garden, and have to be constantly watched, or they will smother other things. Happily, they have not very tenacious roots, and so they are easily eradicated.

Burtonia aurea.—Another very beautiful yellow flower, very bright in colour and free flowering, continuing in flower, too, for several months; well worthy of cultivation.

Mignonette.—There is no need to recommend this deliciously fragrant annual, and yet how many gardens have I been into where not a plant of it was to be seen. I merely mention it here to say that I am not at all sure, notwithstanding the many improved varieties, whether the old-fashioned variety is not the sweetest and best. Size is of no great advantage in cutting flowers for a bouquet, and it is size in which most of these newer sorts are supposed to excel.

Salpiglossis.—It is impossible to exaggerate the beauty of this old-fashioned, but too much neglected annual. The flowers have almost the appearance of jewelled enamels, and vary very much in colour, from straw colour to beautiful lilac and gold. It grows tall, and is best where it can rest upon other annuals, or it must be staked, otherwise the long slender stalks will trail on the ground.

Sweet Pea.—Who can doubt the excellence of this most fragrant flower of which one can hardly have too much? Besides the old-fashioned varieties there have of late years been introduced several very beautiful kinds, such as Salter's Butterfly, Invincible Scarlet, Invincible Crimson, and others equally fragrant with the older sorts, and adding much to the beauty of a row or clump by their colouring. If, when the first crop has bloomed, the pods are taken off and the tops cut off a second crop of blooms will be produced, and thus continue the blooming season on until late in the autumn.

Godetias.—I can hardly look upon these as satisfactory, for although when they first come out they are very pretty, yet seed-pods are so soon formed, they disfigure the spray and make it of very little use for the purpose.

Coreopsis Drummondi, tinctoria and atrosanguinea.—Nothing can be more useful and brilliant than these bright and showy annuals. Of slender

growth and bearing their flowers in profusion, they are just the very thing for cutting. The former of these, with its brilliant crimson centre and yellow petals, is a most beautiful flower, attracts the eye in the garden, and stands out prominently in the bouquet, giving it great lightness and at the same time brilliancy of colouring.

Such are a few of the annuals which I have grown and found useful both for decoration in the garden and also for cutting, and, as I said of herbaceous plants, so I say of them, I should be very glad to be told of others which are available for the same purpose. I may add that this summer, finding that having almost daily to gather them from the borders necessitated a good deal of treading on them, to the manifest injury of other plants, &c., we this year, at my daughter's suggestion, had a border of about 30 feet long by 2 feet wide given up to them. They were sown in rows, and the whole was very showy and effective, while it afforded an increasing supply of flowers. The cheapness with which seeds are now to be purchased makes this a very easy matter where there is room, and does away with the objection that is sometimes made of disfiguring the borders; and I think that persons will be very difficult to please if they have not a good deal of enjoyment out of the selection I have given above. DELTA.

PINGUICULA GRANDIFLORA.

THE native Butterworts are more or less plentiful in boggy or marshy places, and are extremely interesting as well as beautiful. The conditions, however, under which they thrive best debar most lovers of hardy plants from attempting their culture. A wet treatment is most generally recommended for them, yet we have seen them growing wild by the thousand on the hill paths as "dry and hard as a bone." In the winter season, however, these paths are under water and impassible for at least four months of the year—quite the opposite to our treatment. We might take a lesson from this fact, for it is in the winter season, when the leaves have disappeared, that most damage is done to Pinguiculas under cultivation, for the winter buds, which are all that is left of the plants, during that season are scratched up by birds, leaving them to wither on the surface. Pinguiculas, we find, will thrive with only a very limited supply of water, and by means of a little shade might be grown very successfully without the specially prepared bog, and the same might be said for the common Sundew, which we found also in abundance close to the Butterworts. Of the four native species, the Irish Butterwort (P. grandiflora) is most worthy of notice, being twice as large as the ordinary P. vulgaris, much easier grown, and altogether a better garden plant. It is amenable to pot culture, and makes a charming pot plant. P. alpina, lusitanica, and vallisneriæfolia may also be kept as curiosities. P. caudata, a greenhouse species and a very charming plant, would, no doubt, be found to do well in the open in summer time, although questionably hardy. K.

Verbena venosa.—This is a most useful plant, as it grows and flowers abundantly in almost any kind of soil or situation. When all the ordinary varieties of Verbenas fail this one is sure to give satisfaction. It is easily kept through the winter, and if its fleshy roots are stored thickly in boxes any number of plants may be propagated in spring from the young shoots that are abundantly thrown out. It should be planted rather thickly, and pegged down until the ground is covered, when it will continue to flower until the last of the summer flowers are removed or destroyed by the frost.—J. G.

Helianthus cucumerifolius.—This annual Helianthus is a Texan plant, growing from 3 feet to 4 feet or 5 feet high. The flower-heads measure 3½ inches across, terminating the branches. They are bright yellow, with a disc of a deep black-purple. Treated as a half-hardy plant, it commences to bloom in June, and continues in flower till the arrival of frost. Being free from the coarseness of so many of the other species of Sunflower, it is an important addition to border annuals, as it is not only very showy, but a continuous bloomer.—T.

NOTES ON HARDY PLANTS.

Gentiana septemfida.—Of this Gentian there are varieties, some very dwarf and others somewhat tall and of erect habit. But I think the prettiest variety of all is one grown under the name of cordifolia. This has slender and short stems, closely furnished with small cordate leaves somewhat acute. It has a procumbent habit, and flowers quite as large, though fewer of them, as are generally seen on the taller kinds. It is, moreover, a free grower, and may be easily raised from seed, which comes true. The seedlings flower freely in their second year.

Androsace Chamæjasme is now in full leaf. In the cultivation of Androsaces the leafing period is a most important one: you may then not only pretty well judge with what measure of bloom or

Pinguicula grandiflora.

otherwise you will be gladdened the following spring, but you may greatly help in bringing about the desired end. In our climate these Androsaces continue to grow until late in the summer, and I imagine not a few of us would be surprised to see the number of pests which trouble these little plants—pests which probably, from their small size and the smallness also of the plants, escape notice. The fresh green leaves of the present season are liable to injury by aphis and red spider, as well as slugs, which find most convenient lodgment under the close tufts. We know too well that either of these, if left undisturbed, will kill the most hardy and robust plant. What I wish to point out is that imperfect leafing means an unsatisfactory condition of the plants in winter and spring, that we should see to the cause now, and be on the alert for those pests we might not have suspected, attributing the want of healthy growth to climate or something else than the true cause. This, one of the prettiest European species, is especially liable to red spider, and often the leaves are stopped in their growth when not half the size they would otherwise attain. This, it need hardly be explained, not only leaves the plant with its round winter leaf buds much under the natural size, but without that full supply of dried and persistent herbage which is so unvaried and essential a feature of the whole family. All the Androsaces should now have their healthiest appearance, and if not they should be examined. I find brisk syringing on fine mornings a good practice, and a dusting of white wood ashes or tobacco powder in the evening after three or four applications clears the fly, and if applied with the puff-pot to the under sides of the leaves, the clearance is more thorough.

Propagating Ramondia.—My experience in seed-raising of R. pyrenaica has shown it to be one of the slowest processes, and after what I have found out respecting propagation by old leaves, I should never think of raising seeds again. Just about a year ago I set old leaves, and they are now forming beautiful plants of six leaves. I see, by the dating of the label on the seed-pot, that it is nearly three years since I set a pot of seeds, and the plants are not more than half the size of those a year old from old leaves. It is therefore, to my mind, clear beyond a doubt that by leaf-cuttings is much the best way to propagate it. In all cases I have used decayed peat or Cocoa-nut fibre. The latter seems to be especially adapted for the plant in its young stages. As the plants get older I add a little turfy loam, and if they are turned on to their sides by setting the roots in the side of a pot which has had a triangular piece broken from it, they seem to make all the quicker progress.

Œnothera macrocarpa.—One hardly knows which to admire most, the fresh flowers or faded ones of this evening Primrose. The great lemon-yellow flowers, so fragrant in the opening stage, are certainly very beautiful, and in the evening of, perhaps, the second day, when the flowers have closed for ever and become somewhat twisted, the colour having changed from the bright yellow already mentioned to one beautifully tinted with apricot, they are none the less flowers of great beauty—beautiful in their fading stage. A week or two ago I mentioned a ready process of propagating this plant. To do so now by cuttings is, so far as I am aware, quite out of the question, and the next best thing to do is to look after the seeds. Plants, however, so raised are only serviceable for flowers the second year.

Mertensia maritima.—Throughout the summer my one plant of this has been flowering, and from the earlier flowers there is now a nice bit of seed. There can be no wonder that the harvesting and sowing of this seed are a little puzzling. I imagine that to deal with the seeds successfully from tradesmen's seed boxes would be a greater puzzle still. In the first place, the seeds which we see in threes have a fleshy covering, which remains green for a long time, at least two months. After that the pulp skin (but no longer containing pulp) turns quite black, but remains somewhat inflated; inside is the loose and black-brown seed. If seeds are taken at this stage and sown, germination is most rapid; they sprout almost in a few days. A sandy or gritty soil on a damp bed—such as one made of spongy peat—is the best material I have found in which to sow them. I am not sure that it will be the best plan to leave out the seedlings of two or four leaves all the winter. Of course, they are perfectly hardy, but the action of frost is very liable to throw them completely on to the surface, and should the winter happen to be rather open, scarcely a less danger awaits them in the form of slugs, which are very fond of this plant.

Sedum populifolium.—This distinct shrubby Stonecrop does not bear showy flowers, but they seem to harmonise beautifully with the form of leaf of their own plant. The shrubby habit and fleshy, somewhat small, and irregularly toothed leaves render it very unlike an ordinary Stonecrop. The flowers are pinkish white, borne in corymbose clusters and freely produced. It is deciduous, and though it has a somewhat

tender appearance, it is one of the hardiest of its family.

Rosa caroliniana.—One does not see much of this, but I should think it would be difficult to mention another single dwarf Rose to supersede it for beauty, and especially in delicious perfume, which is a sort of concentrated Dog Rose scent. The Willow-like growths are 2 feet to 4 feet high. Each blossom is about 2 inches across, of a delicate rose colour.

Primula obconica is a capital plant for summer effect, and may be said to solely represent its family by normal and abundant flowers out of doors in the late summer. I believe its hardiness has not yet been satisfactorily proved, though the plant has been left out on rockwork all winter in Yorkshire where it survived, but the winter of 1884-5 was not severe; besides, some protection was employed. We know, however, that plants in a fairly leafy state will endure many degrees of frost under dry conditions, but this does not imply much. This Primula affords considerable variety when raised from seed; there may be, so far as we at present know, more difference in the foliage than the flowers, but perhaps most in the scent of the bloom; this feature becomes worthy of note when we otherwise find the plant affording so many flowers suited for picking. There may be found in a batch those with varying perfumes distinctly resembling Violets, Lilac, and Auricula. The flowers differ a little in both shade and size; the leaves by comparison may be described as varying—Dock-like, Coltsfoot-like, and Geranium leaf-like—in shape; the substance is as irregular also as the shape of the edges. All this suggests that this variable species is capable of being improved by cultural skill, and surely a more worthy plant could hardly be named, especially when we recall that its sweet pale mauve flowers may be had all winter in a cool greenhouse.

Potentilla lanuginosa is one of the sweetest little shrubs imaginable for the rock garden. It is perfectly happy in a rubbly soil deeply mixed with a little loam and leaf mould, with the fullest exposure to sunshine. It occupies far less space than many of the herbaceous sorts, and for all practical purposes it may be reckoned a smallish plant rather than a shrub. The leaves, which are thickly coated with white silky hairs, are rendered almost white, and as the young wood, so short and freely produced, is nearly red, the effect even when flowerless is very pleasing. The big glistening yellow flowers, however, which just now are beginning to appear, make these little bushes, of but a foot or so high, positively gay. It is a truly handsome subject for a rockery of the dwarfest shrubs and plants, but one hardly ever sees it. It is strongly to be recommended for the hottest side of rockwork, and its hardiness is beyond question.

Geranium argenteum is certainly one of the most charming alpines we possess; it may be termed a twilight plant in the sense that, seen at that period of the day in late summer, it is more than usually winsome; then this stemless plant may have its long leaf-stalks erect, and the lax umbel of flowers will assume their pretty cup form, and the too arid effect of the sunny daytime is quite changed. How is it that for all the plant is so well known and is such a general favourite, that it is still a scarce plant? I have found that it seldom comes true from seed, even when its spare seeds can be secured; then it is not one of the freest to perpetuate itself by offsets, which, by the way, are not so easily established as those of other hardy Crane's-bills. Again, old plants are apt to go off when five or six years old, and whenever this habit belongs to a plant so desirable, it need not be said how important it is that young duplicates should be looked after. These facts may in some degree account for the comparative scarcity of the plant. Without deprecating the practice of raising the plant from seed to make sure of the true form, it should be increased by offsets; in obtaining these the crown and root should be treated more in the way of those of the allied Erodiums. Split both crown and root (after first cutting the former) by the tearing process; this will allow the fairest and safest share of root to each division. But the more important point is to do this at the right time in early summer, when each division is not only sure to grow, but make a strong established plant. Whether set in a pot or rockwork, the soil should be free from undecayed vegetable matter. Old plants live longest in dry, sunny situations, with a deep and porous soil, such as could be provided by mixing loam and grit, and supplying it for a depth of 18 inches.

Campanula Zoysi, exquisite both in growth and flower, is, I find, a rapid grower in the summer time, and we may not have much left to complain about if the plant can be fully secured from slug grazing. I have latterly grown this distinct Harebell in a pan, in a soil composed of washed sand from the gutter of a country road and very old mould got from stable manure and Bracken. The advantages seem to be more rapid growth, quickly developed flowers, and immunity from slugs, the latter being mainly the result of a free use of wood ashes. There may be a little cause for fear that in such rich stuff the roots may not go to rest and ripen as soon as they should, but the fact of the plants being in pans gets one over this difficulty without much trouble. If set in the open or on rockwork, as I know many admirers of alpines prefer, I see little chance of so small a species becoming an effective plant, unless slugs and snails can be kept off it, for one hungry slug could eat off the growth of many days at one meal, and everybody practised in slug-slaying knows that the same slug will regularly visit the same plant for a long time together if not stopped.

Grass of Parnassus never fails, with the most off-handed treatment, to yield its chastely-beautiful, if not showy, flowers. A number of roots, years ago, were brought when in full flower from different habitats both distant and near home; all must surely have lived and thriven, as well also as the Sundews which unintentionally came with them in the soft black earth. The little sods were packed into cracked loaf-dishes which held moisture in the bottom, and they were placed behind the coign of a building where only the very early and two hours of the western sunshine could reach them; they have long stood there, and give no further trouble than that of pulling out a bit of the longest Grass. It is interesting to notice the difference of growth and size of flowers in specimens from the Adel bogs, the fens of Lincolnshire, and the moors of Ardrishaig. All the plants seem happy, but year after year the distinction is sustained. What has puzzled me most is a little batch which came from near Weatherby. The plants were taken up, or rather down, in flower. I say down, because they were found on a conical mound of dry marly material quite exposed to the full sun. These plants were set under similar conditions to the others, but most died the first winter, possibly because, from the loose nature of the soil, the roots were injured by the untimely removal; those still living are the smallest in every way. Is it not a very unusual thing to find Parnassia palustris on a lofty dry mound? But to prove how accommodating such plants are, I may mention that I saw this bog plant make quite a showy effect in Dr. Appleton's garden at Beverley last year. He grew it in big potfuls; the plants were 6 inches to 8 inches high, and the big flowers reminded one of those of Ranunculus amplexicaulis. They were the finest I ever saw, and suggested that something could be done with the Grass of Parnassus in the way of floral effect. I believe the doctor raised his plants from seed, and, likely enough, he would coax them with the scientific soil mixtures and rich plant foods he is so fond of experimenting with. Indeed, he did so, and the impression on my mind was that by his method we could grow this plant so as to be one of the most beautiful for pots in or outside or in the open garden.

Tunica Saxifraga is one of those plants bearing insignificant flowers, but which, from the myriads produced, has a good effect. The long flower-stalks are very thin, and leave the rosy little flowers full play to shew themselves, which they do in a charming manner. A good feature about this plant is that the succession of bloom is sustained for a long time by plants a year or two old, and another that the plant will prosper under any conditions if in plenty of sunshine. Plants above two years old, however, are impatient of removal, and they are not increased so well by division as by seed raising. Seedlings, if from seeds autumn sown, will flower the first year, but they are much more leafy in proportion, and otherwise look different from older plants. J. Wood.

Woodrille, Kirkstall.

Garden Flora.

PLATE 561.

VALLOTA PURPUREA AND VARIETIES.

(WITH A PLATE OF THE VARIETY MAGNIFICA.*)

There is but one species of Vallota, and this is a native of South Africa, whence it was introduced by Philip Masson in 1774, and afterwards figured in the *Botanical Magazine*, t. 1430, under the name of Amaryllis purpurea, this figure representing what is now known as the variety major. Linnæus called it Crinum speciosum, and Dean Herbert renamed it Cyrtanthus, altering it afterwards to Vallota, in compliment to the French botanist Vallot. The close relationship between it and Cyrtanthus was noticed by the Dean, who wrote concerning it: "This beautiful plant is so closely allied to Cyrtanthus, that I have even entertained doubts of its being distinct, and should wish to see it ascertained by further experiments whether it is capable of mingling with that genus." Recently we have had proof of this affinity in the hybrid raised in the garden of Sir Trevor Lawrence, of which Mr. N. E. Brown, who named it Cyrtanthus hybridus, says: "I think this plant can scarcely be claimed as an example of a hybrid between two distinct genera, but rather as proving that Cyrtanthus and Vallota are not really distinct genera, but merely different types of form belonging to the same genus." This view is supported by the close resemblance of the two parents to each other and the small difference between the Vallota and the hybrid named as above. All this is interesting as showing that probably others of the beautiful and varied genus Cyrtanthus might be crossed with the Vallota, and if some of the vigorous constitution of the latter could be infused into the hitherto delicate species of Cyrtanthus, a valuable race of distinct greenhouse bulbs might be thus obtained. Bearing in mind what has been done in this direction with the Hippeastrum (Amaryllis), this surmise does not seem unreasonable. Leaving, however, what might be and turning to what is, we have in V. purpurea one of the most beautiful and useful of the vast number of bulbous plants introduced from South Africa, and one which will thrive satisfactorily in a cold greenhouse or frame under the simplest treatment. It is hardly necessary to go into the details of cultivation for a plant which has been a popular favourite in gardens over a hundred years; still, a few particulars relating to treatment may be given for those readers who are not successful with Scarborough Lilies, as these plants are called, a name which, by the way, we have been unable to trace to its origin, the only reason for it that we can find recorded being suspiciously like what is told of the Guernsey Lily (Nerine), namely, that a Dutch barque was wrecked off Scarborough, from which bulbs of

* Drawn in the New Plant and Bulb Company's nurseries at Colchester, Sept. 21, 1886.

VALLOTA PURPUREA MAGNIFICA.

the Vallota were washed ashore, and became established there as garden plants. Perhaps some of our readers can give us an authentic account of the origin of this name.

The cultivation of Vallotas is practised on a large scale by market growers, and it is stated that some of these succeed in blooming their plants twice in the same year, namely, in midsummer and again in winter. With us flowers do not appear more than once annually, although our plants are treated well and flower freely. By resting some of the plants longer than others the blooming season for Vallotas may be made to extend over about three months, from July onwards. The bulbs should be planted thickly in the pots they are intended to occupy for two or three years, using a rich loamy soil without any sand, notwithstanding the fact that in their native habitats Vallotas are found only in boggy peat. Whilst growing, abundance of water should be given, as they delight in wet, thriving even when placed in water. About May frequent waterings with weak liquid manure will help the flowers. From November till March

Vallota purpurea; showing habit of growth.

the soil should be kept just moist, but total drought is often harmful to these plants. A cool greenhouse or frame is suitable for them. Instances of their thriving out of doors in sheltered places have been recorded, but such are exceptional, and not to be taken as proving the hardiness of Vallotas in England. Some of the finest Vallotas we have seen have been grown by cottagers in their windows.

V. PURPUREA typical has a flower-scape about 1½ feet long, bearing an umbel of about six flowers, each 2½ inches across and coloured blood-red. A figure of it is given in the *Revue Horticole* for 1870, where it is named V. grandiflora, no mention being made of the older name. The variety major has a scape 3 feet high, and flowers over 3 inches long and wide; minor is smaller in all its parts, a figure of it being given in the *Botanical Register*, t. 552, under the name of Amaryllis purpurea var. minor. A very fine variety was distributed from Mr. Bull's nursery about ten years ago as var. eximia, and obtained a first-class certificate from the Royal Horticultural Society; it has flowers 4 inches across, the segments broad and of good substance, and at the base of the divisions whitish feather-like blotches; this is hardly distinct from the variety represented in the accompanying plate, though its raisers, the New Plant and Bulb Company, Colchester, consider it larger, brighter in colour, and a much more robust grower than any other kind. It was exhibited by them this year with tall scapes bearing magnificent flowers 5 inches across, whilst the leaves were large and as stout as those of Hippeastrums. W.

SOUTH AFRICAN PLANTS.

An official handbook of the Cape of Good Hope, its history, productions, and resources, has just been issued. It contains an exhaustive account of all that concerns the colony, including the subjects of agriculture, Vine culture, woods and forests, and, lastly, a lengthy sketch of the flora of South Africa, by Mr. H. Bolus, F.L.S., and as extracts from this sketch may be interesting to our readers, we append a few. In speaking of the richness of the South African flora, Mr. Bolus says:—

"Ever since the time of its first settlement the Cape has been a constant source of pleasure and delight to the botanist and the gardener. Though Cape plants have somewhat gone out of fashion of late years, it is still probably true that no single country in the world has contributed so largely to European conservatories and gardens as the Cape of Good Hope. The despatch of plants, indeed, began before the settlement by Van Riebeek, for we find that one Heurnius, a missionary *en route* to the East, had sent to his brother at Leyden several curious plants which were figured by Staple in his edition of 'Theophrastus' History of Plants,' published at Amsterdam in 1644. These are the earliest known figures of Cape plants, and amongst them was the well known Orbea variegata of the Lion's Rump, which was called a Fritillary, and an Oxalis which, with equal reason, was styled a Trifolium! But those were the days before Linnæus had arisen with master mind to reduce to order the rapidly increasing stores of vegetable forms. In 1772 came Thunberg, the father of Cape botany; in 1810, Burchell; in 1825—1834, Ecklon, Zeyher, and Drège. All these made journeys of thousands of miles, and of several years in duration, exploring the vegetation of the country. Besides them were others of less note, and a host of gardeners and collectors of seeds and living plants. From 1775 to 1835, Cape plants may be said to have been quite the rage. The conservatories, temperate houses, and gardens of England and the Continent teemed with the Pelargoniums, Heaths, Proteas and other handsome flowering shrubs, and the lovely bulbous plants of Iridaceæ, Amaryllidaceæ and Liliaceæ; and the pages of the *Botanical Magazine* and other similar periodicals were filled with figures and descriptions of them.

"The public taste of that day was amply justified. Perhaps the recently increasing exportation of flowering bulbs may be taken as an indication that the fashion will be revived. But though fashion in flowers may be variable, the interest of science is more permanent; and, notwithstanding the diligent exploration of the country for the last hundred years, the constant discovery of new forms, even up to the present day, has largely occupied the attention of systematic botanists.

"I propose, therefore, to regard South Africa as including five natural regions, two of which extend beyond its limits, while the others are included within them. These are:—

(1) The South-Western Region		
(2) The Tropical African	„	(Grisebach's 'Soudan.')
(3) The Karoo	„	
(4) The Composite	„	
(5) The Kalahari	„	(Grisebach)

"The South-Western Region has for the most part furnished the largest number of garden plants, as it is the home of what has been for the last hundred years popularly known as the Cape flora. It is an angular littoral strip, bounded on the west coast by the Oliphant's River and the mountains near it, but including properly the mountain range from Cedarbergen up to the Khamiesbergen; on the east by the Van Staden's Mountains; and inland by considerable mountain chains under various names. Its greatest width does not exceed eighty miles, and probably averages not more than fifty miles. The inland mountain chains referred to may average 4000 feet in height, attaining sometimes (Great Winterhoek) 6800 feet. The surface of the region is extremely diversified, sandy and bushy tracts alternating on the coast with grassy downs, and vast mountain slopes of the most barren appearance when lying a short distance inland, but clothed with an immense variety of small plants.

"The prevailing aspect of the vegetation of this and the whole Cape colony, except the eastern coast region, is that of a number of low-growing scattered shrubs of a dark or bluish green hue. With considerable exceptions this is, nevertheless, the appearance which most commonly meets the eye. Almost everywhere the 'bush' is present. Interspersed among a host of other genera are numerous plants of the Orders Orchidaceæ, Iridaceæ, Amaryllidaceæ, Liliaceæ, with scattered tufts of Restiaceæ, Sedges, and Grasses.

"In the deep ravines of the mountain sides are dwarf trees, growing closely, with dark foliage. Few indigenous trees attain a greater height than 25 feet to 30 feet; and amongst these is the Silver Tree (Leucadendron argenteum), peculiar to the Cape Peninsula.

"There is little change in the aspect of the vegetation even at greatly varying heights on the mountains; and near the coast especially it is much less affected by altitude than is the case in Europe. On Table Mountain some species are found from the bottom to the top, having thus a vertical range of 3500 feet; and there are many with a range of from 1000 feet to 2500 feet.

"The flowering season begins about the end of May, immediately after the first winter rains. The numerous species of Oxalis first make their appearance, and these are soon followed by great numbers of Iridaceæ, Amaryllidaceæ, Liliaceæ, and other bulbous plants, besides Mesembryanthemums and various Compositæ. On the mountains the flowering begins later and continues longer; but though few plants may be found in flower in March and April, yet they are never wholly absent. The imported Oak has shed its leaves for a period of six or eight weeks only (during May and June) before the new growth begins. Everything points to the fact that the true winter, the period of rest, is here the dry season, viz., March—May; as soon as rain falls even the winter temperature is sufficient, and vegetable life is at once aroused to activity.

"A few of the most beautiful, striking, or curious vegetable forms of the region may here be mentioned, the majority of the examples being taken from the highly representative and rich flora of the Cape Peninsula lying on its western extremity. The palm of beauty must be awarded to the Disa grandiflora, the grandest of southern terrestrial Orchids, as Cypripedium spectabile is of the northern hemisphere. This is abundant on the streams of Table Mountain, and is found also on the Hottentot's Holland Mountains, thirty to forty miles inland. Other fine Orchids are Satyrium cordifolium, a brilliant orange; S. carneum and S. erectum, Disa longicornis, a lovely blue; D. secunda, the delicate white D. fasciata, and others; Pterygodium acutifolium, a fine deep golden yellow; Ceratandra chloroleuca and C. Harveyana, the brilliant blue Disa (Herschelia) graminifolia (long known as H. cælestis) and the allied D. venusta and D. purpurascens; and, finally, the small beautifully fringed, spider-like Bartholina pectinata and B. Ethelæ. Close upon these presses the so-called Arum, the Richardia africana, with its pure white spathe, almost as common an ornament of all moist, low-lying ground as the common Dock is an accompaniment of English ditches.

"The Proteas are universal objects of admiration, and few plants can surpass P. cynaroides, with its

flesh-coloured involucres, P. speciosa, P. coccinea, and a few others. The singular Leucadendron argenteum, or Silver Tree, is a striking ornament of the mountains about Cape Town. Next come the Heaths, whose names would be legion. The most beautiful, and those with the largest flowers, are denizens of the mountains lying between the Hottentot's Holland range and the town of Swellendam, being especially abundant about Caledon and Genadendal. On Table Mountain, Erica cerinthoides, E. mammosa, E. coccinea, E. spumosa, and E. hirta are amongst the finest, the latter sometimes making a whole mountain-side glow with its warm pink tints. There are probably 350 species of true Heaths found in this region alone. Amongst Compositæ, Gazania has some fine species, while Helichrysum vestitum and Phœnocoma prolifera are amongst the showiest of the Everlasting flowers, the heads of the first named being gathered, dried, and exported in large quantities to Europe as immortelles.

"Iridaceous plants are abundantly represented in handsome species of Romulea, Geissorhiza, Ixia, Gladiolus, Watsonia, Babiana, &c.; Amaryllidaceæ in Amaryllis Belladonna, Nerine, Brunsvigia, Vallota, &c.; Scitamineæ in the peculiar and noble Strelitzia. Liliaceæ are very varied and numerous. The most conspicuous are the Aloes—A. plicatilis with an arborescent trunk, attaining a height on the western mountains of 12 feet to 15 feet; the beautiful blue Agapanthus, the star-like Ornithogalums, Kniphofia alooides, and many others. Prionium Palmita is a remarkable plant with the flower of a Juncus and the habit of a Pine-apple, which in some parts fills the beds of certain western rivers, and reaches a height of 8 feet or 10 feet. Some Restiaceæ and Cyperaceæ attain to 6 feet or 7 feet, and often form a striking feature in the landscape. Ferns are not very abundant, chiefly occurring in the deep ravines, where the arborescent Hemitelia capensis is found several feet in height; and Todea africana forms a handsome plant. Osmunda regalis is sparingly met with, while Pteris aquilina is more commonly scattered on the open hillsides." T.

WORK DONE IN WEEK ENDING SEPT. 7.

September 1 to 7.

Through pressure of other duties, daily notes of our work have again been neglected, and only a very cursory account of the same can, therefore, be given. The long-wished-for rain descended on the 2nd and 3rd inst., and, if possible, made us more busy than the previous drought, owing to the labour of watering, for Lettuces, Cabbage, and late Broccoli were all waiting to be planted, and which have now been accomplished, as have also thinning out and earthing up of the last lot of French Beans. Planted out Strawberries and pricked out into nursery beds numbers of runners, some of which will probably be required to fill up gaps in the plots next spring, and others to give to friends that may not have been so fortunate as ourselves in the procuration of runners. Other kitchen garden work has been earthing up earliest Broccoli and Celery, staking latest Peas, picking the old Beans off runners to keep the plants in bearing, and digging up Potatoes at every opportunity, for since the rain the disease is spreading very rapidly; it has even attacked Tomatoes, a circumstance that has not occurred for three or four years. Two new kinds that we have just lifted are worthy of special note: they are Abundance and a seedling; the crop of each is simply wonderful, and the appearance and quality are of the first order, and both are nearly free from disease. They have much of the robustness of Magnum Bonum in their constitution, and this no doubt accounts for their comparative freedom from the affection. Flower garden work has been purely of a cleaning-up description, which, as a matter of course, includes keeping off bad and seeding flowers, and the groundwork and outlines in formal bedding arrangements true to design by clipping or pinching as may be required. Propagation of the various kinds of plants for next year's use is done as opportunity presents to take off a few cuttings without their ever being missed, our rule being that no gaps shall be made in the arrangements by propagation—a rule that with due care we are generally able to adhere to. Of kinds that will propagate quickly in spring we only take a sufficiency now to afford stock in spring. Lack of space in houses and pits to winter the same makes this a necessity, and perhaps a desirable one, for spring propagated plants are, as a whole, better than autumn-struck, which are apt to get stunted. Herbaceous and mixed flower borders have renewed their growth; they have not been more gay this year than they now are, and we have had a considerable amount of labour in tying up Gladioli, Liliums, Pentstemons, Sunflowers, Michaelmas Daisies, Dahlias, and many other tall-flowering plants. Stocks, Asters, Zinnias, Salpiglossis, and Scabious are all exceptionally good, and that for a very good reason, namely, because we have taken greater pains than usual with them, for, like every other branch of gardening, their better doing is due solely to increased attention. Successful gardening and hard work are synonymous terms, for without the one the other is impossible. The gathering of Apples and a few of the earliest kinds of Pears has occupied a few hours of our time. Of the former, Devonshire Quarrenden, Peach, and Red Astrachan have been harvested; the crop is a short one, as it is also of Pears. Beurré de l'Assomption, Williams' Bon Chrétien, and Beurré d'Amanlis we have not yet gathered. Peaches and Nectarines are ripening on the open walls very rapidly, and these we gather before they are quite fit for table; they keep longer than if left till dead ripe, and the flesh is less mealy and of a higher flavour. Plums of the dessert section we treat in like manner, but preserving varieties we allow to ripen on the trees, that is, when the wasps will allow this, and, for a wonder, this is the case this season, there being as yet but few about. Indoor work has been potting Hyacinths and Tulips, also potting on Cinerarias, Primulas, Poinsettias, Bouvardias, and also a few more Pine suckers. Trimming up and thinning out the growth of ridge Cucumbers and Vegetable Marrows; an overcrowded state of the wood, now that the nights are getting cold, and damp soon settles the fruit-producing powers of the plants by causing them to damp off before they are well formed. No further artificial watering will now be necessary; rain and the strong dews that occur nightly will be ample. Partially pruned earliest vineries by cutting back all secondary growths into the hard wood, and should new growths again start pinching will again be had recourse to. To fully ripen up late Grapes—Gros Colmar and Lady Downes in particular—we have since the rain raised the night temperature by fire-heat to 75°, and this will be continued till quite the end of the month, when the Grapes may be expected to be fully ripe. A little top air is kept on night and day.

Hants.

FRUITS UNDER GLASS.

Peaches.

In cold, unfavourable districts, where outdoor Peaches cannot be depended upon, the latest house is not unfrequently a host in itself, as a good selection of sorts will keep up the supply until wall fruit in warmer localities is over. The weather just now is forcing late varieties on rather too fast, but no one will complain, as it is doing so much good in every way, not the smallest benefit being the perfect maturation of the wood for another year. Where midseason varieties are coming in faster than they are wanted, the roof may be lightly shaded for a few hours through the hottest part of the day. Every door and ventilator may be set and kept open, and the floors well damped with cold water until we have a change to cooler weather. Shading at the end of the season is not, however, commendable, neither is it necessary, as we have such an endless variety to choose from, and those who know anything about Peaches will have no difficulty in selecting choice melting sorts, which will succeed each other in their order of ripening. There is a race of late Peaches, including Princess of Wales, Lord and Lady Palmerston, and Salwey, very handsome and large, but decidedly inferior. These, for two reasons, I would not give a place under glass, as quality should be the true test of merit; and fine melting kinds, like Barrington, Walburton Late Admirable, Sea Eagle, and the Nectarine Peach, will keep up the supply until chilly autumn carries away the feeling that Peaches are a necessary adjunct to the dessert. Lord Palmerston, it is generally admitted, is the handsomest Peach grown, and if some catalogues are truthful, Princess of Wales is good, but one of the best growers assures me he piles them up for the guests to admire and hands better varieties round for eating. Where suitable sorts have not been planted, now is the time to visit the nurseries for the twofold advantage of having the pick of the full stock, and seeing them in full leaf, as good foliage is one of the best tests of a sound and healthy constitution. Removal, it is hardly necessary to say, must be deferred until the buds are well filled and the foliage shows signs of changing, when well managed trees will lift and travel with perfect safety. The nursery is not, however, the best place to go to for trees for direct planting under glass, as much valuable time is lost in training them up to a fruiting state. Every fruit garden should have its reserve wall well stocked with trees, from two to four or five years old, from which suitable varieties can be selected for filling up vacancies as they occur, the great advantage gained being the ability to root-prune annually, and so fit them for removal before the leaves fall. By adopting this plan and keeping the reserve wall replenished with maidens the outlay is trifling; the trellises in the forcing houses can always be kept uniformly covered, and the grower can train from the bud, or cut back to four or five eyes if he thinks well to do so. Midseason and early houses must still have plenty of water and full air by night and day until the wood is ripe and the foliage begins to fall. If the trees are weak, an occasional watering with diluted liquid will be of great service, otherwise pure water through the hose will suffice, but they must have copious supplies, as the roots of Peach trees are never at rest, and they rarely cast their buds in the spring where this important matter is properly attended to. All root-pruning and top-dressing must now be pushed on with vigour and new stations prepared for the introduction of fresh trees, when, according to the way in which they have been prepared, they can be lifted with safety. Our first and second houses were root-pruned about the middle of August, and, notwithstanding the fact that the weather has been intensely hot and dry, the trees have never flagged, but are making fresh laterals, and the foliage, which we never brush or switch, will hang until the end of the present month. Many remove the roof-lights as soon as the fruit is gathered, and I used to adopt this plan, but I now allow them to remain until the leaves fall, and, the weather being fine sometimes, strip for painting and repairs in October.

Melons.

The weather during the past month has been all that could be desired both for setting and swelling late Melons, and we may now congratulate ourselves upon having had one of the best seasons we have experienced for some years. This tropical heat cannot, however, be expected to last much longer, neither must it be allowed to interfere with the regular attention to bottom heat, as this both early and late is the mainspring of good flavour. If in pots, as all late Melons should be, let the fermenting material be regularly turned and replenished to keep the heat up to 80°. Top-dress with fresh loam and bone dust in preference to manure; keep the house scrupulously clean and sweet; thin out all superfluous spray and laterals to let in sun and light, and while giving plenty of warm diluted liquid to the roots avoid a sloppy condition after nightfall.

Pits and frames.—As days decrease in length and nights become cold, the plants will require extra care and attention. If bottom-heat is en-

tirely dependent upon fermenting material, the linings must be regularly renovated with good stable manure and an extra mat at night, or, better still, a piece of oil canvas while throwing off cold rain will prevent the escape of heat and moisture. Assuming that the fruit is well advanced and the foliage is clean and good, let each Melon be raised on an inverted pot well above the level of the bed, where it will be partially, but not entirely, exposed to the sun and safe from insects and ground moisture. The great drawback to late frame Melons being a superabundance of confined or condensed moisture, all watering or flooding, without wetting the vines, should be performed early on fine mornings, and overhead syringing must be entirely suspended. Treated in this way, fruit of good quality can generally be obtained as late as the middle of October, but much depends upon the season, as a long continuance of cold, dull weather not unfrequently checks the plants and results in sudden collapse from chills or canker.

Cucumbers.

The last sowing of seeds for the season having been made, the young plants must be kept in or over a good bottom-heat, where they will have full exposure to light until the pots or beds are ready for their reception. Having so recently given directions for the management of plants intended for coming into bearing about Christmas, it is only necessary to repeat that their every want in the way of heat, air, and water must be anticipated. For supplying the first, if not already prepared, the fermenting material, be it Oak leaves or tan, must be well worked and frequently turned to free it from rank steam and injurious gases before it is taken into the pit. Of the two, the majority of growers now give preference to leaves with a small quantity of stable litter placed over the bottom of the plunging pit, as the two combined give off ammonia and moisture so congenial to all stove plants when making their growth. Moreover, the decaying leaves form an invigorating medium for the roots of fruit-bearing plants when they find their way through the apertures and over the sides of the pots. If the pits are shallow and hot-water pipes lie near the surface of the rubble, good sods of turf should be placed over the manure to prevent the roots from striking into it, but where they are deep and the fermenting material is always settling, inverted pots or dry brick pedestals should be introduced for the fruiting pots to stand upon. The danger of strangling will then be avoided, and the leaves can be turned and renovated at pleasure without disturbing them. For my own use I give preference to the brick pedestals, as the open joints through which the warm liquid passes form a genial home for the roots on their way downwards, while the freedom of escape renders over-watering an impossibility.

Fruiting plants must be encouraged to make steady short-jointed growths by feeding with tepid liquid, soot, and guano water alternately, by light cropping, and cutting the fruit in a young state. Keep the Vines thinly trained, and stop every lateral at the first leaf beyond the fruit; also remove all male blossoms as they appear, as a profusion of these and allowing the swelling fruits to attain their full size tell prejudicially on the plants when daylight is counterbalanced by darkness. Cleanliness being a very important point, remove every particle of decaying stem and leaf, top-dress frequently with pure maiden loam and bone-dust or old lime rubble, and limewash the walls at short intervals. The glass, it is hardly necessary to say, will be washed to free it from conferva and other light-obstructing matter, and direct syringing will be regulated by the state of the weather. The temperature for the present may range from 66° to 70° by night, and as high as it will go after closing with sun-heat and atmospheric moisture. If ground-line ventilators are at command, they should be kept more or less open, as a current of fresh air from the south side, between or beneath the hot-water pipes, combined with cleanliness, is the best safeguard against canker and mildew.

Figs.

If any of the early forced Figs still remain in the houses or pits and potting has been neglected, no time should be lost in getting this work finished, as the ripening foliage will favour the formation of new roots before they go finally to rest. The Fig is a most accommodating tree, and submits to severe root-pruning apparently without undergoing the slightest injury; indeed, I have always found sharp disrooting and repotting in fresh compost as soon as the fruit is formed and the foliage is ripe a sure mode of preventing dropping in the spring. Young trees, which it will take a year or two to work up into full-sized fruiting pots, can be shifted on at any time during the season of active growth, but others which it may not be desirable to repot into larger sizes will now be in a fit state for turning out and paring down with a sharp knife, when they may be returned to the original pots with 1 inch or so of fresh compost. The pots, it must be understood, should be washed and dried, and re-crocked with clean, dry drainage during the time the balls are under manipulation, and the latter, if sour and inert, may be picked out and douched if necessary after they have been reduced with the paring knife. The best compost is light, rich, turfy loam, corrected and enriched with bone dust or lime rubble; this must be firmly rammed with the potting stick, and the pots should not be made too full, as room will be required in the spring for top-dressing. When all is finished, the trees will require a good watering to settle the soil about the roots, and root action will be quickened by returning them to the shelter of the glass, where they can be shut up with sun-heat and occasionally syringed. This treatment must not, however, be continued too long, otherwise the embryo fruits will get too forward; therefore, as soon as the roots have made a new start, give full air or remove them to a sheltered spot out of doors where, with the exception of morning frosts, they can have a month's exposure to the elements. If any of the trees do not require potting, they may go out at once, or the roof lights may be taken off to insure complete rest during the remainder of the autumn.

Permanently planted trees in the early and succession houses may also be taken in hand as soon as the second crops are gathered. The compost recommended for the pot trees well mixed some time in advance and kept dry will suit them admirably. If annual root-pruning is practised and a good ball exists, remove the old compost, correct the drainage, and having shortened all the roots to within a few inches of the past year's pruning, relay the points in a horizontal position. Make the compost very firm as the work is carried on, but guard against making the addition too wide, as a foot of new soil encircling the old ball is quite sufficient for one season. Many Fig growers divide their planting pits into sections by running 4-inch brick walls across them, but I prefer building walls of turf round each ball and filling the intervening spaces with fermenting leaves when I commence forcing. Treated in this way, each tree gets new compost in proportion to its requirements, and the roots revel in the warm elastic turf which it is difficult to overwater, and gradually find their way into the decaying leaves before the second crop commences swelling. Late houses in which the fruit is now ripe will require liberal ventilation, and perhaps a little gentle fire-heat to maintain a constant circulation of warm air. When late Figs commence splitting or spotting, fire-heat with plenty of air is the remedy, as either of these defects conveys unmistakable evidence that too much stagnant vapour is present in the atmosphere. Reduce this, and not only will spotting cease, but the fruit will hang until it shrivels, colour will be perfect, and the flavour exquisite. Warm diluted liquid, it is hardly necessary to say, must be regularly supplied to the roots on bright mornings after the fruit has been closely picked especially, and the syringe must be laid aside until the best of the crop is gathered. Wasps have a great liking for good Figs, and persistently force their way through the smallest crevices to get to them. Haythorn's hexagon netting is the most suitable material for keeping them out, as it is light, strong, and open, and does not impede the free circulation of air when strained over the ventilators.

W. Coleman.

Rose Garden.

NEW ROSES AT WALTHAM CROSS.

Roses this season are freer from the ills that usually assail them than they have been for many years. All of us now-a-days have ample opportunity to inspect Roses at exhibitions, and boxes filled with freshly cut blooms in their setting of bright green Moss have a fine appearance; but, after all, one must see Roses growing to form a correct estimate as to their value for the garden. The varieties mentioned (p. 66) I was able to inspect in the Waltham Cross Nursery in the shape of standards and dwarf bushes. Grand Mogul is a very fine dark Rose. It is quite of the A. K. Williams type and a more vigorous grower. The fault of A. K. Williams is its want of constitution. It refuses to grow after several years' culture, requiring yearly renewing by budding on vigorous stocks. The flowers of Grand Mogul when half opened are maroon-crimson and superb in form. Mr. William Paul has many of these rich crimson-scarlets and crimson seedlings. I noticed and drew attention to one particularly bright and of good form, but it had been condemned as too thin, and this after many plants had been propagated. Others are discarded after trial if the colours do not stand well. A good standing colour is a valuable characteristic in a new Rose. Florence Paul is dark crimson and a full globular Rose; the plant is vigorous and of good habit, producing flowers at the end of every growth. Silver Queen is vigorous in habit and very floriferous; the flowers are pale rose-pink in colour and quite distinct. Lady of the Lake has light clear rose flowers, full and globular, and forms a handsome plant.

After a close inspection of the various quarters comprising standards and half standards, Roses on the seedling Brier, on the De la Grifferaie and Manetti, as well as a large collection on their own roots, the following were noted as the very best in the various sections. Amongst pink and rose-coloured Hybrid Perpetuals, Lady Mary Fitzwilliam holds high rank; it is supposed to partake of the Tea section, but is certainly nearer the Hybrid Perpetuals. It is rosy pink with darker centre. Heinrich Schultheis is a large and handsome variety. Queen of Queens is rosy pink, paler at the edge than in the centre of the petals, and very free flowering. Pride of Waltham is deep salmon-rose, fine in form, and vigorous in growth. Of some varieties, such as Baroness Rothschild, Captain Christy, and La France, whole beds and long rows in the quarters are grown. To the above ought to be added Comtesse de Serenye, Comtesse de Mortemart, Duchesse de Vallombrosa, Emilie de Hausburg, Jules Finger, Nardy Frères, and Victor Verdier.

Amongst white Roses belonging to this section are Boule de Neige, very vigorous and free flowering; Helen Paul, flesh coloured; Madame Lacharme, Merveille de Lyon, and White Baroness. Pride of Reigate is unique as a striped Rose, but it has a tendency to revert to the variety Comtesse d'Oxford, whence it sprung. Emperor, a very dark blackish crimson variety, is quite the best of this colour to cut for button-holes. Prosper Laugier, crimson-red, is a full, well formed variety. Lord Frederick Cavendish, bright red, is also full and well formed, and of a colour that stands well. Benoit Comte, crimson-red, is a really good garden Rose. Ella Gordon, bright cherry-red, is free and good in form. Others are Comtesse de Casteji, crimson-scarlet; Ulrich Brunner, deep rosy crimson, a fine, free, garden variety; and Star of Waltham, very fine this year. This variety lasts long in good condition. To these must be added Charles Darwin, a very distinct and good dark

variety; Duchess of Bedford, a charming crimson, vigorous in habit, and excellent in a half-opened state.

Tea Roses are now very numerous, and during recent years many valuable varieties have been introduced. There are large collections of them at Waltham Cross. Amongst the most desirable may be named Jean Ducher, a vigorous grower with large yellow and salmon-shaded flowers; Madame Chedane Guinoisseau, deep yellow, beautiful both in bud and flower; Madame Charles, buff, and not so well known as it ought to be; Madame Joseph Schwartz, whitish, free; Camoens, rose colour; Edouard Gautier, light buff, with creamy edge; Souvenir de Thérèse Levet, crimson, with a rosy flush in the centre, beautiful in the bud state, and one of the most distinct of Tea Roses; Anna Ollivier, creamy white, with a buff centre; Hon. Edith Giffard, centre whitish, rosy buff, a grand variety; Comtesse de Nadaillac, flesh coloured, with soft apricot suffusion; Souvenir d'Elise Vardon, well known as one of the best; Madame de Watteville, very distinct and handsome, being of a peculiar rosy tint, and yellowish at the base of the petals; and Grace Darling, rose, with a yellowish centre, very distinct.

Perle d'Or, of the Rosa polyantha type, is a charming little Rose. There are many more beautiful Roses which might be added, but I write of what I saw and can recommend. I say nothing of pot Roses, but large quantities are in preparation to flower in 8 inch pots. These sizes are adapted for small as well as large gardens. It is astonishing what a large number of flowers are produced from a plant in an 8-inch pot, whether it be a Tea or a Hybrid Perpetual. Liberal treatment is of course required and careful culture. Our own plants, which have been carefully potted, are in a good position out of doors. They must be kept quite free from mildew and green fly. For pot culture Roses should either be on their own roots or budded on the seedling Brier. Plants worked on the Manetti seem to have a tendency to be afflicted by mildew. Mr. Paul informed me that this pest usually attacks Manetti-stock Roses first. It ought also to be more generally known that most of the best Roses succeed well on their own roots, and when cultivated in that way the more suckers the better. Tea Roses should either be on their own roots or on those of the seedling Brier. J. D. E.

Marechal Niel Rose.—I have often heard it remarked that this Rose only lasts for a short time early in the season, and that if it should show for a prolonged season of bloom, it is a bad sign as to the well-being of the plant. Our outdoor Maréchals on the wall are now, however, giving us handfuls of very fine blooms, quite equal to any cut in early summer. I did not cut away any of the wood after the first season of bloom, as is often done, but I gave a good watering with house sewage twice a week all through the summer.—J. R. Hall, *Fox Warren, Cobham.*

SHORT NOTES.—VARIOUS.

Rose cuttings (*G. W.*).—Now is as good a time as any to put Rose cuttings in in the open ground. Those with a heel attached to them succeed best.

Monthly Roses.—Can any of your readers say if the monthly Rose Chameleon may still be obtained in nurseries? I have been struck by the truth and force of the remarks of "D. T. F." (p. 185) on the fraudulent value of the term Hybrid Perpetual.—Rosa.

Rose William Francis Bennett.—This Rose, says a writer in an American paper, can never take the place of the General Jacqueminot, as has been claimed it would do. It is almost as single as Safrano, and though handsome and well coloured in the bud state, soon opens and has a tendency to fade. As a Rose to be used only while unopened, it will no doubt prove valuable.

Variegated Jacob's Ladder (Polemonium).—This has been one of our best plants for edgings to borders and beds this season. It is perfectly hardy, and may be propagated without trouble, though it strikes root but slowly.—B.

Parochætus communis.—Mr. Bartholomew, Park House, Reading, desires us to state that he will be happy to send plants of Parochætus communis to anyone (as long as the supply lasts) who will forward to J. Healey, Park House, Reading, a suitable box (wood or tin) and stamps to cover postage.

Indoor Garden.

HOW TO GROW CYCLAMENS.

It is the general impression that Cyclamens can only be grown in a specially located structure, such as a house with a north aspect, or so situated that they get little or no sun. Houses so situated are, no doubt, the best for these plants, and many unsuccessful cultivators give up growing them because they do not possess a convenient north house. I have been a successful cultivator of Cyclamens for some years, and have grown them in all aspects. I have managed to get from 200 to 300 flowers on plants two years old, and from 50 to 100 flowers on what are termed the annual or seedling plants, and from plants grown in the ordinary pots, 6 inches wide, facing full south. The following is my mode of proceeding: In the early part of September I half-fill with crocks some 4½-inch pots, and cover these with a little Moss. I then rub some half-rotted leaf-soil through a fine sieve, add to it one-fourth of sharp silver sand and a dash of charcoal dust. This is well mixed, and then the pots are filled, making the soil moderately firm; afterwards it is gently watered. In each pot I sow about two dozen seeds evenly, and cover with about an eighth of an inch of the same soil. I lightly press the surface with another pot, then cover the surface with Moss. The pots are placed in a warm shady end of a greenhouse, away from draughts, and the Moss is kept moist until the seed germinates. The Moss is then gradually removed, but the seedlings are shaded from the sun. From this stage they are kept near the glass, in a temperature through the winter from 55° to 60°. When they have made three or four leaves, they are pricked off into pans, adding one-third of turfy loam to the seeding soil. In removing them from the seed-pots we handle them very carefully, and the soil is not pressed too firmly round the young roots. This, I find, is a great point in their culture; and another point is to particularly avoid cold draughts and strong sun in all stages of growth. About the first week in March the seedlings are placed in 2½-inch pots and carefully shaded from the sun, the leaves being occasionally dewed over with a fine-rosed pot. Through the future stages of growth the shading is carefully attended to, but as soon as the sun is off the plants the shading is removed, so as to prevent their becoming drawn. About the end of April I put them into 3-inch pots. In the third week of May this season I had a space in a brick pit facing the south and heated, and in which had been growing Beans on a bed of Oak leaves. The soil was removed, and the bed of leaves covered with about 6 inches of ashes; the leaves were slightly warm, but it was hardly perceptible. The plants were plunged in the ashes, and kept from 55° to 60° night temperature, with a chink of air on all night, covering the glass with mats. About the end of June they were again shifted into small 4½-inch pots (a size suitable in our case), and in this sized pots they were flowered. The soil I use at the final potting consists of one part half-decayed leaf-soil, one part of very turfy loam, with enough sharp sand and charcoal dust to make the whole feel gritty. In this soil the plants are potted rather lightly. I have tried various composts, but find that the plants make more roots in the soil here recommended than in any other that I have tried. My plants are growing in an ordinary 6-foot pit facing full south. The plants are plunged in the ashes, from 1 foot to 18 inches from the glass. They are shaded as soon as the sun is observed to fall on the foliage. For the shading I use two pieces of scrim canvas, commencing to shade with the scrim single thickness, and as the sun gets higher I put on a double thickness. The pits keep cooler this way than by single thicker shading; and, again, I can regulate the light better until it is entirely removed in the afternoon when the sun is off. During the early part of summer I am very careful with ventilation, and throughout the summer I dew the plants over with rain-water on bright sunny days whenever they appear dry. I always water the plant with rain-water when it can be obtained, and about once a month give them a small pinch of Clay's Fertiliser or fish manure, and water it in at once. I am very careful not to let any of these concentrated manures fall upon the foliage or into the hearts of the plants. As soon as the summer evenings get warm, the lights are pulled off for the night to allow the plants to catch all the dews, and I always let my plants have the steady rains. These Cyclamens grown in full south pits are now nearly a foot in diameter, well set for bloom, and look quite as robust as any I have grown in houses or north-facing frames. J. R. Hall.

Fox Warren Gardens, Cobham.

CALADIUMS AND THEIR CULTURE.

In the genus Caladium we have a vast number of beautiful plants, both in the case of those introduced from their native countries and in that of those obtained by cross-breeding in English and Continental gardens, the latter being by far the most numerous. In our earlier days, the varieties from which we had to select were few and (judging from our present standpoint) poor in colour. The principal of these were hastatum, bicolor, argyrospilum, pictum, picturatum, præcile, and bicolor splendens (the latter form, by the way, is well to the front even now). After these came Belleymei, Brongniarti, Houlleti, Baraquiniana, Newmani, argyrites, and various others, all plants with beautiful leaves. Caladiums, being easily raised from seeds and easily fertilised, have been persistently worked upon by the cross-breeder; every year, therefore, brings us, if not exactly new forms, at least new shades and combinations of colours almost endless. Great, however, as have been the improvements effected by means of cross-breeding, there is yet room enough for work in the same field. Hybridisation with the Alocasias, for instance, in all probability would give us not only greater diversity of colours, but also a change of form. Alocasia zebrina, Jenningsi, Thibautiana, and Sanderiana appear to us to be both good forms and good colours with which to invest our Caladiums. A Caladium with leaves like those of Alocasia Sanderiana and the markings of Caladium Belleymei would, we think, be desirable. Again, colour like that of Alocasia Jenningsi worked into Caladium Belleymei would be an important change. But Caladiums, independently of their gay colours, have a special claim upon the attention of those who have but a limited extent of glass, inasmuch as they are deciduous, and do not occupy space during the winter months, to the exclusion of other plants. The months of March or April, as convenience may dictate, will be time enough to start them into growth. By that time the stove or propagating pit will be relieved of a portion of its winter occupants; therefore the Caladiums may be introduced into either of these structures, and by the time they have grown sufficiently to require more space, the remainder of the hardier indoor plants will have been entirely removed. In C. Meyerbeer, the kind here illustrated, the ground colour is white, the primary veins and mid-rib red, and the interstices are filled in with a pleasing shade of green. The following is a selection of the best forms in their various sections:—

Selfs.—Aïda, deep transparent rose; Comte de Germiny, deep red, yellow beneath, and spotted with white; Duchesse de Mortemart, pure transparent white; Golden Queen, a uniform bright yellow; Ibis Rose, deep rich rose, and very dwarf in habit; Louis Poirier, reddish crimson spotted

with white; Uranus erubescens, bright crimson, very dwarf; Mithridate, rich crimson-lake; Prince of Wales, rich golden yellow; Splendidum, deep carmine; and Triomphe de l'Exposition, rich crimson.

Green grounds.—Argyrites, pale green, blotched with white, very dwarf; Auber, green spotted with pink and white; Auguste Riviere, deep green profusely spotted with crimson; Alphonse Karr, green, spotted with deep red; Blanquærti, deep green, veined and spotted with white; Barral, bright green, deep red centre, spotted with rose; Ceres, brilliant green with a rosy salmon centre; Lucy, apple-green, with red centre and white spots; Lurline, pale green spotted with white; Madame Alfred Mame, pale green with deep rosy centre and white spots; Spontini, green, spotted with white, and ribbed with deep rose.

Red and rose grounds.—Amœnum, soft rose ground, primary ribs red, veins rose suffused with violet, margin green; Aristides, deep rose with a broad green margin; Auguste Carpentier, scarlet ground, centre carmine, margin golden yellow; Bellone, deep maroon ground, centre soft rose; Cardinale, bright red dotted with gold and greenish yellow; L'Aurore, reddish violet, primary veins carmine, margin white; Madame Lemoinier, pale rose, primary veins deep rose, small veins white; Rubrum metallicum, deep reddish violet with rosy centre shaded with blue, margin bronzy red; Souvenir de Dr. Bleu, brilliant red, margin green; Souvenir de Madame Bernard, bright red, spotted with golden yellow, white, and green, margin pale green.

White grounds.—Albo-luteum, white suffused with greenish yellow; Agrippini Dimitry, white with rosy centre, margin and veins pale green; Adolphe Adam, white suffused and veined with rose; Candidum, clear white ribs, veins and margin green; Comtesse de Condeixa, white suffused with deep rose, primary veins red, smaller veins and margin green; Duchesse de Mortemart, pure white veined with green; L'Automne, creamy white, sparingly spotted with pale blue; Madame Marjolin Scheffer, metallic white, primary veins rose flaked with lake, smaller veins and margin green; Prince Albert Edward, white, veins rich crimson; Reine Victoria, white spotted with red, veins and margin green; Virginale, brilliant white, veined with bluish green.

Yellow grounds.—Gerard Dow, soft yellow, mid-rib deep carmine, veins red; Madame Dombrain, yellowish green shaded with rose and spotted with white and rose; Ornatum, rich yellow, mid-rib and primary veins deep rose, smaller veins rosy violet; Princess Alexandra, deep salmon veined with green; Princess of Wales, rich golden yellow spotted with crimson; Princess Royal, golden yellow with deep red centre; Princess of Teck, deep orange veined with deep red; Rubens, yellowish green suffused with deep red.

Cultivation.—Caladium tubers, after passing the winter in a dry state, may be potted and started into growth at any time, but under ordinary circumstances—say early in March. The soil in which we have found them to thrive best consists of equal parts of fibrous peat, turfy loam, good mellow leaf-mould, and well decomposed, but not exhausted, manure. This compost should be chopped up with the spade, not sifted, and to it should be added a fair proportion—say about one-fourth—of silver or river sand, which will tend to keep the whole porous and sweet, but if too much sand is used it impoverishes the soil. The pots should be well drained, as Caladiums require copious supplies of water; which, however, must not be allowed to stagnate about the tubers. Plant at first in somewhat small pots, but when these have become well filled with roots shift them, from time to time, into pots of a larger size, being guided in this respect by the situations which the plants are intended to occupy. If required for indoor decoration small pots will be best, but if for exhibition or for embellishing large stoves, then larger pots may be used. When first started, a slight bottom heat will be advantageous, but when some few leaves have become developed, bottom

Caladium Meyerbeer. Engraved from a photograph.

heat will not be necessary. They enjoy a high air temperature, and manure water should be given them about three times a week. The atmosphere should also be well charged with moisture; if this is done, they should not require syringing. By avoiding the use of the syringe in the case of these plants the leaves are not in any way disfigured. Caladiums may be used for general decorative purposes indoors, but they do not succeed in the open air. At the end of the season, when the leaves show signs of decay, water must be gradually withheld, and when they have fallen it should be entirely stopped, and shortly after this the tubers should be shaken from the soil, covered with dry sand, and stored in a cool place until wanted again in spring. During winter they should be examined occasionally to see that they are not decaying, and if inclined to shrivel moisten them slightly. From experience we are convinced that many lose more Caladium tubers during the resting season from over-dryness than from keeping them slightly moist.

Acacia armata.—This, though one of the oldest of cultivated Acacias, is certainly one of the most ornamental. For general purposes it is best grown in moderate sized pots, in which it can be employed for vases and baskets with the best effect. To keep it within bounds the shoots may be clipped well in annually after flowering; this will cause it to furnish thickly without any further training. I usually pot it at the same time, reducing the roots considerably and returning it to the same sized pot again, keeping it in the greenhouse all summer, where it makes good growth before winter and plenty of flower buds. Peat chiefly, with a little loam and sand, suits it perfectly.—J.

Planting out in conservatories.—The two great advantages to be obtained from planting out in plant houses are a diminution of labour and greater luxuriance of growth; and, in the case of certain plants grown upon an extensive scale, where a structure can be specially devoted to them, there can be no doubt that planting out is the right thing to do. In houses, on the contrary, where a miscellaneous and varied collection of plants is grown, judgment and discrimination must be exercised in respect to the permanent position of individual specimens. Still, although an advocate for planting out in the way mentioned, it is a system that cannot be carried beyond certain limits; if flowers are required in mid-winter and early spring, the plants which are to produce them must be subjected at times to a strong artificial heat; and, in order that they may thrive under such conditions, the pots must be full of healthy active roots; in other words, they must be what all practical men understand by the term established. In order to force Strawberries, for instance, successfully, they should have the soil in which they are growing matted with roots; and the same rule holds good with nearly all plants that are to be subjected to a strong heat. Cyclamens, Azaleas, Camellias, Pelargoniums, and most kinds of bulbs will not force well unless the soil which sustains them be thoroughly filled with fibres; planting out, therefore, requires judgment as regards the use to which a plant is to be put, for its blooming season and similar matters must be considered. Plants for the decoration of rooms cannot be too well rooted, for, if not well established, they soon become sickly, the leaves turn yellow, and the whole plant languishes and ultimately dies. Rapidity of growth is generally obtained at the expense of solidity. When grown rapidly during summer, and taken up and potted in autumn, they must be shaded for a time, and do not, therefore, acquire that hardiness of constitution which the autumn sun alone can bestow, and which enables them to withstand the perils of winter much better than plants more tenderly nurtured.—G.

Primula japonica and Sieboldi in pots.—These plants are not nearly so much grown by amateurs as they deserve to be, yet nothing could be more suitable, as they are easily managed, flower in the greenhouse during the spring without much trouble, and are quite as beautiful as many things more sought after, but inferior to them. It is always more satisfactory to grow such plants, the means at

command, in the shape of houses, pits, or frames, being adapted for them, than to attempt others that are less likely to succeed. There are numbers of amateurs who possess no means of protecting plants through the winter, except cold frames. By careful attention a great deal of frost may be excluded from these, as this is nothing more than a question of sufficient covering materials; but the attempt should never be made to winter anything in such places that is liable to suffer from being kept closed up, perhaps for weeks together, should protracted frost render it necessary. There are many very beautiful subjects that may be so kept, and that will furnish the material for many a vase of flowers, that are not to be despised, even by those who have the appliances of heated stoves and greenhouses. The soil in the pots in which these are grown should not be allowed to get saturated with water, as it not only is injurious to the roots, but renders the plants less able to stand the winter. The lights should be drawn off them during winter every day when the weather is dry, and tilted when wet. Nothing can possibly be worse than an insufficiency of air and light in winter for these plants, as the one tends to keep them growing at a time when there should be no further development of foliage, and the other causes a weak sickly condition, calculated to make the leaves tender, and the flowers, when produced, puny.—T.

KALOSANTHES COCCINEA.

This beautiful old plant, such a brilliant flower for the conservatory in midsummer, does not receive so much attention as formerly, when gardeners used to grow specimens of it several feet through, each shoot being furnished at its summit with a broad truss of waxy-scarlet flowers, showy and sweet scented. The plant also grows out of doors freely in summer, and when in flower makes one of the most brilliant and effective of beds. To flower it well it requires to be grown in hot, dry quarters. Cuttings, which strike very easily, should be made from the young shoots which have not flowered in August or early in September. Make the cuttings about 3 inches long; do not stop them, but divest them of a few of their bottom leaves, and pot each singly and firmly in a 3-inch pot, using a light compost of sand, leaf mould, loam, and pounded bricks. They will soon root if placed near the glass in a warm pit or on an intermediate house shelf; carefully avoid damping too much at top or bottom. When rooted remove them to a cool dry greenhouse for the winter, and give scarcely any water till spring; the object at this time is simply to keep them at rest. About the beginning of March the plants may be potted in 8-inch or 9-inch pots, which is a suitable size for those intended to have six or seven shoots. A little heavier compost should be used for this, the final potting, and with it plenty of broken crocks or bricks, taking care also to drain the pots thoroughly. After potting, the plants should have a growing temperature near the light. A warm greenhouse or pit will suit them, but do not give too much water at any time. At this stage some of the plants will break up into a number of shoots at the top, and the others will keep to a single shoot only. The former should be thinned out to six or eight shoots, and the latter pinched at the top to make them break; the young shoots secured in this way will bear the flowers. By May the plants will be growing fast, and at this time they may, in warm localities, be plunged out of doors in a sheltered corner. In front of a hothouse is a good place for them, and it is a common practice to plunge them in sand, which gets hot with the sun; otherwise they need not be plunged, but simply set on a hard surface. In cold localities it is better to grow the plants under glass all summer, with plenty of air and sun. Whichever plan is adopted, let the plants from this time grow uninterruptedly, and before cold weather sets in take them into any house where the temperature is genial and dry. Here they will show flower, if the trusses are not already in an advanced state, and the season of flowering may be prolonged by keeping the plants in cool houses. If the plants are intended for planting out, they must simply be wintered in a cool house, and not permitted to flower, and planted out the following season, when they will be certain to make a bright display.

Q.

Kitchen Garden.

VEGETABLES AT HACKWOOD PARK.

Within the walls of the excellent kitchen garden which Mr. Bowerman has under his care at this place vegetables are admirably grown, and better crops can hardly be found in any similar garden. The area of this walled enclosure is 6 acres, from which something should be abstracted for houses, grass walks, and flower borders. The turf walks are a remarkable feature, for there is not in the kitchen garden proper an inch of gravel or of edging, for the solid, close-shaven, and beautifully kept turf forms both walk and edging, and, thanks to the mowing-machine, the turf is kept as neat and clean as the best of gravel could be, with far less trouble. Doors admit to the garden on either side at the cross walks, and, with a few planks laid, manure is wheeled on to the quarters without any damage being done to the turf. The centre walk is some 12 feet broad and about 250 yards long, and is on either side bordered by flowers, so that it presents a scene of neatness and gaiety seldom met with in similar places. I have rarely seen a kitchen garden of these dimensions where flowers played so important and eminently decorative a part. But if Grass walks are perfection and flower borders neat and exceedingly gay, the more practical part is not less noteworthy. Better crops could hardly be found, and if others produce more highly finished or handsomer samples, at least they have perhaps not to contend with so tenacious a soil as is found at Hackwood. It is certainly holding, but it is also exceedingly tough; hence dry, baking seasons do not favour that pre-eminent beauty which marks vegetables in lighter sandy soils. And yet the samples lifted are first-rate also. Onions, for example, are a grand crop. The chief kinds are Banbury Improved, a good selection of the White Spanish; and Brown Globe, very closely allied to the former, but a little darker in colour and a first-rate keeper. All the tops have been regularly laid, and the sample is one of the most even and desirable I have ever seen. The bulbs are just such as gardeners and cooks delight in—firm, medium-sized, and clean. Adjoining these are a few rows each of those big show sorts Walker's Exhibition and Rousham Park, and it is worthy of note that a man would need a score pairs of eyes to detect the slightest difference in the stocks. Generally the bulbs are large and clean, but still full of growth, so that if they do not split, very fine samples will be found a month hence. It is worthy of note, however, that these big bulbs rarely keep well, and not a few crack on the ground. In a stand of show vegetables these would be preferred by judges before the smaller, firmer, and more serviceable bulbs, but would, of course, be in the long run much less useful. Carrots thrive admirably, the chief kinds being Early Horn for frames, and Early Nantes for borders, and for the main crop that beautiful kind, New Intermediate, or, as sometimes termed, Matchless, and the Long Surrey. Whilst the New Intermediate proves so successful for general purposes until mid-winter, the Long Surrey is the best keeper, and for that reason is specially valued. Beet is represented by two or three selections of Dell's Crimson, some good and some indifferent. It is very easy to see by these how much care is shown in some directions in selecting stocks and how little in others. Celery is remarkably good, although none is specially early. As a salad it is not urgently called for until the cooler weather approaches; hence the bulk is for winter use. Gem, which seems to be a pure stock of the old Incomparable Dwarf White, Major Clarke's Red, and a new, but somewhat irregular stalked, sort named Standard Bearer, are all finely grown and mostly in double rows. It seems very difficult to find two more compact or better keeping Celeries than are the Incomparable White and Major Clarke's Red. Parsnips, of the Hollow Crown strain, are good and full of growth. Potatoes consist of Schoolmaster, Magnum Bonum, Reading Russet, and Reading Hero for general stock, all very fine clean crops, and capital serviceable samples. The Ashleaf is here still largely grown for first early work—indeed, it is in great request so late as November; hence a larger breadth than usual is grown. A few other kinds have been introduced this season, but had already been lifted. So far, although the tops were much affected by disease, the tubers lifted were clean and healthy. The chief element of manure seems to be decayed leaves, and they seem somewhat to counteract the stiffness of the soil, but nothing can do that effectually, especially in wet seasons. Amongst Peas still good were Stratagem and John Bull, the former cropping splendidly. Sunrise had been sown to give the latest gatherings; ordinary Scarlet Runners showed good growth and abundant cropping; Canadian Wonder dwarf Beans, full of fruit, and similar vegetables were all excellent. Then came Brussels Sprouts, Giant Autumn Cauliflower, various white Broccoli, including Model and Ledsham's White, the latter the best of all for late use; Savoys, Cabbages, Kales, &c., make up ample provision in the green stuff department for the winter supply. A good breadth of Seakale shows a capital stock for blanching or forcing later; Asparagus is robust, evidently doing well. Throughout all the kitchen garden there seems to be ample provision made, for there is hardly a yard of vacant ground, successional cropping being admirable. Whilst all vegetable breadths show such excellence, there is no attempt at special or exhibition culture. Really good serviceable samples, such as satisfy the requirements of a household, are rather aimed at than are large or fancy samples. The garden is as clean as it is well cropped, and is alike creditable to Mr. Bowerman and his limited staff as it is to British horticulture.

A. D.

Late Peas.—The Peas usually to be relied on here as late kinds are Ne Plus Ultra and British Queen; Omega, sown quite at the end of June on a warm border, is still bearing freely. This is even a better late Pea than Ne Plus Ultra, and it may be sown from ten days to a fortnight later. A portion, at least, of the last sowing should be made on a warm south border, and mulching and occasional waterings will counteract the effect of drought should the autumn be dry, whilst the additional warmth obtained will cause the pods to fill better.—H.

Drying herbs.—In drying herbs two methods are employed; one is to tie them into bunches, as soon as cut, and hang them up in a room or shed; the other is to first lay them out in the sun to dry; by both these methods the quality is deteriorated. If fermentation takes place so as to discolour the leaves, which occurs, more or less, when herbs are tied up in bunches whilst green and sappy, their best properties are destroyed. In confirmation of this, it is only necessary to point to the extreme care taken by the growers of Lavender, Mint, &c., for distilling; for such purposes they are not allowed to lie together, even for a few hours. If, on the other hand, herbs are exposed to the sun, much of their strength is dissipated; they become quite brown, and that fresh green appearance which they possess when the drying is well managed is destroyed. But when herbs have been improperly treated, loss of strength is not the worst result; there is always imparted to them a disagreeable flavour. In drying herbs, an open shed or room, where plenty of air can be given, is necessary. Stretch out a piece of netting, such as is used for protecting fruit from birds; wire netting, if at hand, will do; on this the herbs, which should be cut when quite dry, are laid thinly; thus treated, air acts upon them from all sides, and they dry quickly, which is the primary object, without losing their best properties. When perfectly dry, put them loosely in white paper bags, tie them up, and hang them where they will be free from damp, or they will become

mouldy. Herbs treated in this way will be found to be but little inferior to such as are freshly cut. —T.

KITCHEN GARDEN NOTES.

Young vegetables.—When Carrots, Turnips, Peas, Beans, and other vegetables become ready for use in early spring they are universally praised for their delicate flavour and tenderness, and if the practice of using vegetables much younger than is commonly done was general, especially in autumn, all vegetables would merit the same commendation; but, as a rule, vegetables are not used young enough, and the difference between produce which has not gained full size and that which has, and even begun to ripen, is very great —so great, in fact, that many who eat vegetables freely in spring often do not care for them at other seasons. By early cutting or gathering, however, all vegetables may be placed on the table now in as delicate and tender a condition as it is possible to have them in spring. Many think that by allowing vegetables to become fully grown before using them they become more remunerative than they otherwise would be, but very few vegetables can be allowed to grow to their full size at this season and still retain their tenderness. Moreover, the remuneration idea as regards matured vegetables is more imaginary than real, as when none are used until they are almost or quite full sized, a large quantity will have become too old for food before they have been all used; these, therefore, must be thrown away; whereas if used from the time, say, when they were half grown, the bulk of them would have been gathered by the time they gained full size, and no waste would be the result. A Cauliflower 3 inches or 4 inches across and perfectly white is delicious, but allow it to grow until it is 10 inches or 1 foot across and yellow in colour, and not one person in a hundred would eat it from choice. Stringy Kidney Beans are detestable, but young and brittle ones are exquisite. Peas that have become wrinkled from age are flavourless, but those which are young and juicy are appreciated by all. Even Cabbages, when eaten young at this season, possess all the delicacy of those so much valued at Eastertide, and I can assure all who think that vegetables are less delicate now than in spring, that it is simply a matter of selecting the proper time to gather them.

Ridge Cucumbers.—The weather experienced this summer has been favourable to the growth of outdoor Cucumbers, and if late they have been bearing very heavily, but a very heavy crop does not augur well for a long succession of fruit, and where it is desired to have tender young Cucumbers until frost comes, every fruit ought to be cut off as soon, or a little while before it attains full size. This is the best way to produce a long succession of fruit, and a supply of young fruit from June or July until November is much more satisfactory than having a glut at one time and none afterwards. Some may think they would like to save seed, and with this object in view allow certain fruits to mature, but two or three pennyworths of seed go such a long way in producing a stock of plants that it is much better to buy the seed in spring than ruin the crop late in autumn.

Lettuces and Endive.—Wherever salads are in demand in winter large quantities of Lettuces and Endive must be grown. The seed of both should be sown in August, or, at the latest, very early in September, and as soon as the young plants are large enough to handle they should be drawn up and replanted in vacant ground anywhere. In districts in which the weather is severe in winter they should be planted on south borders or in very sheltered positions, as no Lettuce or Endive will bear many degrees of frost without deterioration. If a double row can be planted along the bottom of a wall, the latter will furnish a certain amount of protection, and if it becomes necessary to cover them, that is much easier done near a wall than in open quarters. Some recommend planting them close to a hedge, but that is a position I dislike, as the soil near a hedge is generally so poor, that it is a hard matter for anything to develop properly in it. It is a point of considerable importance to have both Lettuces and Endive fully established and growing before the weather becomes very cold, and if they are a good size by the end of October, there will be little difficulty in keeping up a supply of material for salads during the following two or three months. The Improved Broad-leaved Batavian is the best of all Endives for winter, and of Lettuces, Winter White and Black-seeded Bath are excellent.

Vegetable Marrows.—These are not so much used as they should be; many who have only tried large fruiting kinds, overgrown and old before they were sent to table, have been set against Vegetable Marrows; but let me tell such that small fruiting sorts, renowned for their quality, are amongst the most delicious of all vegetables, and only need to be tried in a young state to create a desire for a constant supply of them. Above all vegetables in season just now do I prefer Vegetable Marrows, and on that account I keep up the supply of them as long as possible, but if allowed to ripen now and remain on the plants long after they have become hard and yellow, the supply of young fruits will cease. We have some plants set specially apart for seed-bearing; of late these have been producing many male blossoms, but not a female one; whereas those from which the fruits have been regularly cut are now producing blooms of both kinds and constantly setting fruit. It is, therefore, useless to expect later on young fruit from plants now bearing numbers of matured fruits, and unless these are cut off there will be no late Marrows. All fruits are too old for use when the thumb-nail will not penetrate the skin and flesh freely, and they should not on any account be sent to the table when either large or old.

Winter Radishes.—These are amongst the most useful of all winter salad plants, as they are perfectly hardy and require no protection or forcing in order to have them in perfection through the greater part of the winter. For this reason they are specially to be recommended to those who have no accommodation for housing vegetables in winter. Summer varieties, however, and others which are useful for early spring supplies are useless for winter, the severity of which only one or two can stand. Of these the best are the China Rose variety and the Black Spanish. The latter is very hardy and white and crisp in the flesh. With their culture few can fail. The seed should be sown in a piece of ground recently cleared of Potatoes or some other crop; let it face the sun if possible, and sow thinly in drills 1 foot apart and 2 inches deep. If the young plants come up very closely and have no room to bulb freely, they should be thinned out to 2 inches apart.

Margam, Port Talbot. J. Muir.

Hackwood Park Tomato.—Gigantic fruits of any Tomato are never handsome, and invariably coarse and full of core. Only those weak enough to be delighted with monstrosities, such as persons who send to the local papers notes of the biggest Gooseberry or the most gigantic Cabbage or Potato, feel pleasure in having monster Tomatoes. The sample of Hackwood Prolific sent you the other day was of an abnormal type, and not at all representative of the fruit of this capital variety when seen in true form. I saw a quantity of plants growing at Hackwood the other day, and could not but remark their exceeding productiveness, the fine form and even size of the fruits, and their rich colour. The plants were in pots standing at one end of a plant house, and, judging by the crops they were carrying, appeared to be of exceeding value to the gardener, Mr. Bowerman, who was the raiser. The fruits ranged from 4 ozs. to 7 ozs., and those were large enough for any thing. It is all very well to have handsome and rich coloured fruits for exhibition, but the gardener who has to supply the needs of a family finds that Tomatoes are now in great request; hence a large and even crop is absolutely needful. Hackwood Park seems to satisfy these requirements thoroughly, whilst plenty of its fruits are as handsome as the most exacting could desire. In few places has the need of a special Tomato house been fully recognised. Presently, perhaps, it will be regarded as one of the inevitable requirements of a good garden, just as special houses are erected for Cucumbers, Melons, &c. Such a house should have a narrow border for soil, a moderate pitch of about 6 feet run of roof, and ample ventilation. Still further, one compartment for winter use should have ample heating power, whilst very little artificial heat will be needed for the summer plants.—A. D.

New Zealand Spinach.—This is a most useful vegetable, both for a dish and for greening soups, and the amount of produce which a few plants of it will yield is quite astonishing. I have grown it for many years, and have always found it in great request. It succeeds best sown in 4-inch pots, and thinned out to three plants to a pot. When the pots become filled with roots, a shift should be given into a 6-inch or 8-inch pot, and, when the season has become warm enough, the plants should be turned out and treated like Vegetable Marrows or ridge Cucumbers, and, if placed under handlights to start them, so much the better. From a bed planted with it, 5 yards long and 2 yards wide, I should be afraid to say how many gatherings were obtained, and by covering with a mat or two at night, it will continue to produce till sharp frost sets in. Wherever Spinach is in large demand I can strongly recommend this; it does not run to seed, and it does not take a large bed to furnish a dish every day from July to December. —G.

Which way shall the rows run?—Professor Armsby, of the Wisconsin Experimental Station, in *The Farmer* (St. Paul, Minnesota) gives an account of an elaborate investigation upon the influence of the direction of the rows upon the warmth and moisture of the soil and the growth of crops, made by Professor Marek, of Koenigsberg. It was found, when the rows, ridges, or beds had a north and south direction, the soil was decidedly warmer and drier during the day than when the east or west direction was followed. This difference was greatest with ridge culture, and least with level culture. The higher the ridges the greater the difference. As was to be expected, the ridges became warmest and driest while the furrows were least affected. The effect was the greatest during the hottest months and days. On the other hand, the soil which became warmest during the day cooled off most rapidly during the night, so that in the early morning hours, hardly any difference in the temperature of the soil was observable in the two cases.

Sweet Basil (Ocimum basilicum).—This herb, which is much in demand with some cooks, is an Indian annual, and consequently tender. Its seeds should be sown about the middle of April in a genial temperature, and when the seedlings are large enough to handle, they may be potted off singly, or they may be pricked into boxes or seed-pans, or into a frame on a slight bottom-heat, from which they should be transferred to their positions in the open air about the beginning of June, for, owing to the plants being exceedingly tender, this can seldom be done with safety at an earlier period. Sweet Basil succeeds best in a light rich soil, in which the plants should be inserted at a distance of 6 in. or 8 in. apart; and they should be well watered until they become established. As soon as they come into bloom they should be cut down to within a few inches of the ground, and the portion cut off should be tied up in small bunches and dried in the shade for winter use. As, however, green Basil is frequently required, the plants which have been cut down should have the soil surrounding them slightly stirred up, and the bed should receive a surface-dressing of fresh soil, when the plants will quickly form themselves into healthy little bushes, which will furnish a supply of green leaves until about the beginning of October. A portion of them should then be lifted and potted, or planted in boxes, and should

be placed in a somewhat genial temperature, where they will continue to furnish a supply of green leaves when required throughout the winter.—G.

ORCHIDS.

COOL ONCIDIUMS.

Since the value of cool treatment for Orchids has come to be fully recognised, the various members of the genus Odontoglossum have somewhat monopolised the attention of cultivators; nor can we much wonder at this when we take into consideration their beauty, both individually and collectively, and the great length of time during which they last in perfection. There are, however, many other genera which contain handsome species, and which are amenable to the same system of cultivation, and amongst these must be classed the Oncidiums. Cool Orchids are sometimes called greenhouse Orchids, and therefore many have thought that they may be grown along with Pelargoniums, Fuchsias, Balsams, and similar plants, but although many Orchids require even less heat than greenhouse plants do, they will not thrive in an atmosphere suitable to the requirements of such plants. A house for cool Orchids should, if possible, have a northern aspect; I do not say that such an aspect is absolutely necessary, but if it can be had, the burning heat of summer, so injurious to the majority of mountain Orchids, is more easily tempered. The night temperature for such a house in summer should be about 60°; in the daytime it will run up to 70° or 78°, sometimes higher, but the nearer it can be kept to about these figures, the better the plants will thrive and the more enjoyable will the house be to visitors. In winter the temperature may fall to about 40° at night: indeed, I have seen instances in which it has fallen so low that ice has been formed inside the glass during severe nights in winter; but that is not desirable. In winter the day heat may be increased to 55° or 60°, but not, as a rule, higher than that. The cultivation of Oncidiums is not fraught with much difficulty if daily attention be paid to them. Cleanliness is of primary importance; they will not long survive if thrips is allowed to gain the ascendancy, nor will their flowers be improved in beauty by a fringe of yellow or green fly. Careful washing with clean water is the best antidote for the latter if taken in hand promptly, and this should always be done, as fumigating Orchids with Tobacco I hold to be injurious. Should thrips put in an appearance, it, in most instances, indicates too dry an atmosphere or too high a temperature, or perhaps both combined. The larger and more robust kinds are best grown in pots, but some of the smaller ones thrive best upon blocks of wood, or in baskets suspended from the roof. As to compost, about equal parts of fibrous peat and Sphagnum Moss suit them admirably, and if the top is surfaced entirely with living Sphagnum, it will not only add materially to the appearance of the plants, but provide a cool and moist shelter for the young roots. The drainage should be kept free and open and the atmosphere well charged with moisture, but not drenched with water, or everything will become stagnant and sour. An occasional dewing overhead with the syringe during bright sunny days in summer will be advantageous, but will be unnecessary during the cool season, when less water must also be given to the roots, although even in winter they must not be allowed to suffer from drought; and upon all occasions and at all seasons, wetting the flowers should be carefully avoided.

The following are a few of the most showy and distinct Oncidiums for cool treatment:—

O. aurosum.—This very fine species, from Ecuador, is a robust grower and free flowerer. Its pseudo-bulbs are large and pale green, and bear a pair of ample leaves on the apex, and several broad sheathing ones at the base. The panicle varies from 2 feet to 5 feet in height, is much branched, and bears from 50 to 100 flowers. The sepals and petals are rich yellow, transversely blotched and barred with cinnamon. The lip is of the same rich yellow, stained at the base and on the crests with brownish red. This species usually blooms during autumn and winter, and lasts many weeks in full beauty.

O. cheiropthorum.—An elegant-growing plant, with small pseudo-bulbs and narrow leaves not more than 6 inches long, the whole plant somewhat resembling Odontoglossum roseum. The slender scape is longer than the leaves, panicled, drooping, and densely set with pure bright yellow, sweet-scented flowers, which appear during midwinter. It was originally found by Warscewicz, on the volcanic mountain of Chiriqui, at an elevation of 8000 feet.

O. Cresus.—A small plant, seldom exceeding a few inches in height, with conical-ribbed pseudo-bulbs, and bearing a pair of oblong pale green leaves. The scape is few-flowered, and the sepals and petals are tawny yellow. The lip is large, the middle lobe spreading and bright golden yellow. The basal part and crest are intense velvety black. It should be securely fastened to, and grown upon, a block of wood. It is a summer bloomer. From the Organ Mountains, in Brazil.

O. macranthum.—This is the best of the genus, both as regards size and majestic beauty. It appears to be a common mountain plant in Peru and New Grenada, ranging from 7000 feet to 14,000 feet elevation. It is a bold-growing species, with pseudo-bulbs some 4 inches high, ovoid and furrowed when old, and bearing a pair of somewhat narrow leaves upwards of a foot in length. Its panicle, which is climbing, attains a length of from 10 feet to 12 feet, and bears an immense number of flowers. I have seen seventy open at one time on a spike some 12 feet long, and these measured upwards of 4 inches in diameter. They are round, full, and leathery in texture. The sepals and petals are somewhat orbicular, the former tawny orange, the latter rich golden yellow. The lip is smaller than the petals, hastate, and yellow in front; the side lobes are rich purple and brown, and the crests white. It appears to be an all-the-year-round bloomer, and lasts many weeks in perfection.

O. zebrinum, a species belonging to the same section as the preceding, and in habit of growth and length of spike not unlike O. macranthum. The flowers, however, are very dissimilar. The panicle, which is climbing, bears from fifty to eighty blooms, the sepals and petals of which are oblanceolate, and have wavy margins. They are white, transversely barred with reddish purple. The lip is smaller than the petals, and bears tubercles. It is yellow, sparingly barred at the sides with reddish violet. This species blooms in winter, and, from its colour being unusual amongst Oncidiums, is very attractive. It comes from Venezuela.

O. varicosum.—This is a compact free-growing autumn and winter-flowering species, the beauty of which, like that of the majority of Oncidiums, is dependent upon the enlarged lip. Its pseudo-bulbs are ovate, dark green, blotched and speckled with black, and they bear a pair of ligulate, lanceolate, leathery, deep green leaves. The panicle, which is much branched, bears as many as fifty flowers, the lip is broad and flat and bright golden yellow. It appears to be common in the neighbourhood of San Paulo, Brazil. The variety known as Rogersi has the same habit of growth, but its panicle, which is much branched, is upwards of 2 feet long, and bears from 150 to 170 flowers, the large lip being deeply bilobed in front, upwards of 2 inches across, and rich golden yellow. It is also an autumn and winter bloomer, and one of the most showy in the genus.

O. cucullatum.—This is a common plant in the mountain forests of Ecuador, where it is found frequently growing at from 12,000 ft. to 13,000 ft. elevation. It is a variable plant, some forms of which are, however, constant. Amongst the most distinct may be named flavidum, macrochilum, giganteum, and nubigenum. It is a small plant with oblong compressed pseudo-bulbs, which bear a single leaf. In the normal form the lip is large, deeply bilobed in front, purplish rose, dotted and spotted with rich purple. It thrives best upon a block of wood, and blooms during the winter.

O. Phalænopsis.—This is similar in habit of growth to the preceding, and requires similar treatment. The scape, which is erect, bears from three to six large showy flowers, the sepals and petals of which are creamy white, dotted and barred with purplish violet. The lip, which is fiddle-shaped, is also creamy white, dotted and spotted at the base with crimson and purple; the crests are yellow. It was found on the high mountains of Peru, and flowers in mid-winter.

O. Jonesianum.—This has short, blunt, terete, dark green leaves, and is an abundant bloomer. It bears long branching spikes loaded with flowers, which are white and more or less deeply spotted and transversely banded with reddish crimson; the crest of the large lip is stained with yellow. It appears to be a perpetual bloomer.

O. leucochilum.—This is an old inhabitant of our gardens and very variable, some of the forms being extremely handsome. Its pseudo-bulbs are stout, oblong, and furrowed. The flower-spike is erect, from 3 feet to 6 feet high or more, branched and many-flowered. The sepals and petals, which are about equal in size, are greenish white or yellow, transversely banded with reddish crimson or velvety black. The lip is large and pure white. It is a winter-blooming species, and comes from Guatemala.

O. serratum.—A strong-growing plant belonging to the same section as macranthum, and resembling it closely in appearance. The scape, which is climbing, is from 10 feet to 14 feet long and much branched; bears great quantities of flowers. The sepals and petals are rich chocolate or cinnamon, with a yellow border, the edges of which are beautifully fringed. The lip small, hastate and yellow, streaked with brown. It blooms during winter, and comes from Peru.

O. calanthum.—This, although showy, is comparatively but little known. Its pseudo-bulbs, which are somewhat ovate and deeply furrowed with age, bear a pair of obtuse lanceolate leaves, which are erect and dark green. The scape is long and sparsely furnished with flowers, the sepals and petals of which are nearly equal in size and bright yellow; the lip, which is large, is rich golden yellow, blotched with reddish crimson at the base and on the crest. It usually blooms during winter and early spring. It comes from the Cordilleras of Ecuador.

O. bifolium majus.—A dwarf plant which flowers in spring, and succeeds best upon a block of wood. Its pseudo-bulbs, which are ovate and deep green, are streaked and dotted with black, much in the way of varicosum. The scape is about a foot long and many-flowered. The sepals and petals are small and dull coloured. The lip large, deeply notched in front, and rich golden yellow. It comes from Monte Video. W. H. G.

Phalænopsis grandiflora var.—A very handsome and distinct variety of this species we noticed at Messrs. Laing's nursery the other day. The flowers are large and very round, quite destitute of the orange usually found at the base of the lip, but in its place just a faint tinge of pale lemon.

Cirrhopetalum maculatum.—This is one of the little gems of Orchids we used to find in good collections in bygone days. To our surprise, we found it flowering beautifully with M. Czarnikow, of Elm Court, Mitcham. It is not a showy Orchid. Its flowers are borne in umbels; they are not large, but elegant, the sepals and petals creamy white dotted with purple, and the small movable lip is purple.

Oncidium Jonesianum.—Many fine varieties of this plant are now flowering in Mr. Laing's nursery at Forest Hill. Some of them are producing branching spikes, so that, as the plants become stronger, there is a probability of its proving a finer species than we have as yet had an opportunity of believing. Some of the varieties have large, broad,

white lips, and others less white and more of the crimson spots and bars; whilst the markings of the sepals and petals vary much in intensity of colour.

EXTERMINATION OF SPIRANTHES ROMANZOVIANA.

With both surprise and regret did I this morning receive intimation from Mr. W. E. Gumbleton, of Belgrove, that in all probability Spiranthes Romanzoviana is now a thing of the past in Europe, for its only known stations—two boggy fields in the county of Cork—have been ploughed up and planted with Potatoes. Why this sweet little plant, the rarest and most interesting of our native Orchids, should have thus, in a country of botanical science like Britain, been allowed to pass into oblivion is simply unaccountable, and certainly reflects anything but credit on the numerous societies to whom the preservation of our native flora should be of first importance. To say that a plant on which a Lindley, a Darwin, a Bentham, and a Gray expended such labour and research, a plant that has but one European station, and that a British one, is, for the sake of a couple of perches of almost valueless bog land, allowed to become expunged from our flora is hardly credible, and would never have been tolerated in any country but our own. The Edelweiss and Gentian—by no means rare plants when compared with the one in question—are zealously guarded by continental laws; and yet we British, who profess to hold our own matters botanical, have suffered this pretty and interesting plant to be uprooted and wholly destroyed.

Methinks I hear someone ask the question, What could, say, even the Kew authorities have done to preserve this Orchid? They have no power to enclose the piece of ground or dictate to the owner thereof as to whether or not the fields are to be ploughed up or left fallow. True enough, we reply, but "where there's a will there's a way;" and well assured are we that had the matter been gone right about much might have been done, and in all probability we would not now have had cause to mourn the loss of so rare a plant.

Could not the person who owned the wet, rushy field—a field that was almost worthless for agricultural purposes—have been allowed a small sum annually—say by the director at Kew—to look after British botanic interests in that part of the empire, and to keep the plant from suffering extermination either by ground tillage or at the hands of collectors? This plan works well even in Wales, for in some instances which have come under my own notice farmers have been asked by their landlord or his agent to preserve certain rare plants growing on their ground or buildings, and willingly and heartily have they complied with the request, else in one case at least with which I am perfectly familiar a certain rare plant would ere this time have been totally exterminated. Either this method of procedure, or, better still, a law formed to put, by some means or other, a stop to the ruthless uprooting of our rarer native plants will ere long have to be resorted to; indeed, the matter has already received some consideration at the hands of a few London societies, and it is certainly to be hoped that no half-heartedness will allow the matter to drop until something is done. Long ago, in "Colin Clout's Calendar," did Grant Allen tell us that "the ardour of modern botanists is fast putting an end to the brief career of this Orchid," but little did he think that a more speedy and sure method for its total extermination was nigh at hand.

At present the only known stations for this pretty flower are a few of the cold upland bogs of the three Northern States of New England, but even there it is by no means abundant; and it is certainly to be hoped that the enthusiasm of our American cousins as to the preservation of their native plants will never become tainted with British neglect and unconcern in matters of a similar kind, but that the rare and sweet little Spiranthes Romanzoviana will be cherished and zealously guarded in its now only known stations in North America. A. D. Webster.

Llandegai, Bangor.

The Dove plant.—This truly beautiful Orchid (Peristeria elata) has lost favour with the majority of growers of this family, because it is such a shy bloomer. Mr. King, at Waddon House, has at the present time some plants in 6-inch pots flowering most profusely—not a single example, but quite a group of them. The pseudo-bulbs are large and the plants very healthy; they are grown in strong heat and moisture.

Lælia elegans Turneri.—We have received from Mr. E. Harvey, Aigburth, Liverpool, a grand spike of this Orchid. It had upon it fine large flowers some 6 inches in diameter. Its peculiar spoon-shaped lip, the brightest part of the flower, is rich deep violet, shaded maroon-purple. From the same garden also came a very good variety of the true Vanda insignis and Angræcum Scottianum, all three being extremely good September-flowering Orchids.

New hybrid Orchid (Lælia Batemanniana).—A remarkable hybrid Orchid has just flowered in Messrs. Veitch's nursery at Chelsea. It has been raised by Mr. Seden between the old C. intermedia and the little scarlet Sophronitis grandiflora. In growth it much resembles the Sophronitis, except that the bulbs and leaves are larger, and produced in pairs. The whole plant measures from 3 inches to 4 inches high. The flowers resemble those of the Cattleya parent, as they are almost as large, but the form is altered, and particularly the colour. The sepals and petals are of a peculiar tint, which can only be likened to that of Odontoglossum roseum, or of Mesospinidium vulcanicum. The lip is more like that of the Cattleya: the upper part is white, stained with light yellow in the anterior; the anterior lobe is of a beautiful violet-crimson. It may prove a valuable ornamental Orchid, especially if it habitually flowers.

Odontoglossum vexillarium superbum.—Among the many so-called varieties of this Odontoglossum, none are, to our mind, so distinct or so beautiful as that which bears this name. A beautiful specimen of it has just been sent to us by Mr. R. H. Measures, from his collection at The Woodlands, Streatham. It seems to us to be exactly identical with Sir Trevor Lawrence's famous variety, which, we believe, is known also as Lawrenceanum. It differs from the normal form of O. vexillarium considerably. The flowers are small, only about half the size of what would be termed a good variety of the original. The great feature about it is its colour, which is a very deep rose-pink, the centre adorned with a large blotch of an intensely deep crimson, with lines radiating from it. It seems to be a late-flowering form, like Mr. Bull's rubellum and that named Lehmanni. It is quite a treasure, and Mr. Measures is fortunate in possessing such a fine specimen of it. His plant has borne three spikes this season.

Orchids from Cambridge Lodge, Camberwell.—Some very fine Orchid flowers have been sent us by Mr. R. J. Measures. Amongst them is a spike of Oncidium Jonesianum measuring upwards of 18 inches in length, and bearing the largest flowers we have yet seen of this species. The sepals and petals, which are broad, are white, profusely banded transversely with cinnamon. The lip is very large and spreading, the middle lobe being pure white, side lobes twisted and bright canary yellow, dotted with reddish crimson. The crest is almost covered with small cinnamon dots. This species promises to rival in beauty its near relatives, the Odontoglossums. Associated with this were several varieties of Odontoglossum bictoniense album, amongst which one with chocolate-brown sepals and petals and a large pure white lip was conspicuous; also Cattleya bicolor, a richly coloured variety, and a spike bearing four flowers of the best variety of Cattleya Harrisoniana we have yet seen. Its flowers measure some 4 inches in diameter. The sepals and petals, which are very broad, are bright purplish-violet, and the convolute lip the same colour outside, while the middle lobe in front is creamy white stained with soft yellow. This we consider a thoroughly distinct and beautiful Cattleya, and one well worth a varietal name.

Dendrobium Fredianum is an objectionable name, which someone has thought fit to fasten on to D. longicornu: at least, such appears to be the case, judging by some flowers sent to us by Dr. Duke, of Lewisham, with the information that the plant had been purchased at an auction sale under that name. Probably the plant's godfather for the new name did not know that Lindley had named, described, and figured it about sixty years ago from plants flowered at Chiswick; but that ought to have been sufficient reason for his letting the work of naming alone. The plant was not new because he did not know it. D. longicornu is related to D. Jamesianum and the new D. Williamsoni; it has erect slender hirsute pseudo-bulbs, linear-lanceolate leaves, and terminal flowers in fascicles, which are remarkable for their long straight funnel-shaped spur. The lip is scoop-shaped, the edges fringed and the inside striped with orange-red, the rest of the flower being white. The sepals and petals are short, and remain half closed instead of spreading, as in D. Williamsoni. This species is a native of Nepaul. It is said to require rather cool treatment. Of course it is a pretty Dendrobe, and interesting in the structure of its flowers.—B.

Societies and Exhibitions.

DAHLIAS AT THE CRYSTAL PALACE.

The Grand National Dahlia Show annually held at the Crystal Palace in connection with the fruit show, took place as usual, and large numbers of very fine flowers were staged. There were four collections of forty-eight varieties of show Dahlias in the nurserymen's division, and equal first prizes were awarded to Messrs. Keynes, Williams, and Co., Salisbury, and to Mr. Charles Turner, Royal Nursery, Slough. The following blooms were very fine in Messrs. Keynes and Co.'s stand, viz.: Imperial, Mrs. Langtry, Harry Keith, Buttercup, Miss Cannell, Cardinal, Clara Wyatt, Vice-President, William Rawlings, Mrs. Gladstone, Shirley Hibberd, Ethel Britton, Gloire de Lyon, Lord Chelmsford, Hugh Austin, Henry Walton, Prince Bismarck, Seraph, Illuminator, a distinct and striking new variety of much novelty of character; Prince of Denmark, Defiance (new), Rebecca, Mrs. Foreman, Mrs. Jeffard, Georgiana, Mrs. Harris, Royal Queen, and Rosy Morn. In Mr. Turner's collection could be seen the following, very fine: Mrs. W. Slack, Statesman, John Wyatt, Sunbeam, Georgiana, James Service, Prince of Denmark, Flag of Truce, Mrs. Kendal, Imperial, George Rawlings, James Stephen, Bendigo (new), T. J. Saltmarsh, Thomas Hobbs, Joseph Ashby, Mrs. Shirley Hibberd, Prince Bismarck, Seraph, Mr. G. Harris, Constancy, J. N. Keynes, Burgundy, Herbert Turner, Hope, and Ovid. The third prize went to Mr. William Boston, Manor Farm Nursery, Carthorpe, Bedale; and the fourth to Messrs. Heath and Son, Cheltenham. Then came a class for twenty-four blooms of show Dahlias open to nurserymen not showing in the previous class, and seven collections were staged. Mr. John Walker, Thame, was first with some fine blooms, especially the following: Rebecca, J. N. Keynes, Mrs. Rawlings, Vice-President, George Rawlings, Annie Neville, Flora Wyatt, Mrs. P. Wyndham, Joseph Ashby, Seraph, J. W. Lord, Goldfinder, John Standish, very fine; Countess of Ravensworth, Earl of Ravensworth, Harrison Weir, Mrs. Gladstone, Mrs. Langtry, and C. Wyatt. Still another class for nurserymen, and open to exhibitors not competing in the two preceding ones, and here Mr. G. Humphries, Kington Langley, Chippenham, was first with capital blooms. There were three classes open also to amateur cultivators, and, as in the case of those set apart for nurserymen, no person could show in more than one of them. In that for twenty-four varieties, Mr. R. Petfield, Diddington, Buckden, Huntingdon, was first with a fine lot of blooms, consisting of Miss Cannell, Joseph Ashby, Seraph, George Rawlings, Constance, James Stephen, Mrs. Langtry, Prince Bismarck, Primrose Perfection, Imperial, Flag of

Truce, J. W. Lord, T. J. Saltmarsh, Earl of Ravensworth, James Vick, Harrison Weir, William Rawlings, John Standish, Royal Queen, and John Wyatt. In the class set apart for twelve varieties there were as many as fourteen competing stands, and here Mr. Charles Hockney, Greenfield House, Stokesley, was first with fine flowers of William Rawlings, Criterion, Prince of Denmark, Ethel Britton, Earl of Ravensworth, Pioneer, Mrs. Gladstone, Shirley Hibberd, Goldfinder, James Vick, Clara, and Harrison Weir. In the class for six there were ten competitors, and here Mr. James Perkins, London Road, Chippenham, was first with Mrs. Langtry, Mrs. Gladstone, James Stephen, Hope, Mrs. Harris, and Aurora.

Fancy Dahlias.—Two classes each for nurserymen and amateurs followed, in all cases an exhibitor being able to show only in one of them. In the nurserymen's class for twenty-four blooms, Messrs. Keynes, Williams and Co. were first with a superb lot of flowers, chief among them being James O'Brien, Duchess of Albany, Pelican, General Gordon, General Grant, Miss Letty Large, Fanny Sturt, Hercules, Adventure, Gaiety, Rev. J. B. M. Camm, Henry Eckford, Mrs. Friselton, Charles Wyatt, Annie Pritchard, John Forbes, Salamander, Mrs. Saunders, Henry Glasscock, Professor Fawcett, and Rebecca; second, Mr. C. Turner, with only slightly inferior blooms of Professor Fawcett, Chorister, Hugh Austin, Grand Sultan, Miss Browning, Peacock, Pelican, Miss Letty Large, Neptune, Gaiety, John Lamont, James O'Brien, Mandarin, Laura Haslam, Henry Glasscock, Eric Fisher, Henry Eckford, Rebecca, Duchess of Albany, and Mrs. Saunders. In the class set apart for twelve blooms there were nine competitors, and Mr. John Walker, Thame, was first with Clara Wyatt, John Salter, Fanny Sturt, Flora Wyatt, John Forbes, Professor Fawcett, Tippy Bob, Chorister, Peacock, Miss Browning, Florence Stark, and Prospero.

In the amateurs' class for twelve blooms there were five competing collections, and Mr. C. Hockney, Stokesley, was placed first with good blooms of George Barnes, Fanny Sturt, Gaiety, Mrs. N. Halls, Mrs. Saunders, Rebecca, Henry Glasscock, Polly Perkins, Prospero, John Forbes, Flora Wyatt, and Peacock. In the class for six varieties there were fifteen collections, and Mr. Arthur Whitton, Askew, was first, with Mrs. N. Halls, Hugh Austin, Florence Stark, Trotty Veck, Mrs. Saunders, and Clara Wyatt.

When the judges were called upon to undertake the almost impossible task of awarding premier prizes to the best show and the best fancy Dahlia selected from the whole exhibition, the first was found in John Standish, shown by Mr. John Walker; the second in Henry Eckford, shown by Messrs. Keynes and Co.

Pompon Dahlias.—These were shown in bunches of eight or ten blooms, and so handsome were they and so effectively arranged, that they proved one of the most attractive features in the exhibition. Mr. C. Turner had the best twenty-four varieties, and they were set up in excellent fashion. The varieties represented the cream of this class of Dahlias in cultivation; they consisted of Dora, Little Arthur, E. F. Jungker, Darkness, Isabel, White Aster, Princess Sophie Sopieha, Favourite, Golden Gem, Amelie Barbier, Thomas Moore, Calcilie, Louis Rodani, Fashion, Titania, Gem, Fanny Weiner, Fair Helen, Rosalie, Ernest, Rosetta, Lady Blanche, Comtesse Von Sternberg, and Butterfly. Messrs. Paul set up in good form Little Bobby, Fortmeister G. Schwerin, Little Mabel, Fanny Weiner, Darkness, Gem, Dora, Fair Helen, Pure Love, Carl Miendal, and Royalty. For six varieties Mr. Henry Glasscock, Bishop's Stortford, was placed first with unnamed flowers.

Single Dahlias.—These, like the Pompon varieties, made a very pretty display, being set up in bunches of eight or ten blooms. There were five collections of twelve varieties, Mr. C. Turner being placed first with striking bunches of the following: Harlequin, Juno, Defiance, Dorothy, Duchess of Westminster, Mary Anderson, Paragon, Yellow Queen, Mrs. Bowman, Rupert, Ellen Terry, and Negress; second, Messrs. Keynes, Williams and Co., who had, in addition to the foregoing varieties, Crimson Beauty, Miss Flitt, White Queen, Mauve Queen, Magnificent, John Cowan, Victory, Yellow Queen, and B. Barkaway. For six varieties of single Dahlias, Mr. T. W. Girdlestone, Sunningdale, was first with varieties mainly of his own raising; among them one named Calico, pink margined with white, was pretty and distinct.

The Turner Memorial Prize.—This is in the form of a handsome silver cup, and was instituted last year, when it was won by Mr. Henry Glasscock, Bishop's Stortford. It is required that a stand of twelve show and six fancy Dahlias be shown; on this occasion it was won by Mr. J. T. West, Cornwalls, Brentwood, with a stand of bloom inferior in merit to the leading ones found in the other classes. The cup will therefore have to be competed for another season.

Seedling Dahlias.—First-class certificates of merit were awarded to the following new Dahlias: Florence (C. Turner), yellow self; Bendigo (C. Turner), crimson-purple; Defiance (Keynes and Co.), pale red; Colonist (Keynes and Co.), fawn colour and purple, very distinct; R. J. Rawlings (Rawlings Bros.), yellow self; Mrs. Theobald (Rawlings Bros.), pinkish lilac; Nellie Tranter (J. R. Tranter), clear golden yellow, single; Chilwell Beauty (T. S. Ware and H. Cannell), buff, edged with dull red; Amos Perry (Ware), rich maroon; Mrs. Coninck (Ware), pale lilac-purple; Cactus Dahlias Cherry Ripe (H. Cannell and Sons), pale ground, edged with pinkish purple, and Black Knight, shining black, very fine.

The following were highly commended: A large collection of Dahlias, &c., from Messrs. H. Cannell and Sons, Swanley; the same from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham; and the same from Messrs. J. Cheal and Son, Lowfield Nurseries, Crawley.

The Fruit Show.

It is long since so fine a display of fruit has been seen in London as was staged here, the competition in most of the classes being of a remarkable kind and very keen. Generally very fine quality prevailed, but, of course, some mediocre exhibits were present, though few. In some classes really first-rate exhibits had to be left out in the cold, the average being so high. The chief drawback was found in the eccentric arrangement of the classes, which necessitated a vast amount of locomotion needlessly, and much inevitable bewilderment, without in any way adding to the merit of the show. The tables were arranged in quadrangular blocks on either side of the east nave, and in many cases a few lots in a class were on one table and the rest on another; indeed, judging seemed to be carried on under exceeding difficulty, whilst the public must have been equally puzzled. There was not the least necessity for this mixed form of arrangement, and it is but reasonable to assume that the usual exhibition authority must for the time have been overruled by some higher power. Happily, at shows of this kind some sort of consecutive order prevails, otherwise to reporters, as well as to the public, all would be chaos.

Collections of fruits.—That no less than seven collections of twenty dishes and upwards were in competition for the premier class showed the heavy duty cast upon the judges—indeed, this class alone occupied an hour or more before the awards were made. Mr. Goodacre came eventually first with twenty-three dishes, consisting of capital Hamburgh and Alnwick, black, and Foster's and Muscat of Alexandria, white Grapes; good Queen Pines, Walburton Admirable and Bellegarde Peaches, Elruge Nectarines, Brown Turkey Figs, Apricots, Hero of Lockinge Melon, &c. No doubt here Grapes proved of material assistance. Mr. McIndoe followed, having also fine Grapes, including Gros Maroc, Trebbiano, and Duke of Buccleuch; C. Rothschild Pines; Scarlet Premier, Monarch, and Best of All Melons; good Peaches, Nectarines, &c., with some Citrons, Shaddocks, &c., making thirty-one dishes. Mr. Roberts was content with twenty dishes, including capital Grapes and other fruits, but a little weak in a Melon and one or two other dishes. Mr. Wildsmith had a very fine lot of outdoor fruits, but Grapes, though good, were in small bunches, having thirty-five dishes. Mr. H. W. Ward had twenty-five, Mr. Miller twenty, and Mr. Miles twenty-five dishes; all these collections contained much beautiful fruit. In collections of twelve dishes the competition was more limited, Mr. Roberts here being a good first with beautiful Muscat and Gros Maroc Grapes, C. Rothschild Pine, W. Tillery and Blenheim Orange Melons, Peaches, Williams' Bon Chrétien Pears, very fine, &c. Mr. McIndoe was again second, having fine Trebbiano and Black Hamburgh Grapes, Golden Eagle Peaches, Humboldt Nectarine, Melons, &c., all excellent. Mr. Miller was hardly less good with his exhibits. Then a class for eight dishes brought Mr. Pratt, of Longleat, to the front, his Muscat of Alexandria and Black Hamburgh Grapes proving strong, as did also his Peaches, Nectarines, &c. Other fresh exhibitors were found in Messrs. Pulman (Dorchester) and Oclee (Aylsham), who had good exhibits. Collections for fruiterers brought three of a very ordinary character from Brighton, the big sum of £24 being literally thrown away upon these collections, which were devoid of merit or interest. This sum divided amongst some of the other classes might have been productive of good.

Grapes.—These were in great force, no fewer than seven lots of twenty bunches being staged in one class. Generally there were no great bunches, but all were good and serviceable. Mr. Goodacre was fortunate in being again placed first, having capital Madresfield, Lady Downes, Alicante, Black Hamburgh, Alnwick Seedling, and Muscat Hamburgh, the latter wanting rather more colour—blacks; and of whites, Foster's Seedling, Muscat of Alexandria, Golden Queen, and Duke of Buccleuch, berries fine, but bunches small. Mr. Ward followed, having good Trebbiano, Foster's, and Muscat of Alexandria, whites, and excellent Alicante, Alnwick Seedling, and Gros Maroc, blacks. Mr. Wildsmith came next with a very beautiful lot, the bunches simply wanting more size, but otherwise admirably finished. The champion bunches of the show were found in the collection of five kinds, Mr. Taylor here beating his successor at Longleat, though only in point of freshness. The former had splendid Madresfield Court, Alicante, Gros Maroc, exceptionally fine; Alnwick Seedling, and Muscat of Alexandria. Mr. Pratt showed massive Muscat of Alexandria, hardly ripe; big clusters of Alicante and Black Hamburgh, Lady Downes and Mrs. Pince. Mr. Elphinstone was third with very good samples. Eight lots of three bunches of Black Hamburghs competed, the best, huge clusters, coming from Mr. Pratt; other very fine samples followed; whilst there were nine lots of Muscat of Alexandria, Mr. Pratt again being first with very fine bunches of that Grape; Mr. Roberts followed with smaller samples admirably finished. Some few of the bunches shown were either unripe or rough-looking. There was good competition with the fine-looking Grape Gros Maroc, Mr. Elphinstone having superb samples, those from Mr. Rivers and Mr. McIndoe being also first-rate. Six lots of Madresfield Court competed, the samples being fine, but generally wanting in finish. Alicantes were excellent, nine lots being staged, Mr. Howe, of Streatham Common, being in fine form with superb clusters, beating Mr. Pratt, who was also strong. With any other black kind Mr. Ward was a good first with capital Alnwick Seedling; the same kind took the next prize for Mr. Hudson, and Gros Colman followed for Mr. McIndoe. In the any other white class not less than ten lots were put up of very varying degrees of merit, rather small bunches of Mrs. Pearson taking the first place for Mr. Wallis, handsome Foster's Seedling coming second and third, the latter three weighing over 14 lbs. Duke of Buccleuch and Buckland Sweetwater were very fine in this class. Baskets of Grapes constituted a very unsatisfactory class, arrangements being so diverse, some exhibitors showing in baskets as packed for market or windows, others making mounds or heaps of their bunches. With blacks, rather moderate Hamburghs were placed first and second, whilst finely finished Alnwick Seedling from Mr. Hudson had to be content with a third place, flavour governing saleable appearance. Again, in the baskets of white kinds Muscat of Alexandria, having a formidable array of stems, beat Mr. McIndoe's splendid laterally laid-in Duke of Buccleuch. Something more clear should be defined as to what con-

stitutes a basket of Grapes, and for what particular object such classes are instituted.

Pine-apples were chiefly remarkable for the grand pair of Smooth Cayenne, each about 9½ lbs., from Mr. Ross, of Welford Park.

Peaches were in great force, Violette Hâtive, Stirling Castle, Golden Eagle, and Princess of Wales forming the best four dishes; Lady Palmerston, Royal George, and Barrington being also good in the second collection. Grand Prince of Wales were the best fruits in the single dish class, Late Admirable and Violette Hâtive following in order. There were 117 dishes in that class, and 169 Nectarines, very fine, Elruge coming first, Pine-apple second, and the same kind third. In the class for four dishes of Nectarines, Elruge, Pine-apple, Violette Hâtive, and Pitmaston Orange were the best, these kinds being chiefly shown. A class for six dishes of Peaches and the same of Nectarines seemed uncalled for, as only the same kinds were reproduced with no special merit in either case.

Plums.—Of these there were three classes of four dishes. Some dissatisfaction was caused by the fact that in each case the first prize was taken by a Brighton fruiterer, who has, of course, ample means of selection. The best four red Plums were Magnum Bonum, Prince of Wales, Victoria, and Cooper's Large, the second lot including both Frogmore and Denyer's Victoria, Goliath, and Pond's Seedling. The best yellow or green kinds were Egg, Golden Drop, Green Gage, and Washington, while Magnum Bonum and Jefferson were also good. Of purple Plums, Goliath, Black Diamond, Mitchelson's, Purple Gage, Kirke's, Prince Engleheart, and Belgian Purple were the best. In all these classes the competition was remarkably good.

Melons were in great force, some fifteen green fleshed and twenty-five scarlet fleshed being staged. In the latter, none were first-class; the best were Hero of Bath and Bloxholm Hall, whilst the best green fleshed were Golden Perfection and Hero of Lockinge, these two being first-rate in appearance and flavour.

Apples were very good, the best three ripe kinds being Red Astrachan, Hunt's Early, a local Kentish kind, and Red Quarrenden; Duchess of Oldenburg, Kerry Pippin, and Irish Peach were also good. The best kitchen kinds were Stone's Pippin, Peasgood's Nonsuch, Warner's King, Stirling Castle, Lord Suffield, Echlinville, and New Hawthornden. In Mr. Waterman's twelve dishes he had, of dessert kinds, Cardinal, very handsome; and Marshall's Seedling, also rich in colour and very striking.

Of Pears, the ripest three dishes were Williams' Bon Chrétien, Beurré d'Amanlis, and Windsor, the latter richly coloured, whilst in the larger class for ten kinds, capital samples came from Sittiogbourne of Louise Bonne, Brockworth Park, Windsor, Clapp's Favourite, Desiré Cornélis, Beurré de l'Assomption, &c.

Tomatoes were well shown, though some dishes needed sharp scrutiny to detect differences amongst them. The selected six for the first prize were Acme, Veitch's Criterion, Stamfordian, Trophy, Hathaway's Excelsior, and Reading Perfection. Other lots included Dedham Favourite, Green Gage, Hepper's Goliath, and Hackwood Park.

Miscellaneous collections of hardy fruits, chiefly Apples, came from Messrs. Paul and Sons, Waltham Cross, who had some two hundred dishes of good samples; also from Messrs. G. Bunyard, Maidstone, whose kinds showed great size, beautiful form, and, in the case of dessert kinds, rich colour; and from Messrs. Cheal and Sons, Crawley, who had a very fine and interesting collection. Messrs. Thomson and Sons, the Tweed Vineyard, showed a basket of fine Duke of Buccleuch Grapes; and from Sir Herbert Maxwell's gardens came a huge bunch of White Nice Grapes weighing 21½ lbs.

A full prize list is given in our advertising columns.

Calanthe Veitchi.—This plant forms quite a speciality at Elm Court, Mitcham. The excellent way in which it is grown there is worthy of remark. To our inquiry, how are these fine bulbs produced? the answer was, by means of cow manure given in a diluted state now and then when the plants are in active growth.

ROYAL HORTICULTURAL.

September 7 and 8.

This exhibition was, as far as the competitive classes were concerned, chiefly devoted to Grapes and Dahlias, both of which were shown in considerable quantities and of fine quality. The subjects before the floral committee were limited, the following being those selected for first-class certificates: Davallia retusa, a handsome spreading Fern, the pinnæ being pale green and elegantly cut; a very pleasing addition to the Fern family. Phryninm jucundum, a kind resembling a cluster of small Arums, the foliage spathe-shaped and alternately cream and green; a native of the Dutch Malay Islands. Both the above came from Messrs. Veitch. Vanda Dearei, a variety having somewhat inconspicuous yellowish-white flowers with deeper yellow lip, came from Baron Schröder. Cactus Dahlias Lady E. Dyke, bright yellow; Charming Bride, white ground flushed with rosy lilac; and Black Knight, deep maroon, from Messrs. Cannell. Dahlia Mrs. Bennett, a single-flowered kind, with an orange ground flushed and flaked with red, from Messrs. Cheal. Dahlia Colonist, as certificated at the Crystal Palace last week, from Messrs. Keynes. Dahlia Mrs. Theobald, a pleasing, rosy-coloured kind, very fine in form and good in substance, from Messrs. Rawlings.

Special votes of thanks were awarded to Messrs. Hooper and Co., Twickenham, for a fine specimen of Dasylirion glaucum, carrying a lofty spike of inflorescence; to Messrs. Laing and Mather, Kelso, for seedling Carnations; to Mr. R. Dean for cut blooms of seedling Pentstemons; to Mr. Heath for Orchids in variety; also to Messrs. F. Sander and Co. for a basket of the Galeandra Baueri, finely in bloom and admirably grown. The general exhibits consisted of the usual baskets of hardy flowers, including Liliums, Gaillardias, Helianthemums, with a varied selection of show, fancy, Cactus, Pompon, and single Dahlias, from Mr. T. S. Ware, Tottenham—a very striking display. A grand bank of Gladioli, consisting of spikes rich and beautiful in colour; Quilled Asters, Gaillardias, &c., came from Messrs. Kelway, Langport; a fine bank of cut Roses and hardy flowers in great variety from Messrs. Paul and Sons, Cheshunt; Liliums in great variety from the New Plant and Bulb Company, Colchester; a grand and very varied collection of hardy foliage trees and shrubs from Messrs. C. Lee and Sons, Hammersmith, boxes of the beautiful Cactus Dahlias Juarezi, Mrs. Hawkins, Cochineal, picta formosissima, and the white Constance and a big bank of Roses from Messrs. W. Paul and Sons, and a remarkable display by Messrs. H. Cannell and Son of Dahlias in great variety, and very effectively arranged.

Dahlias.—The first prize for twenty-four blooms, show or fancy kinds, fell to Mr. Turner, although the flowers sent by Messrs. Keynes, Williams and Co., and Mr. Walker, who were placed equal second, were excellent. These comprised kinds referred to in the report of the National Dahlia Show, and were very finely formed flowers.

Pompon Dahlias, by reason of their being set up in bunches, seemed to be unusually attractive; Mr. Turner was here a good first with richly coloured flowers, not too large and of fine quality. Of good form were Isabel and Gem, scarlets; Dora and White Aster, whites; Golden Gem and Catherine, yellows; and Favourite and Rosetta, crimsons. Several collections of twenty-four kinds were in competition. The singles were very attractive, Messrs. Cheal and Sons, of Crawley, coming out very strongly indeed with a grand lot of flowers, fine in form, rich in colour, and very admirably displayed. The four competing lots made a very effective bank. Very charming kinds were Negress, Amos Perry, Mrs. Bowman, H. Irving, Formosa, Paragon, Mrs. Bennett, Mary Anderson, Ellen Terry, and Rosalind. The flaked and edged forms now cropping up give increased interest to these single kinds, and also add much beauty to them. The floral part of the exhibition was deeply indebted to Dahlias, and especially to the Cactus and single kinds. It is worthy of remark, however, that the best coloured forms of the Pompon section, because of their durability, are the most popular amongst growers of flowers for market.

Asters were shown in capital condition, Mr. Walker, of Thame, having the best twenty-four quilled flowers, very pure in colour and very perfect; whilst the twenty-four Victorias staged by Mr. Jones were equally so, quite putting into the shade, in the estimation of the judges, the very beautiful and exceedingly rich coloured Pæony-flowered forms from Mr. Walker, which richly deserved notice. Hollyhock blooms were first-rate, the best, quite perfect flowers, coming from Saffron Walden. Stove and greenhouse flowers in bunches were remarkably fine, but far too crowded in the boxes. Canon Bridges had some forty to fifty kinds, which suffered from excess of labelling. Mr. James, of Norwood, put up a fine lot, associated with small Maiden-hair Ferns, with capital effect. These things always need ample space to show them to advantage. Amongst other miscellaneous exhibits was a fine display of Vines, Pears, Apples, and other fruit trees in pots from Mr. Rivers; a grand group of Begonias from Mr. Laing, Forest Hill; Liliums in pots from Mr. Gordon, of Twickenham; Roses in baskets from Messrs. Paul and Sons; and other interesting exhibits. There were also early Chrysanthemums and Gladioli, all fairly good.

Fruit.—It was but natural that great interest should centre in the Grape classes, for Grapes constitute the premier products of the indoor garden, and seem in a large degree to give the measure of a gardener's capacity. Generally, the exhibits in the various classes were good, some exceptionally so, but some were inferior. The prizes were not large enough for a two days' show, but still they attracted good competition. The schedule was arranged in alphabetical order, Alicantes coming first, two bunches in each case being shown. Five pairs were staged, and all capital samples, Mr. Taylor's being exceptionally fine, tapering, and handsome, and superbly finished. Others from Uttoxeter and Streatham Common were of less regular form, but still very fine samples. Eight lots of Alnwick Seedling were put up, the Bath grower being again to the front with grand bunches and berries large and well finished. Those from Cheadle were good, but smaller, and those from Elvaston somewhat triangular in shape. Black Hamburghs made a poor class, six lots being put up, the best being smallish, but fair bunches, Messrs. Roberts and Hudson, both of Gunnersbury, being first and second. Some large bunches showed shanking or much rubbed berries. Only two lots of Black Prince were staged. The best pair of bunches from Mr. Goldsmith were exceptionally good. The small competition shows that this Grape is now but little grown. Probably the berries are considered too small in these days of Dukes, Colmars, and similar large-berried kinds. Five pairs of Buckland Sweetwater competed, the best, really good samples, well coloured and clean, coming from Oakley Court, Windsor, where Mr. Lockie grows Grapes so admirably. Smaller bunches, still fairly good, took the second place for Mr. Roberts; and others a little past, from Mr. Ward, came third. Duke of Buccleuch was represented by four lots, those from Gunton Park showing an unusual amber tint on the berries, but the bunches were excellent. Colour in this Grape is so seldom seen, that Mr. Allan's success in securing some bright tints on his berries deserves special mention. Foster's Seedling came next in order, and was a fairly strong class, Mr. Roberts having handsome bunches of it and of good size and with richly-coloured berries. The second lot, from Mr. Miles, were good, but hardly ready; and those from Mr. Ward just a little past. Only three pairs of Gros Colmar were put up, the largest coming from Shipley Hall, but rather rubbed. The second lot was smaller in bunch, but better preserved. Gros Guillaume was not good, the big bunches from Mr. Ward wanting colour. Other bunches were smaller, but better finished. In the class for Gros Maroc some trouble was given to the judges, arising from the remarkable similarity between the finest bunches and Gros Colmar, the berries lacking that deep black tint which characterises Gros Maroc when ripe. Eventually the exhibitor got the benefit of the doubt; this was Mr. Taylor, whose bunches were unusually fine and the berries very round, but still wanting colour. Very beautiful samples, though in smaller bunches, came from Messrs. Wallis and Elphinstone. A very strong class was Lady Downes, nine pairs of bunches being put up, the best coming from Mr. Baker, of

Ottershaw, who is a capital Grape grower. With few exceptions the exhibits were exceedingly good and well finished. Six lots of Madresfield Court were shown, some indifferent, others very good. The best and largest bunches came from Bath, berries large and finely finished. Some smaller, but superbly finished, bunches from Gunnersbury Park were here, oddly enough, left out, larger bunches of inferior quality coming in before them. This same error in judging was noticed in the class for Mrs. Pearson, only four pairs being put up; the biggest, from Ottershaw, being far from ripe and ungainly. The second lot, from Gunnersbury, were far more worthy of a prize, being capitally finished samples. Five lots of Mrs. Pince competed, fair samples coming from Longleat, Mr. Pratt so far not having been successful in other classes. Other fair samples came from Rood Ashton and Heytesbury Park. The same number of pairs of Muscat Hamburgh were staged, the best, both in size and colour, coming from Elvaston. Others were irregular in form and rather red. A strong class was Muscat of Alexandria, nine lots being presented. Here Mr. Pratt was in good form with superb bunches and very fine berries. Those following from Mr. Gray and Mr. Roberts were, if smaller, admirably coloured. Only two lots of White Tokay were shown, but better results were seen in the final class for any other variety, there being put up two Golden Queen, three Trebbiano, Chatsworth Seedling, a Hamburgh-looking Grape, and Cooper's Black, bearing a close resemblance to Gros Maroc, and yet believed to be distinct. Golden Queen, having richly-coloured berries, came first; Cooper's Black, second; and Trebbiano, third.

Special prizes.—Messrs. Carter and Co. offered prizes for Tomatoes in single dishes, very handsome samples of their Perfection being shown by Messrs. Beckett, of Penn, and Waite, of Esher; only five dishes were presented. For Messrs. Sutton and Son's prizes for single dishes, to include twelve fruits, grand samples of their Perfection from Mr. Waite only failed to take first place because one of the fruits was a little past, and Mr. Lockie came first with Main Crop, which here resembled Trophy, Mr. Beckett came third with smaller fruit of Perfection; nine dishes were staged. Some remarkable Carrots of this firm's Early Gem, a huge form of the Nantes, were presented; the finest, really wonderful samples, coming from Mr. Richards, of Somerley Park; the next best being from Shrivenham Park, and Mr. Fye, of Newbury, which, if smaller, were not less clean and handsome.

The fruit committee had before it a quantity of dried and preserved fruits from the commissioners of Western Australia, chiefly Raisins, Pears, and Olives, all capital samples, which were highly commended. Four handsome Melons came from Mr. Hudson, which were not cut, and four seedlings from Mr. Lockie, two of which were tasted, but failed to obtain mention. Mr. Miles showed a beautiful dish of President Strawberry, rich in colour. A big lot of Sutton's Imperial Green-flesh Melon came from Farnham. Messrs. W. Paul and Sons showed some 100 dishes of Apples, mostly excellent samples. Messrs. Veitch and Sons had about sixty dishes of Apples and Pears, mostly fine kinds, well represented. Messrs. Lane and Sons, Berkhampstead, had six of their huge pot Vines finely fruited, and a large collection of some twenty-six kinds of Plums. Messrs. Cheal and Sons put up an excellent collection of Apples, Pears, Plums, &c. Messrs. Roupell sent some pot Vines, not specially good, and dishes of Grapes, the best being Madresfield Court. Messrs. Vilmorin-Andrieux and Co., Paris, sent a collection of some twenty kinds of Haricot Beans, the pods being nearly ripe, and purple, red, white, and green in colour. Mr. Goldsmith sent from Beckenham some eighteen diverse Melons, all good fruits; and from Messrs. Veitch and Sons was shown a collection of Carrots of their own growth under twenty-four names. Matchless and the New Intermediate were good types of their kind; Nantes and Scarlet Model, apparently alike; Altringham and Long Surrey were the best long kinds; French Forcing the best short form; and White Vosges and White Olthe the best light coloured varieties.

At a meeting of the fruit and vegetable committee, held at Chiswick on September 8, present, Mr. John E. Lane in the chair; Messrs. Woodbridge, Norman, Smith, Saltmarsh, Paul, Burnett, Silverlock, and Miles, the collection of Potatoes growing in the garden was examined, and, on being cooked, first-class certificates were awarded to the following varieties: Fyvie Flower (R. Farquhar, Aberdeen), white kidney, rough skin, yellow flesh, medium size; heavy cropper. Seedling A I (A. Harris, Woburn, Beds), large white kidney, smooth skin, white flesh; good cropper. Bouncer (T. Laxton, Bedford), white round, smooth skin, white flesh, very handsome; moderate cropper. Maggie (J. Murdoch, Rothiemay, N.B.), large white round, smooth skin, white flesh, deep eye; very heavy cropper.

A full prize list is given in our advertising columns.

NATIONAL CHRYSANTHEMUM SOCIETY'S SHOW.

This exhibition, held at the Royal Aquarium on September 9 and 10, taken all in all, was a very good one. It was, however, a trifle too early for Chrysanthemums in pots, but, judging from some of the cut flowers shown, it seems difficult to define what is early and what not. Groups from amateurs were well represented, but they wanted quite another fortnight to develop their beauties. In some of the groups, however, Madame Desgrange was excellent, thus showing what a beautiful and useful variety it is, especially where white flowers are required in quantity. The nurserymen's class was not represented as far as groups for competition were concerned, but Mr. James, of Norwood, staged one, composed chiefly of Madame Desgrange.

Cut Chrysanthemums were very good. In the premier stand the following blooms were well shown, viz.: M. Lacroix, Isidore Féral, Orpheus, Madame Levin, M. Astorg, and Ile des Plaisirs. Dahlias, both double and single, were numerous and good. The singles were set up with their own foliage in some cases, a more effective plan than associating them with sprays of Asparagus, as is sometimes done. Of Gladioli, a very fine display of cut spikes was made by Messrs. Kelway. Begonias of the tuberous section were shown by Messrs. Laing, of Forest Hill, and Mr. Owen, of Maidenhead; the former exhibitor's plants were evidently just lifted from the open ground. Zinnias from Mr. Cannell were grand in colour, variety, and shape, as were also his Dahlias of different sections, not staged for competition. Hollyhock blooms were staged by Mr. Blundell, of Dulwich.

GARDEN IN THE HOUSE.

LEAVES FOR GARNISHING DESSERT.

Those who grow stove or greenhouse plants in quantity—and especially climbers—or force early fruit and flowers, will hardly ever be scarce of choice leaves for the garnishing of their desserts. And yet it is by no means every pretty or fine leaf that is suitable for this purpose. For instance, all Pelargoniums must be set aside, from their excess of perfume. There are other beautiful leaves, again, that are too thin to go creditably through a dinner without shrivelling up into useless incumbrances of the dessert. Such is to a great extent the case with Abutilons of all varieties—very fresh and beautiful, but fragile. The leaves of the variegated and the common form of Cobæa scandens have the same failing. Again, there are some of the Passion-flowers that give out a disagreeable odour, and some of them, like P. quadrangularis, are too large; and kermesina, in a young state, is almost too tender. Still, this noble family is rich in leaves for garnishing. P. alata, edulis, and racemosa being among the very best species, are also rich in beautiful leaves; but some are fragile, and those that are suitable have more or less scent. Camellia leaves are models of smooth, glossy beauty, but no one cares to gather them for fruit garnishing; while those of Oranges, Lemons, &c., are too highly perfumed. Stephanotises are too leathery, were one inclined to pick them off. The early forcer of fruit and flowers can seldom, however, be at a loss for choice foliage for garnishing desserts. Even common leaves out of season acquire an uncommon beauty. Of course those who have Vine leaves need no other; nothing can supersede nor equal them. They are the best of all, from the time the tender picking will barely pass through the dinner till the winter leaves of many colours crumple into a handful of dust in our fingers. Early Fig leaves are also admirable. Later in the season they seem too rough and common for choice fruit; but the early leaves have a soft freshness that is most pleasing. Even early Peach, Plum, Pear, Apple, and Cherry leaves are admirable; while the leaves of forced Roses have a cleanly beauty that is seldom seen on those out of doors. The Lily of the Valley leaf, with a flower or two here and there, gives one of the choicest, sweetest finishes to a dessert, without flavouring the fruit. A fine Czar Violet and leaves of the common Primrose are by no means to be despised. The most useful of all plants for cutting, the Astilbe japonica, yields a harvest of exquisite leaves for the adorning of the dessert. Again, forced Lilacs, especially all the varieties of the Persian, are invaluable. Doubtless a considerable proportion of the charm arises from the fact of the leaves being out of season; but they are likewise more beautiful, that is, more fresh and green, when produced under the shelter of glass. It is astonishing how much variety of garniture adds to the interest and beauty of the dessert. And this reminds me of another set of leaves which I have not named, that are amongst the most useful and beautiful of all—those of the Strawberry. This fruit never looks so well as when nestling upon its own leaves; and doubtless desserts generally would be far more interesting and beautiful than they are if, as far as practicable, early fruits were adorned with leaves or branchlets belonging to them. B.

Maiden-hair Ferns in rooms.—The general impression prevails that these somewhat delicate Ferns are not suitable for rooms. For many years I have kept them in my drawing-room, not only without damage to their appearance, but also greatly to their advantage. My Ferns are always bushy and of the brightest green, and seldom without a few young fronds just piercing the soil to replace those that are failing. I find that they give far less trouble than any other pot plants indoors, except, perhaps, Begonias. My method of culture is very simple. I repot them once a year in January, using pure peat mould; I water every two or three days liberally with lukewarm rain water, if I can get it, and I do not stop until it comes through into the large deep saucer in which the plants always stand. It is not necessary to keep them always standing in water; probably the saucer may become dry the next day, but much will depend on the heat of the room. Mine has a large fire on most days in winter, but my Ferns have had to endure occasional trials of perhaps two or three frosty days together without a fire, and have not been hurt. In summer we have constant thorough draughts also, without any harm arising to the plants.—Q.

Nicotiana affinis.—This plant fails to arrest attention in the daytime, but in the gloaming it is a veritable gem, being both fragrant and beautiful.

Ornithogalum aureum.—We have received from Mr. Kingsmill two flowers of this plant which differ greatly in colour; one is orange, the other canary-yellow; both are, however, equally handsome.

Single Dahlia.—From Mr. Hartland, of Cork, come examples of a very floriferous Dahlia called Pantaloon. It is in the way of Paragon, but differs from it greatly in colour, no two flowers being exactly alike in that respect.

Names of plants.—*E. H. B.*—1, Hibiscus syriacus, rose coloured var.; 2, Clematis Flammula; 3, Leycesteria formosa; 4, Polygonum cuspidatum.——*E. S. A.*—A good form of a light variety of Cattleya Gaskelliana.——*D. D.*—Mesospinidium vulcanicum.——*J. Harris.*—Anemone Pulsatilla (true).——*W. T. A.*—Bolbophyllum cupreum; a good example of this species, apparently well grown.——*B.*—1, Rudbeckia conica; 2, Spiræa callosa alba.——*Mrs. Young.*—Lasiandra Fontanesiana.——*J. T. S., Alnwick.*—Bupleurum rotundifolium.——*F. Habgood (Faringdon, Berks).*—Valeriana officinalis; poor specimen.——*J. S. (Jersey).*—1 and 3, send better specimens, and say country, if possible; 2 is Indigofera Gerardiana.——*F. G. H.*—A species of Buddleia in fruit.——*M. S.*—1, Prince's Feather; 2, Centaurea candidissima; 3, Arundo Phragmites; 4, Agathæa cœlestis.

Names of fruits.—*C. H.*—Plums: 1, Victoria; 2, Jefferson; 3, Washington.

WOODS & FORESTS.

THE PINE SAWFLY.

(LOPHYRUS PINI.)

Among all the insects which are injurious to vegetation, the sawflies must be included with those which commit the greatest amount of damage. As is generally the case, the perfect insects are harmless, but their caterpillars or grubs are very destructive. The grubs of the Pine sawfly are no exception to this rule, as they are very voracious, and soon strip any tree of its leaves which they may attack, and at times they even gnaw the young shoots. Kollar states that a full-grown grub will devour twelve healthy leaves in a day; and as a sawfly lays about a hundred eggs, it is easy to see that when this insect is abundant, Fir trees may suffer very much from their presence, which will be all the more annoying if they attack specimen plants on lawns and in pleasure grounds. On the Continent the Pine sawfly does an immense amount of mischief at times in the Pine forests.

In the case of forests or large trees, it is almost impossible to do anything effectual in reducing their numbers. When smaller trees are attacked many of the grubs may be destroyed by shaking the trees or their boughs, and crushing on the ground all that fall; or if the tree be not too large, they may be picked off by hand, or it may be well wetted by a garden engine or syringed with the following mixture: One wineglassful of paraffin oil to twice that quantity of soft soap, well mixed together and dissolved in three gallons of water. The cocoons or chrysalis cases should be gathered from the branches whenever they can be found. Any of the sawflies which can be caught should be killed. They are not usually rapid in their movements compared with other winged insects, and it would be well worth while if any trees had been attacked to look them well over next spring, in April or May, and catch the insects that may be found in a small butterfly net. If the trees be shaken some may fly out which were not visible before. This insect may be recognised by its generally dark appearance and its wide, flattish body.

The natural enemies of this insect fortunately serve in a great measure to keep its numbers in check. Several insectivorous birds feed on the grubs, squirrels eat a great number of the chrysalides, and various kinds of ichneumons destroy the eggs, grubs, and chrysalides. Many of the chrysalides which are formed near the foot of the trees fall a prey to field mice. Bad weather has a most unfavourable effect on these insects when the caterpillars are young or changing their skins. Wet or cold weather will kill thousands of them, and must also have a very detrimental effect on the flies if it occurs just as they are leaving the cocoons. The female sawfly is furnished at the extremity of its body with a saw-like organ, with which it is able to make slits in the leaves. This organ in bees, wasps, and their near allies takes the form of a sting, and in other families more nearly allied to the sawfly of an instrument capable of boring holes in timber, or of a long tube composed of three longitudinal pieces through which the eggs are laid.

The saw of the sawfly is composed of two flat-toothed plates, which the insect works with an alternate motion; when an incision down the leaf is made the eggs are passed between the saws into the slit prepared for them. In about a fortnight or three weeks the eggs are hatched, and the grubs, which are then very small, increase rapidly in size and soon destroy the leaves they are on, leaving nothing but the midribs remaining. They are nearly always found in large numbers together; when food fails they at once move to another part of the tree. When a grub is disturbed it immediately raises its head and ejects a drop of resinous fluid from its mouth; and it is stated by Kirby and Spence in their well-known work on entomology that if one grub acts in this manner, all the others which are near it do the same, thus, as it were, firing a volley, the scent from which would probably disconcert any of its insect enemies. In about two months, having changed their skins several times, they attain their full size; they then form cocoons round themselves, within which they assume the chrysalis state. These cocoons are formed among the foliage on the stems, or sometimes among Moss, &c., at the foot of the trees.

The insects remain in this condition until the following spring, when, in April or May, according to the weather, the perfect insects make their appearance. The male and female Pine sawflies differ somewhat in general appearance; the male is considerably smaller than the female; it is about three-tenths of an inch long, and measures six-tenths of an inch across the wings when they are fully extended. The female is four-tenths of an inch long, and measures eight-tenths across the wings. The antennæ of the male are doubly pectinated (deeply toothed like a comb on both sides), while those of the female are merely serrated (toothed like a saw). The male is black, with the exception of the lower part of the legs and feet, which are yellowish. The head of the female is nearly black, and the antennæ, except the three basal joints, which are yellowish, are brown; the thorax is brownish-black, with the front angles brownish-yellow; the body is very broad, of a dull yellow colour, with a dark brown patch in the middle covering nearly the whole of the third, fourth, and fifth joints, and part of the sixth and seventh; the legs are yellowish. The wings in both sexes are large, iridescent, and much veined; on the front margin of the upper pair is a dark spot. The full-grown caterpillar is about an inch long, and of a greenish-yellow colour, with a black spot on either side of each joint over each foot. Each joint bears a pair of feet except the fourth. The cocoon is oval, nearly half an inch long, of a hard papery substance, and of a brownish colour. G. S. S.

HOME-GROWN WOOD FOR SLEEPERS.

One of the latest substitutes for wood railway sleepers seems to be the steel sleepers. It is true that even were the metal sleepers largely used it would not affect the English grower so much as it would the foreigner; still, there is an appreciable quantity of home-grown wood consumed for sleepers in one form and another. In the most popular sense the term sleeper is used for the framework upon which the rails for rail and tramways are laid, but there are many other purposes for which sleepers are required, notably in house building. As is well enough known, the principal railways have, for their permanent ways, hitherto used sleepers manufactured from foreign woods, but during the process of construction of a new line it is a very usual thing to see home-grown wood in use. Providing the supply was plentiful and at a low enough cost, there is no doubt that Larch would be the wood used, but as it has a higher value for other uses, Scotch or Spruce is made to do duty. A new line of rail is occasionally in this way a good thing for the owner of Scotch or Spruce plantations in the neighbourhood. From the nature of their use this class of sleepers does not suffer so much from natural decay as from continual wear and tear and knocking to pieces. There is very little expended upon them in manufacturing, and from the lowness of the value of the wood in its raw state, the whole cost is low; therefore, there does not seem to be any immediate fear of this kind of temporary sleeper being displaced by a new competitor. Much, of course, depends upon the district where the work is going on, as transit is really everything.

For permanent sleepers on tramways connected with the various rail systems there is a considerable bulk of wood used yearly. This, unless near ports where foreign wood can be more easily obtained, mostly consists of home-grown wood. Being of a permanent nature, the Scotch and Spruce are not well adapted for use in these positions, but Larch is generally sought after. Failing this, Elm is substituted for it. On the face of it, it would appear that the variation in price between the Elm and the Larch would not be much, but in practice the Elm is obtainable at a much lower figure. The reason probably is, that the bulk of Larch timber only grows to a small size, and consequently the boles of the trees—the best of the wood—have to be cut up. In the case of the Elm, these small sleepers can be sawn from the larger branches after the tree itself has been turned to better account. The length and sizes will, of course, vary according to what they are required for, but for the narrow lines of tramway from stone works and the like, from 4 feet to 5 feet in length, and about 6 inches by 3 inches, are the usual sizes; so it will be seen that very large wood is not necessarily required.

Reference has been made to sleepers for use in house building; these are in most cases cut from Oak, and are of an altogether different and more expensive character. They are virtually joists, but the term sleeper is adopted for the sake of distinction, as they are always used upon the ground or upon a course of brickwork, raising them a few inches. In this situation it is obvious that the most lasting material is wanted, and such as will withstand damp. Scantlings sawn from heart of Oak answer to these requirements better than any other wood. There is one old manor house I know where, instead of horizontal sleepers, the joists were laid upon sections of small Oak trees, merely sawn off to the necessary length and placed upon end. In this way the floor was raised to a good distance above the ground level, and consequently kept dry. The vertical sections of Oak also seemed to have answered their purpose, as when the floor was taken up a few years ago for repairs or for relaying—I forget which—they were in good preservation, and previous to this it was not known that the floor was not laid upon sleepers in the ordinary way. Sleepers are, of course, used in other positions in buildings than for the floors of dwelling-houses. For barns and floors of sheds of various kinds they are wanted, but they require less preparation. According to the nature of the work they may either be partly sawn or entirely hewn, but when coming in direct contact with the soil should always, if possible, be of Oak. D. J. Y.

The Mountain Pine as undercover.—I fear some of the statements in Mr. Gilchrist's essay, published in last week's *Woods and Forests*, are suppositionary. Pinus montana, he says, is "admirably suited for undercover," and I take the liberty to say that the essayist probably never saw a single example proving what he says. I would like to see it thriving permanently among Scotch Firs that have "lost their own bottom branches" through crowding, as the essayist suggests. The idea is preposterous. A native of exposed mountain tops is as unlikely a subject for underwood in this country as anything could well be. In fact, few or none of the Fir or Pine tribe make good underwood, and by underwood I mean trees or bushes that grow under the shade of other trees. Trees to fill up open spaces in woods are another thing. Firs will do very well in such sheltered spots if their tops have light, but not as underwood.—Yorkshireman.

Measuring trees.—A contributor sends to an American paper the following rule for measuring trees, which he says he has tested to his satisfaction: A stick of timber is desired, say 50 feet long; select your tree, measure 50 feet in a direct line from the foot of the tree, on as near level ground as possible; now cut a stick the exact height of the observer, and stick it in the ground exactly perpendicular; now let the observer lie flat on his back, his feet against the stick and head in the line of the tree and stick, and look directly over the top of the stick, and where the line of vision strikes the tree will be the length of stick, 50 feet, desired. If the ground is not level, the measure will not be exact, but allowance must be made.

A good fence.—A post and rail fence, cheap and strong enough to keep out horses and cattle, may be made as follows: Set the posts 9 feet apart, or 2 feet less than the length of the rails used. Bore 1¼-inch holes through the posts 1 foot from the ground, and at right angles with the direction of the fence. Bore three holes above this, about 9 inches

apart, one above the other, and drive in wooden pins in all four holes to project 4 inches on each side of the post. Lay the rails on these pins, close to the post on each side. Bore a 3-8ths hole above the top rail, and another one 1½ inches below the bottom pin. Take a piece of wire 10 feet or 11 feet long, and pass half its length through the top hole, and cross it under the top rail; cross it again under the second rail from the top; cross it again under the third rail, and finally cross it under the bottom rail by slipping the ends of the wire through the small hole, and bring them around in front of the post and twist them together. If sheep are kept, a board should be nailed at the bottom, or a fifth rail added.—A. A.

ONTARIO FORESTRY REPORT.

During the past year, an arbour day for the schools of Ontario has been made the occasion for planting over 30,000 trees, the planting being accompanied by addresses on forestry to the scholars, practical lessons being thus learned that will be likely to render effective service in future. The work of the Forestry Board has been aided by the distribution of eight thousand copies of reports, and seven hundred articles on the subject have been inserted in Ontario newspapers, for which nearly two hundred journals have lent their assistance. An important movement has been made by the Government for preserving the Pine forests, in offering to lumbermen to pay half the expense of a staff detailed during summer to prevent forest fires, and to enforce the provisions of the Fire Act, and over forty persons have been thus employed during the dangerous months of summer. The value of timber screens is shown in a statement of Mr. Phipps, in an account of his journey through Illinois, where the Osage hedges had been allowed to grow up to trees along the exposed sides of orchards, none of the trees in which were lost; while many valuable ones were destroyed by the cold and sweeping winds where this precaution was not taken. A more distinct evidence of the value of timber shelter is given in notes from Massachusetts. In the old colony region much of the land had remained idle and barren, the home of a few wandering sheep, in great ranges of wind-swept hills. Twenty-five years since, a gentleman, Mr. Fay, planted Pines largely, and still more largely sowed their seed broadcast. Others followed his example, and groves sprung up in all directions. There are now more than 10,000 acres of Pine plantations in this vicinity, many of them containing trees 40 feet high. This planting has greatly sheltered and improved the country. The Pine plantations on the hills hold the moisture of rains, and the former floods have ceased. Some of the plantations are in blocks of over a hundred acres. The opinion is quoted from high authority, that "a country cleared of three-fourths, and one-fourth remaining in wood, will grow more in cultivated crops than one wholly cleared." This statement is doubtless true of all regions of country where the winds have a free sweep over its surface.

The report furnishes some information on the success of planting black Walnuts. In Douglas County, Ill., is a grove of between 2000 and 3000 large Walnut trees, raised from the nut thirty years ago, and now 80 feet high, and some of them 1½ feet through. This grove, with its tall, pillar-like stems, is a picturesque object seen far across the prairies, and affords one of the best proofs of the success of black Walnut culture. The nuts were first planted with corn and cultivated with the crops for the first four or five years, and after eight years the shade excluded other crops. They were at first 10 feet apart, and gradually thinned till 20 feet asunder. After twenty years the ground was covered with short, wild Grass. The value of the Walnut, when large enough for broad boards, was strongly expressed to Mr. Phipps by a farmer in Indiana, who said he had almost cleared his farm of a natural Walnut forest, mostly large trees, 3 feet or 4 feet through. "If I now had them," he remarked, "they would be worth £200,000; instead, I have a farm without them worth about £1000." It is asserted in the report that for rapid growth the wild Cherry is greatly superior to the Walnut, and will give in thirty years as large a tree as the Walnut in sixty.

The deficiency of natural timber in Kansas has induced the railway board there to give particular attention to tree-planting, and has established in Kansas the largest artificial plantation of forest trees in North America. They first had a square mile planted with young trees of the Catalpa and Ailantus, and afterwards as much more. These are near the town of Farlington. Carriage roads pass through the dense plantations at intervals. The two portions were planted two and four years ago, mostly with Catalpa, a portion with Ailantus, and some with white Ash. The first planted are about 25 feet high. The whole number is about 3,000,000 trees. They are first set 4 feet apart to shade the ground, and they are subsequently thinned. Those only who have seen the original forest, with trees growing hap-hazard (we quote from the report), little and big, have but a very vague idea of the large amount of wood these closely-planted groves can spare in their process of growth. In the different States there are not less than 60,000,000 railway ties used yearly, which means the annual destruction of 30,000,000 young trees.

This report is largely occupied with interesting and valuable information on the interests and progress of forestry in the different States, much of it from personal observation, and nearly half is a full descriptive list of the trees of Ontario. The *Country Gentleman* speaks of it as one of the best reports on the general subject and on its various and numerous details, and furnishes a large amount of practical information for the growth of artificial forests.

TREE PLANTING ABROAD.

What may be accomplished (says the *Australasian*) by a single community in the way of tree planting, and of transforming the physical aspects of a particular locality in an arid district, has been remarkably exemplified at Jamestown, in South Australia. Five years ago the corporation commenced the plantation of a previously treeless region with timber. Up to that date the place must have been as undesirable a town to live in as could be found in the bare plains upon which it had been established. In summer there was nothing to mitigate the blinding glare of the sun, or the intolerable radiation of the heat from the fissured surface of the hard-baked earth. The hot winds swept across a wide expanse of scorching country, bringing with them clouds of all-penetrating dust. In the winter there were no natural means of breaking the force or diminishing the inclemency of the gales which came howling down from the north. But the corporation has changed all that. "It has planted over 20,500 trees of various kinds, and the once glaring and dusty streets are protected, shaded, and ornamented with several beautiful varieties of Gums, now in flower, and standing 25 feet to 30 feet high—and this after having been twice lopped during the five years since they were first planted. But Gums are not the only trees, for they are relieved by hundreds of Pines, Catalpas, Tamarix, Ficus, Willows, Cypress, Olive (doing splendidly), Acacia lophantha, and a lot of others." Private enterprise has supplemented municipal effort, and some of the leading people of Jamestown have planted trees in such numbers on their own properties, that at the present time "the town appears, from the distant heights, to be buried within a forest." Not only so, but the once bare ranges in the vicinity of the place have been clothed with young forests for a distance of 8 miles; and the experience of other countries justifies us in hoping that, as soon as these have attained a certain stage of growth, they will exercise a marked and beneficial influence on the climate and rainfall of the district. About 70,000 trees have been obtained from the Forest Board of South Australia, and the 30 acres planted by the corporation of Jamestown do not cost it more than £70 per annum to maintain in good order. Probably the time will come when, by a judicious system of yearly felling and replanting, the timber in the reserves and parks may become a source of revenue. In the meanwhile, what are the results of this admirable proceeding? According to a seven-years' resident in the town, the character of the place has entirely changed. It has ceased to be "a mud-hole in winter, and a dust-heap in summer;" and there is a marked decline in the prevalence of ophthalmia and sand-blight, both of which had not unnaturally become endemic. It has also been found practicable to introduce modes of culture which were previously out of the question. Sheltered and screened by the rapidly-growing belts of indigenous timber which have been planted in the district, orchards have been formed, vineyards and gardens laid out, and fruit trees are thriving in localities where all former attempts to establish them resulted in failure, because, as our informant writes, "the cutting winds of summer and winter, sweeping over the unsheltered and treeless plains, would not allow of the trees growing."

PLANTING FOREST TREES.

The tools required for raising and planting forest trees are simple, but they should be handy in size and of the best materials. The following will be found useful: A small three-pronged fork, light enough to be used with one hand, for lifting seedlings; a larger fork for trenching alongside the rows and opening out the plants; a light handy spade for notching and refilling the holes with soil; a dibble or planting iron for opening up the ground which has already been notched for the reception of the plants; a pick and mattock, which may be combined in one implement, for use in stony or upon very hard ground.

In notch planting with small subjects, and upon very thin and light soils, a marker precedes the planter, and with a cross-cut of his spade indicates the position of the tree. The planter afterwards drives his iron into the ground at one extremity of an arm of the cross-cut, presses down the handle, and thus opens the slit at the centre, into which the carrier pushes a plant, and the ground is afterwards closed by the foot. In this way from 1200 to 1500 small trees may be planted in a day by an active man and a boy.

Wherever large plants are pitted in prepared holes, care should be taken to put them very little, if any, deeper than they stood in the lines of the nursery; and while the soil is being filled in, the holder should by a slight vertical motion of the plant settle the soil well under the roots and scatter these regularly throughout the soil. Where the soil is light and dry some treading may be necessary to steady the tree in its new quarters; but wet soils are best untrodden at the time of planting, though they may be subsequently rammed down and consolidated in dry weather.

B.

Moving trees.—Some have an idea that a tree cannot be moved successfully without a large ball of earth attached to it, but where there is not machinery sufficient for that purpose, failure in that case is often the result. My system is to begin at some distance from the base of the tree, rather further, in fact, than is usually practised, and to comb the soil away from the roots, injuring them as little as possible. If a tree be gone properly round in this way and the roots saved, one is often more certain of success than when trees are transplanted with large balls; such, at least, is my experience.—D. S. G.

Thick planting.—In crowded plantations there is a marked difference between the trees on the outside and those in the centre; the former, having their branches and leaves fully exposed on one side, grow with comparative vigour, and form excellent timber on that side of the stem where light and air are admitted; while the latter, hemmed in on all sides, are drawn up like bare poles, and produce a small amount of ill-conditioned wood. A crowded plantation, in which the trees are allowed to increase in size until they interfere with each other, cannot be easily reclaimed; for every attempt at thinning in this advanced stage of growth is accompanied with the risk of exposure to the blast, which speedily levels trees having no firm hold of the soil.—Scot.

No. 774. SATURDAY, Sept. 18, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BASKET FERNS.

THERE are numerous species and varieties of Ferns that naturally grow upon trees and in the crevices of rocks, and that do not conform kindly to ordinary pot culture; indeed, many species can only display their beauties to perfection when placed in elevated positions. Such positions are plentiful enough in ferneries built with stone or similar material made to represent, more or less, natural rocks. But in ordinary plant houses these points of vantage occur less frequently, and, therefore, the next expedient is to plant in baskets and suspend them from the roof. Basket Ferns need not be confined exclusively to glass houses; on the contrary, there are numerous kinds which flourish admirably when suspended in the windows of dwelling-houses, or even in the open air, if shaded situations are selected for them. Ferns in baskets need more care in order to produce handsome specimens than is necessary under ordinary pot culture, inasmuch as the roots are more liable to suffer from drought, and if their wants in the way of moisture are not properly met, the fronds speedily shrivel, and, except in the case of those of leathery texture, never recover so as to be perfectly satisfactory. The best baskets for Ferns are those in which the wirework is tolerably close, as in that case the soil does not get washed away so readily as it would be in the case of baskets in which the wires are further apart. A thick layer of living Sphagnum Moss should be placed on the bottom and round the sides, and upon this may be laid the soil. The Sphagnum, from its tendency to hold water longer without rotting than any other kind of Moss, not only prevents the soil from falling through the meshes of the wire, but maintains a more uniform degree of moisture about the roots than could be obtained by the use of any other kind of material. Rough fibrous peat, turfy loam, leaf-mould, chopped Sphagnum Moss, and a small portion of sharp sand form a good compost for basket Ferns. To these ingredients may also be added some nodules of charcoal, which tend to keep the soil open and porous, and do not add materially to the weight of the basket when hung up. In basketing Ferns of a robust habit of growth, a much larger proportion of loam is necessary for their maintenance than is needed in the case of more delicate kinds, but all of them require copious supplies of water, which, until the fronds become too large, may be given them by immersing the basket in a tub or tank. The following varieties will be found suitable for basket culture, viz.:—

SCHELLOLEPIS SUBAURICULATA, known also as Goniophlebium and Polypodium, I place first upon the list, because I look upon it as the best of the drooping Ferns. It produces fronds from 6 feet to 12 feet in length, and of a pleasing shade of green. When fertile, the sori, being immersed in the pinnæ, form little umbones or bosses on the upper surface, which add to the beauty of the pendulous fronds. This species will test the cultivator's skill, inasmuch as the pinnæ are jointed with the rachis, and if allowed to suffer from drought, they fall out from the joints and leave bare stems, a sure indication of neglect. It comes from the Malay Islands, and it requires the temperature of the stove.

S. VERRUCOSA.—This is similar in habit to the preceding. The fronds, which attain a length of from 4 feet to 6 feet, bear broad, deep green pinnæ, and produce, when fertile, raised protuberances on the upper surface. It comes from Malacca, and enjoys a high temperature.

GONIOPHLEBIUM APPENDICULATUM.—In this genus the pinnæ adhere to the rachis, and consequently do not exhibit the effects of drought in such a marked degree as do the various members of the preceding family. The fronds of this species attain a length of from 12 inches to 15 inches; they are pinnatifid and pale green, the rachis being deep red, and the whole frond prettily netted with lines of reddish crimson. It is a native of Mexico, and thrives admirably in a cool house.

LOPHOLEPIS PILOSELLOIDES.—This is a diminutive West Indian species, with a thin, wiry, creeping rhizome, bearing dissimilar fronds; the sterile ones are ovate and about 2 inches long, the fertile ones narrow and some 3 inches in length, bearing large, bold, deep brown sori. The fronds are pale green and squamose on both sides. It forms a charming object in small baskets.

NOTHOCHLÆNA TRICHOMANOIDES.—This is a choice plant for a medium-sized basket. Its fronds, which are pinnate, are from 12 inches to 18 inches long and pendulous, and the rachis is black. The pinnæ, which are somewhat ovate, are intensely green on the upper side, clothed with a white tomentum beneath, and ornamented with jet-black marginal sori. It enjoys strong, moist heat, but does not like watering with the syringe. It comes from Jamaica.

N. RUFA.—As regards treatment, the requirements of this species are similar to those of the preceding. Its fronds, which are from 12 inches to 18 inches long, are pendulous and pinnate, the pinnæ being smaller than those of N. trichomanoides. The fronds are clothed with short rufous hairs below, and also ornamented with a reddish tomentum. Jamaica.

N. SINUATA.—This elegant New Mexican Fern thrives best in a greenhouse temperature, although it objects to a dry atmosphere. In habit and size it resembles the two species just named, but is, nevertheless, very different from either of them. The pinnæ, which are pale green above, are densely clothed below with white or ferrugineous scales, toothed on the edges, and there ornamented with dense black marginal sori.

DAVALLIAS.—The majority of Hare's-foot Ferns, as the Davallias are called, are eminently adapted for cultivation in baskets. From their stout, creeping rhizomes are produced great quantities of fronds, elegant in outline, and in most instances of a pleasing shade of green. The soil for Davallias should not contain much loam, and what is used should be rough and turfy.

D. BULLATA.—The rhizomes of this species wind round a basket rapidly. They are clothed with bright ferrugineous scales, a circumstance which has obtained for it the popular name of the Squirrel's-foot Fern. Its fronds, which are freely produced, are somewhat triangular in outline, finely divided, and of a lively green in colour—thus, when well established, making an effective plant. It is however, only to be had in full beauty half the season, as it is deciduous, losing its fronds in autumn. During its season of rest it must not be dried up or neglected; on the contrary, a fair amount of water should be given, in order to keep it from shrivelling. If wintered well, the young fronds break up from the rhizomes in spring with increased vigour, and in their young state are of a lovely shade of green, somewhat resembling that of young Larch. It requires strong heat to start it in spring, but after the fronds are well developed, it will thrive in a cooler temperature.

D. PALLIDA, perhaps better known in gardens by the name of D. Mooreana, makes a grand specimen when treated as a basket plant, although it is for the most part cultivated in pots. The fronds of this species, which are upwards of 3 feet long, are much divided and pale green. Its fronds are beautifully arched, and spreading. The plant when well grown forms a large and majestic specimen.

D. TYERMANNI.—This species is much less robust in habit than the preceding. Its rhizomes are stout and densely clothed with large, pure white, chaffy scales. The fronds are from 6 inches to 12 inches in length, somewhat rigid in texture, triangular in outline, and intensely green. Independent of the attractiveness of this Fern as a basket plant, I have found its fronds to be most useful in the composition of button-hole bouquets and shoulder sprays, its rigidity enabling it to resist curling or flagging. During summer it may be grown in a cool house. It comes from Northern India.

D. FIJIENSIS PLUMOSA.—This is distinguished for its beauty, even in a family remarkable for its general elegance and ornamental properties. The rhizomes are slender, creeping, and clothed with ashy-grey chaffy scales. The fronds are from 2 feet to 3 feet in length and much divided, the segments being slender and of a vivid green colour. The general outline of the fronds is that of a beautiful drooping ostrich feather. It requires stove heat.

D. CANARIENSIS.—This is a beautiful greenhouse Fern, which, although somewhat less graceful than some of those already mentioned, cannot be overlooked. The rhizomes are stout and densely clothed with rusty-brown chaffy scales. Its fronds, which are upwards of a foot high, are broad and much divided into narrow deep green segments, which, when fertile, are enlivened by numerous reddish-yellow sori. D. canariensis is the type of the genus, its scaly rhizomes presenting a striking resemblance to a hare's foot. It comes from Madeira.

ADIANTUM CUNEATUM GRANDICEPS.—A bold growing form of the Maiden-hair Fern most commonly used for bouquets and general purposes of decoration, but with this addition—it develops upon the ends of its fronds broad and branched crests and tassels of great beauty, which render it a conspicuous object when used in the manner here recommended. It may be grown in a cool house.

ADIANTUM CAUDATUM.—This species produces fronds of a pinnate character, and pendulous and proliferous at the apex. The young plants thus formed attain considerable dimensions upon the plant, and thereby enhance its beauty. The colour of the pinnæ is ashy-grey. In the variety Edgworthi the pinnæ are very much divided at the edges, thus affording a striking contrast to the normal form. It comes from the East Indies.

WOODWARDIA RADICANS CRISTATA.—This is an admirable plant for an elevated vase or large hanging basket, and one which, from its robust constitution, may be grown in the open air in summer if placed in the shade. Fern growers usually keep this plant in too strong a heat, the result of which is its pinnæ get disfigured by thrips. The growth is decumbent, producing beautifully arched fronds from 6 feet to 7 feet in length, and furnished with young plants near their ends. The pinnæ are coarsely serrated and bright green in colour.

DRYMOGLOSSUM PILOSELLOIDES.—This pigmy Japanese Fern seldom makes fronds more than a few inches high; it may be grown in a Cocoa-nut shell or small basket, and suspended in a sitting-room window, where it forms an interesting object. Its rhizomes, which are creeping, bear two kinds of fronds; those that are sterile are somewhat obovate, less than an inch high, thick and fleshy in texture, and bright green, and more or less clothed with stellate hairs; the fertile fronds are linear in outline, some 2 inches or 3 inches high, and the same colour as that of the sterile ones, but enlivened beneath with a broad, continuous marginal band of yellowish sori.

GYMNOGRAMMA SCHIZOPHYLLA GLORIOSA. — The old form of this plant, though a favourite, was difficult to grow, which this variety is not. Its fronds, which are long and pendulous, are very finely divided, the segments being bright green on the upper side, and slightly dusted below with a white farinose powder. It should be placed in a medium-sized basket, kept in stove heat, and carefully watered, as from the extreme delicacy of its fronds it speedily withers if allowed to become dry.

MICROLEPIA HIRTA CRISTATA. — A bold-growing plant, suitable for any situation, be it the exhibition table, the plant stove, an elevated vase, or a basket. It produces long arching fronds with much-divided segments, the apex of most of them bearing a large crest or tassel. Although it enjoys strong heat in winter and spring, it succeeds well in a cool house in summer.

Asplenium bulbiferum.—This is a very free-growing and handsome Fern, suitable for greenhouse decoration and sitting-room windows. The fronds, which are broad and spreading, are arched and bright pale green, the upper surface being densely covered with little bulbils, which eventually produce young plants. W. H. G.

BRITISH FERNS AND THEIR VARIETIES.

Dr. Spruce's name having been mentioned by "G." in connection with the discussion in reference to crested Ferns, I wrote to him asking the result of his experience, and have received the following reply: "I am afraid I cannot contribute any information as to the variation of tropical Ferns in a state of nature that would be worth recording. I have no specimens here, but I have my notes, often made on the fresh plant, and the names of most of them as supplied first by Hooker, then by Moore, and lastly by Baker. That Ferns vary quite as much on the equator as in the north temperate zone I can safely assert. The genus Asplenium is perhaps the most variable of any, and the so-called species often pass into each other by such insensible gradations, that (to me, at least) no actual limit was traceable. Asplenium falx, *Desv.*, is a variable subject, so is A. radicans, *Sw.* A. fragrans is often scarcely distinguishable from luxuriant A. Adiantum-nigrum, except by the odour. The Hymenophyllaceæ all vary much. Crested, or otherwise deformed, varieties are mostly (as in Britain) sterile. The botanical collector naturally tries to get everything in as perfect a state as possible, but I have no doubt that a lover of malformations might find as great a variety of them on the equator as in lat. 50°—60° N." The above, by a botanist of note like Dr. Spruce, should convince "G." that his theory as to climate cannot stand. It would be a very curious coincidence indeed that such a change as he speaks of should begin exactly at the time Moore's folio "Nature Printed Ferns" was published, and that it should be confined to the British Islands. Dr. Spruce makes a slip when he speaks of British varieties being mostly sterile. Probably he has the plumose forms in his mind. P. Neill Fraser.

Rockville, Murrayfield, Edinburgh.

New Zealand edible fungus.—Could you inform me the name of any book in which I could find a chemical analysis of the New Zealand edible fungus, or where I could procure a specimen of the same in this country?—T. V.

*** Your question is too indefinite for a definite reply. You will see an example of Ileodictyon in the food department, Bethnal Green Museum. This is said to be eaten by New Zealanders under the name of Thunder-dirt. Cyttaria Gunni is also eaten. The Native Bread of Australia is a fungoid growth named Mylitta australis, said to be very nutritious. For analysis of fungi, see "Guide to Food Collection, Bethnal Green Museum," by Professor Church. Good examples of Mylitta, &c., may be seen in the public room, Botany, British Museum, South Kensington, where further information may be obtained.—W. G. S.

Daffodil seed.—Noticing that seed of the sulphur Hoop-petticoat (Corbularia citrinus), crossed with a white Trumpet Daffodil (Minnie Warren), is advertised for sale at a high price, I think it only right to say that such a cross is probably quite impossible, and that the seed offered will merely reproduce one or the other of these two Daffodils. Dean Herbert, a skilful and successful hybridiser, tried for years to get the Corbularias to cross with the Trumpets, and failed. For many seasons I have made the same attempt myself without success. In my opinion, it is wrong to offer seed representing any particular cross; it must always remain doubtful until blooming time whether it has really been effected, unless, indeed, every flower made a seed parent has been absolutely isolated and had its anthers removed before opening, a laborious task which could not be carried out where seed is harvested in sufficient quantity for sale.—G. H. Engleheart, *Appleshaw, Andover.*

NOTES OF THE WEEK.

Lapageria rosea and alba.—The long corridor at the entrance of Messrs. Veitch's nursery at Chelsea is just now very gay with these two plants, the whole roof being covered with their pendent bell-shaped flowers, whilst the intermingling of the two colours (rose and white) has a very pleasing and pretty effect.

Vallota purpurea eximia.—A three-flowered spike of this beautiful variety of Scarborough Lily has been sent to us by Mr. Hartland, of Cork, who evidently grows it well. The variety is similar to that which we figured last week under the name of magnifica, except that the flowers are smaller, and we doubt if it is such a robust grower.

Pampas Grass at Hampton Court.—The one fault of this Grass is the late season at which it blooms. We recently saw a specimen of it at Hampton Court bearing upwards of a hundred of its beautiful feathery plumes in full beauty. It had evidently been in flower a long time, whilst other plants close beside it, equally strong, are only now just pushing up their spikes. This early-flowering variety is certainly worth increasing, as it comes in before the unsettled weather of autumn impairs its beauty.

Heaths at Norwood.—We were pleased to find the other day that some fine specimens of what are termed hard-wooded Heaths still exist in the neighbourhood of London. Mr. James, of Norwood, has quite a large collection of them, amongst which the best for blooming at this season is E. tubæformis, with a deep red tube tipped with pink; another very useful kind for late flowering is cerinthoides coronata, with a large dense head of brilliant scarlet bloom; also MacNabiana rosea, which blooms twice in the season; the second crop of flowers is now opening; the blooms are large, with a deep rose tube, spreading, pure white limb, and deep purplish black ring round the neck.

Oxypetalum cæruleum.—I send you sprays of this plant raised from seed this year. It seems suitable for a cool greenhouse. I have no knowledge of it in a mature state, but it looks a pretty plant, and the colouring of the flowers—palest turquoise-blue, shot with palest pink, with ring of anthers of full turquoise, inclining to peacock-blue—is rare and beautiful. From the habit of the young plant it appears to be a climber.—G. J.

*** This lovely shrub is best known in gardens under its synonym, Tweedia cærulea. Being a native of Buenos Ayres, it succeeds admirably in a cool greenhouse.—Ed.

September flowers.—I send you specimens of September flowers now in great beauty with me. The tall growing and large-flowering Linaria triornithophora is rather a handsome late blooming annual; the pretty L. tristis also is singular in colour, and very fragrant in the evening. Here in rich moist soil Pinks are blooming again as freely as in June, so are Pyrethrums and Delphiniums, and the lovely Lychnis Flos Jovis has bloomed in the freest manner all through from early summer. The deep orange form of Papaver nudicaule is a striking plant, and the low-growing Delphinium sinense is very beautiful in both the blue and the white forms; the rare and charming D. sibirica fl.-pl. is in full flower again. In fact, flowers now abound, for we have not only abundance of the usual autumn subjects, but also a reappearance of those of early summer.—T. Smith, *Newry.*

Autumn Crocuses.—These are now beginning to bloom. C. Sharojani, the only orange-coloured autumn-flowering species, took the lead a month or more ago. If these autumn kinds should be taken in hand and developed, as the spring ones have been, this Sharojani will, no doubt, be the chief one to be worked with, bringing in, as it does, a colour hitherto unknown among Croci in autumn. The next to follow is C. vallicola, a pale cream-coloured sort, lightly veined in the inside with purple, and furnished with two small orange spots near the throat. The great peculiarity of this Crocus is that the segments become fine threads at their extremities, giving the blooms a curious Crinum-like appearance. C. Suwarowi, a variety of the above with a beautiful orange stigma, we have not seen, although we believe in cultivation. The next is C. zonatus, from the Cicilian Mountains, the flowers of which are prettily veined lilac, and orange or golden at the base. It is perhaps the freest flowerer of the three, and requires no special treatment.

Begonia Ameliæ.—This is one of the hybrid Begonias recently distributed by M. Bruant, of Poitiers, who devotes himself to the less popular species of this very diversified genus, and has already obtained some very pretty new forms. That here named is the result of crossing B. Lynchiana (Roezli) with B. semperflorens, and the offspring combines the characters of the two parents most markedly. The habit is that of B. Lynchiana, as also is the size of the foliage and the flowers, whilst the other parent is represented in the herbaceous texture and colour of the foliage and the comparative paucity of the flowers in each raceme. The hybrid is also like semperflorens in its habit of flowering all summer from the young stage onwards. We believe B. semperflorens rosea to be a most useful Begonia, also originated with M. Bruant. When treated liberally, B. Ameliæ develops into a bold-leaved ornamental stove plant, and it is deserving of cultivation for the sake of its handsome rose-coloured flowers. We saw it in flower in the Begonia house at Kew a few days ago.

Chirita Mooni.—This is a pretty and very distinct flowering plant from Ceylon, which has not become known as a garden plant, although it is now many years since it was introduced and flowered at Kew, where it may be seen now in healthy condition and flowering freely. It is widely different from the old Gloxinia-like C. sinensis, which used to be a common stove plant, but is rarely seen now-a-days, the Ceylon plant having a shrubby habit, growing to a height of about 2 feet, branching freely, and being covered with lance-shaped foliage, which has a silvery sheen produced by the copious white silky hairs which cover the whole plant. The flowers are large, not unlike those of Thunbergia grandiflora, their colour being pale violet with a broad streak of yellow in the throat. We have seen this Chirita every summer at Kew for the last half-dozen years, but have never met with it elsewhere, notwithstanding its beauty and accommodating nature. It belongs to the same category among stove plants as Meyenia erecta, Pleromas, Exacums, and such like soft-wooded bluish-flowered plants.

Fuchsias at Hackness Hall, Scarborough.—I have been so charmed with the great variety of Fuchsias to be found in this old and interesting garden that I send you a few for inspection, feeling sure that if more generally known we should see more hardy Fuchsias than we now do in every garden where autumn flowers are desired. Fuchsia gracilis is, of course, the common and somewhat weedy looking bush that is too much grown. F. virgata is of more upright and floriferous habit, with leaves much smaller and flowers much more abundant, and slightly smaller than those of F. gracilis. This is a most beautiful and distinct bush Fuchsia. F. globosa var. is also a very fine and distinct Fuchsia, midway in habit and size of flower between F. globosa, with its low growth and globular buds, and F. Riccartoni, with its sturdy, shrubby habit and smaller flowers; here it is more beautiful and effective than either of those well-known kinds. The fourth one I send is an old garden variety that makes an excellent contrast to the blush-pink Venus de Medici, another old and well-known kind which needs no remark from me. As these Fuchsias have all been planted here for very many years, there is no doubt of their perfect hardiness in every way, and if amateurs will search old gardens in various parts of the country I am sure other good species and varieties might be found.—E. H. W.

Crinum flaccidum and giganteum.—C. flaccidum is a dwarf species in comparison with that noted last week, but it has charms of its own in the delicious odour of its flowers and their elegance. A plant of it may be seen in flower at Kew in the T range. It bears an erect scape 18 inches long and an umbel of slender-tubed narrow-petalled flowers, the petals being 3 inches long, spreading, and pure white, whilst the slightly curved filaments are purple and bear yellow anthers. This plant is interesting a

coming from Queensland, where it is said to be plentiful, although it is only recently that living plants of it have been secured for English collections. C. giganteum is not well named, as it is not, by a long way, so large as many other species either in leaf or flower. But this matters little to us, if the plant is in itself beautiful, and such it is, and, besides beauty, it has also to recommend it a vigorous constitution, which makes its cultivation as easy as that of the easiest-managed of Crinums. It does not exceed 1 foot in height, its leaves being numerous and clustered, whilst its flowers, which are borne on scapes 1 foot high, are bell-shaped, about 3 inches across, and pure white. It is now flowering in the Palm house at Kew.

Tecoma radicans.—This has flowered exceptionally well out of doors in the south of England this year, the long spell of bright, hot weather in August having been favourable to the healthy, vigorous growth of this year's shoots, upon the ends of which the clusters of large funnel-shaped, dull crimson flowers are developed. Mr. W. Paul exhibited at South Kensington last week a basketful of flowers cut from a plant in his nursery, and we have seen several copiously-flowered specimens of it on the south side of cottages in the London suburbs. If we could rely on this plant to flower annually, it would be one of the most desirable of climbers for covering buildings; but we cannot make our own sunshine, and this alone is the element wanting in ordinary English summers to the success of the North American Cross Vine. T. grandiflora, the Japanese species, is also flowering out of doors. This has a shorter flower, a more irregular limb, and brighter colour than the American kind; it also differs in the raceme being much longer, that of T. radicans being so short as to appear corymbose. Both these plants may be grown in pots, so as to make them flower almost every year; but they are only seen at their best when draping the front of a house outside with their long leafy branches and brilliant trumpet flowers.

Mucuna maerobotrys.—We learn that plants of this new Chinese climber have been secured for the Kew collection, and that there are some good reasons for believing that it will prove hardy in England. Should this prove to be the case, then we have in this plant a rival to the princely Wistaria itself. Here is a short description of this Mucuna which we received from a friend who has seen it growing wild: "I found a very old plant of the Mucuna on the Tai-mo-shan Mountain, and you can imagine to what a size the plant will grow from the size of the stem of this specimen, which I measured and found to be 7 inches in diameter. The leaves are trifoliate and Bean-like, whilst the flowers are in immense pendent clusters, as in the Wistaria, one cluster which I measured being 17 inches long and 10 inches across the shoulder, the individual flowers being large and cream-coloured. Here is a magnificent plant for some of your gardeners to look after." Those who have seen the large clusters of black-purple flowers produced by M. imbricata in the Palm house at Kew will be able to form some idea of the magnificence of this new kind, the racemes of which are apparently twice as large as those of M. imbricata.

The Torch Lilies (Tritomas).—I send you a photographic illustration of my five-year-old Torch Lily (Tritoma Uvaria), now truly a grand sight, furnished as it is with its ninety odd flower-spikes, making a blaze of colour in the warm autumn sunshine, and a charming contrast to the less brilliant, but graceful, Michaelmas Daisies that are its companions in that particular corner of my garden. I read with great interest and pleasure "Veronica's" note on the Tritomas in THE GARDEN (p. 240), and as an admirer of the family and a cultivator in a small way, I, too, hope that soon the long-promised monograph may make its appearance. T. Saundersoni is truly a grand and stately plant, and T. Macowani makes a most charming specimen either on the rockery associated with plants of a similar character, or on a dry warm border. I grow it in the latter way, and find that it just exceeds 3 feet in height, and is altogether a larger plant than T. corallina. T. Uvaria nobilis is the earliest to bloom with me in Hereford-hire, and is a distinct and handsome kind. T. Hooperi is quite distinct from all the larger kinds that I am acquainted with, and deserves a place in every good collection; while T. Uvaria maxima globosa is the latest flowering kind I have of the Uvaria section; it does not usually bloom here till the end of October. At some future time I hope to send notes of many other kinds I possess, but have not yet succeeded in flowering, and I hope to have an even greater pleasure in sending "Veronica" a spike, if not a plant, of T. pumila as a souvenir of my pleasant visit to his charming garden.—W. J. G.

*** The photograph in question shows a grand plant of T. Uvaria—such a plant as one rarely sees. "W. J. G.'s" notes promised at some future time will be welcome.—ED.

Bertolonias and Sonerilas.—A group of the most distinct of the many varieties of these two genera may now be seen in the T range at Kew, and the beautiful markings of the foliage on the kinds here shown are almost equal to what we find amongst Anæctochili, which, by the way, were once a feature at Kew in the same position as that occupied by the plants here referred to, but which apparently have disappeared, as, unfortunately, these delicate little beauties are wont to do. But Bertolonias and Sonerilas have not this fugitive character; on the contrary, they are very easily grown and kept from year to year. For the Bertolonias, leaf-cuttings may be made to yield a stock of young plants as freely as Gloxinias or Begonias, and these young plants are always preferable to the old ones kept through the winter. Sonerilas may be propagated in spring or autumn from cuttings, and they are not difficult to keep through the winter if prevented from flowering by pinching off the buds as they appear. The soil which these plants prefer is peat and leaf-mould, two parts of the latter to one of the former, with plenty of silver sand. Water may be given freely always, and a position close to the glass in a slightly shaded stove suits them admirably.

Amasonia punicea.—This does not appear to have become as great a favourite among growers of stove plants as we anticipated from the exquisite beauty and singularity of its inflorescence. Several plants of it may now be seen in one of the stoves at Kew; they are 18 inches high, and have dark green leaves a foot long, the upper part of the branches being clothed with numerous brilliant red, leaf-like bracts, which come several weeks before the flowers and remain long after these have faded. From the axil of each bract a flower is developed, this being 1½ inches long, tubular, creamy white, and nodding, the colour of the rather large calyx being similar to that of the bracts. The plant grows freely, always looks healthy if kept in a moist stove, and seems never to fail in developing its flowers; a coloured plate of it will be found in THE GARDEN for last February. We grow a considerable number of plants which owe their attractiveness to flower appendages rather than to flowers; such are Poinsettias and Euphorbia jacquiniæflora, Mussændas and Howardia, the large white leaf-like appendage being an enlarged calyx-lobe; Castilleja indivisa, a very pretty hardy annual; and the Anthuriums, Arisæmas, and other Aroids. We call them all flowers, though they have nothing whatever to do with the true flowers, unless, perhaps, as wrappers or to serve as an attraction for insects.

Weeds.—Some industrious observer has been to the trouble of noting for himself the productiveness of some of the commonest weeds. He says that, upon one plant of Shepherd's Purse (Capsella Bursa-pastoris) he has found 3100 pods, containing an average of twenty-five seeds each—ascertained by taking twenty pods from the plant at random, and counting the seeds in each—making 77,500 the total number of seeds produced. Another plant bore 2500 pods, or 62,500 seeds, the average number of seeds per pod being the same in both plants. A large common Plantain (Plantago major) bore thirty-three spikes, each having from 139 to 448 fruits, each containing from two to six seeds. The average number of seeds per fruit was 4·5 and the average number of fruits per spike 293·4, the total number of seeds per plant being 43,569! This reckoning gives one an idea of the wonderful fecundity of weeds, and from it we can more fully comprehend the significance of the adage, "One year's seeding makes seven years' weeding."

MARKET GARDEN NOTES.

GROWERS have of late been suffering from overstocked markets, consequent on a moist, dripping season having maintained uninterrupted growth in the case of all kinds of green crops, and prices have been very low; in fact, some kinds have been fed off with sheep or given to pigs in preference to sending them to market. This, of course, only applies to crops that are of a perishable kind, or that must be cleared from the ground to make room for successional ones. The prices of Potatoes vary from 2s. to 2s. 6d. per cwt. for really fine samples. The disease has spread of late considerably, and those that have good sound crops will keep them back until prices are higher; but Potatoes will probably be both plentiful and cheap this year, provided crops in the north are good. Cauliflowers (Autumn Giant) are now coming in by wagon-loads—magnificent heads, each large enough to dine a family. Runner Beans have been more plentiful this season than usual, and as they realise only about 6d. a bushel, some have left their crops for seed; others have kept on picking for the sake of getting a late crop, for even a few left for seed stops at once the bearing property of the plant. Cabbages for early spring crops are being put out in quantity, as they nearly always sell well. The supply of plants this year is abundant, and the land being in moist condition they soon recover from the check sustained by removal, and if mild weather prevails will be large enough for pulling up and bunching by Christmas should a demand for them arise. Late crops of Turnips are now being thinned. A good deal of land has been sown lately with them, for if not large enough for market their tops are appreciated in spring, and last spring they were a very remunerative crop.

Plums have been very plentiful and common sorts very cheap, but good ones fit for dessert have sold fairly well. Many of the old orchards want grubbing up and new sorts planted, good fruit being the only thing that will keep the English growers at the head of the market. Apples are scarce, and good sorts fetch high prices; coloured varieties, like the old Red Quarrenden and the new Worcester Pearmain, have been realising 8s. per bushel. Pears are plentiful and common sorts cheap, but good Pears are always saleable. The best on bushes and pyramids are Pitmaston Duchess, Marie Louise, Beurré Bosc, Beurré d'Amanlis, and Williams' Bon Chrétien.

Tomatoes have been the best crop of the season as regards meeting with a ready sale; no matter how many boxes or baskets happen to be landed from abroad, our home-grown ones fetch double their price, and the more there are grown the more demand there appears to be for them. J. GROOM.

Gosport.

Epacrises.—These most useful greenhouse plants endure hardships better than Heaths. If they happen to lose their foliage and appear almost dead, from being left too long in warm dry rooms in winter, they seldom fail to push forth as freely as ever again in spring if kept a little warm till they start, and occasionally dewed overhead. They must be badly used indeed if they fail to revive under such treatment. From among the many varieties of these now in cultivation the following is a good selection: Alba odoratissima, carminata, Alberta delicata, densiflora, elegans, grandiflora, Kinghorni, multiflora, Mont Blanc, splendida, and Queen Victoria. They require a compost of peat and silver sand, firm potting like the Heath, and efficient drainage. Unless large specimens are desired, the plants will do well enough if potted once in two or three years. They should be cut down after flowering, and I have always noticed that, unlike soft-wooded Heaths, which prefer the open air in summer, they do best in a cool greenhouse or pit during the season. Some of the varieties make long straggling shoots, but these are not unsightly, and the longer they are the longer will the wreaths

of flowers on each shoot be, if the plants have been grown under a good light, with plenty of air, and are well ripened. It is best to use the Epacris for flowering in early winter or spring, which gives the plants time, after being cut down, to make a good growth the following summer; when cut down late the flowers are not so abundant nor so fine. Their roots will stand pruning when it is needful to keep them in small-sized pots.—S.

ORCHIDS.

Oncidium Kramerianum (Penfold's variety).—This is a remarkably large and richly coloured form of Kramer's Butterfly Orchid. It is now in bloom at Beddington House, Surrey, in which garden it was first flowered by Mr. Penfold.—W. H. G.

Oncidium Jonesianum.—This was shown at Bath by Mr. R. B. Cater, and though there were three forms of it in one pan, the specimen thus made up was worthy of notice, on account of its distinctive character and the beauty of its flowers. O. Jonesianum has curious, erect, thick, fleshy leaves and produces fairly strong spikes of bloom, some of Mr. Cater's carrying thirteen fully developed flowers. The sepals and petals are yellowish white, the lip nearly pure white; the whiter it is the more valuable is the plant.—W. I.

Orchids at Streatham.—We have received from Mr. Measures, of The Woodlands, Streatham, a very fine spike of Saccolabium Blumei, which appears to be the variety called Russellianum. The spike in question was cut from a plant bearing twelve similar spikes. It measures upwards of 2 feet in length and is very dense; the sepals and petals are prettily spotted, and the lip deep rich rosy purple. From the same establishment also came fine forms of Cypripedium œnanthum superbum and C. Schrœderi. This genus appears to succeed exceptionally well at The Woodlands.

Dendrobium bigibbum.—Mr. Cypher, of Cheltenham, possesses the finest pan I have yet seen of this lovely Dendrobe. It was recently exhibited at Bath, and was greatly admired, especially by those who are aware how seldom it is seen in perfection. I counted thirty racemes of bloom on this specimen, none of which is at all weak, while the strongest of them carried as many as seventeen blooms in different stages of development. This Dendrobe is of rather dwarf habit; the flowers are rich rosy purple, and altogether, though not easily cultivated, it is a most desirable species. Mr. Cypher treats it similarly to other Dendrobes, all of which are grown together.—W. I.

Saccolabium Hendersonianum.—This pretty miniatnre species from Borneo is a grand acquisition. It is never imported in large quantities or pieces; consequently it is by no means plentiful; but those who have once seen it in flower are generally ready to purchase a good plant of it when one is met with. It produces from the axils of the leaves upright flower-spikes from 5 inches to 6 inches in length. The flowers, which are compactly arranged on the spike, are of a rosy flesh colour, the labellum being pure white and peculiar in shape, not dividing or hanging loose, as in the case of most Saccolabiums. It is not one of the easiest to cultivate; the best plants of it we have met with are at The Woodlands, Streatham, where they are growing suspended in baskets near the roof in a warm moist house. Mr. Fraser's experience is, that to a small Teak rod fixed in the basket at the back of the plants is due his success, the plants having apparently left the Sphagnum and established themselves on the wood. Plants of this Saccolabium must not be without water winter or summer.—V.

Dendrobium formosum.—This plant does not usually continue in vigorous health after the first year of its cultivation in gardens, but it would appear that the failure of this fine Dendrobe is due to wrong treatment. We saw some healthy plants of it in a collection lately visited, and these had been cultivated over three years, yet they have just completed a growth of strong thick pseudo-bulbs and are now in bud. The treatment they have had was simply a long rest in a cool, dry, sunny house immediately after the flowers had faded, and, on the new growth making its appearance, the plants were removed to a hot steaming atmosphere where they had plenty of light. Here they grow vigorously, no doubt because they had had a long cool dry rest. We believe a good many of these upper Burmese Orchids are happiest when thus treated—Saccolabium guttatum, ampullaceum, Blumei, Aerides affine, odoratum, and even Vanda cærulea being equally healthy when treated as above. Many gardeners pay too little heed to the resting of plants, and the consequence of perpetual growth is precisely that which happens to most plants when forced, namely, weakness and disease.—B.

Moss litter for Orchids.—I shall be glad to know if any of your readers can give information as to the use of German Moss litter for Orchids. The great difficulty and expense connected with getting good peat for such a purpose make one desirous to obtain a substitute, provided it is equally good, but it will not do to be penny-wise-and-pound-foolish. I am therefore for myself, and for all lovers of Orchids, anxious to obtain what information can be given for our guidance. I had about five months since a Lælia attached to a block on which was what appeared to me to be some pressed material different from our English peat; finding the roots pushed through it, and were numerous, vigorous, and healthy, I examined it closely last week, and found on comparison that it was undoubtedly the German litter now in such general use in our stables. I am greatly induced, seeing how well this plant is doing, to try the same material by way of experiment, but should not like to risk much without, if possible, having the experience of others. I have heard that it has been tried, and after a time got slimy and was discontinued; whether it would be different in a pot from what mine is on a block remains to be proved.—H. J. Buchan, *Milton House, Southampton.*

Cattleya Dowiana.—If this plant could be grown into as large specimens as is possible with the commoner Cattleyas, such as C. Mossiæ and C. Trianæ, it would deserve to be placed first among Orchids, and, even as seen now, it has only very few equals. Its chief drawback is the difficulty usually experienced in keeping it in healthy growth and free from spot. Some growers recommend tropical treatment, others intermediate, and a few profess to grow it in a cool house. Probably the right treatment has not yet revealed itself. Meanwhile it may be worth while recording the result of intermediate treatment with plenty of water during summer, and only a little in winter—the plant under notice being established on an upright piece of Dicksonia stem, the lower end of which is secured in a pot. The roots of the Cattleya have spread very freely in the Fern stem and down into the pot, but the advantage of this plan is in the perfection of the drainage, so that copious waterings never result in stagnation. A plant of Adiantum cuneatum has established itself on the Fern stem, and this produces a very pretty effect when the flowers of the Cattleya are expanded. The plant thus treated produced two growths on the same rhizome, both of which flowered last year, and it is now again in flower, whilst the leaves are in perfect health.

Lissochilus Krebsi.—This is one of the few terrestrial Orchids of South Africa which are both handsome and easily managed in English gardens—African Orchids, like many bulbous plants from that country, being, as a rule, difficult to manage. Amongst the Orchids we have, however, the grand-flowered Disa, and perhaps D. megaceras (at least, Mr. Moore, of Glasnevin, has this), a Satyrium or two, and a few Eulophias and Lissochilus, L. Krebsi being as easily kept in health as any of them. It thrives in a warm greenhouse, preferring a dry rather than moist atmosphere, plenty of light, and liberal supplies of water at the root whilst growth is active; a stiff, loamy soil, such as is used for Calanthes suits it best. In habit, pseudo-bulbs, and leafage this plant may be likened to Phaius grandifolius, but it does not grow quite so large as that plant. The flowers are borne on stout, erect scapes 2 feet to 4 feet high; sepals 1 inch long, narrow, dark brown; petals broad, as long as the sepals, and standing erect somewhat like the wings of a butterfly, their colour being bright yellow; lip dark yellow, with a short spur and two side wings coloured brown. As many as fifty flowers are produced on one spike by healthy, strong plants. Several specimens of this Orchid are now in flower at Kew.

ALPINE PLANTS ON WALLS.

In "K.'s" list of plants for this purpose (p. 228) I find no notice of one of the most useful and showy of all wall plants, the Myosotis dissitiflora. Its power of living and thriving on stone walls has, like many other useful things, been discovered accidentally. In clearing off some old plants and throwing them over an outside boundary wall a few of them or some seeds lighted on its top and sides. Next year these came forth in plenty and flowered in great perfection, and since then this gem of all the Forget-me-nots has taken care of itself in its hard home, however severe the winter or dry the summer. Neither are these Forget-me-nots on walls hardly ever without flower, either in summer or winter. The severe frosts have often made sad havoc among our fatted thousands of earth-grown plants, but have seldom harmed any of the hardier waifs and strays on the wall. We naturally associate a damp site or water with Forget-me-nots. But this splendid species hies from a mountain home, I believe, and hence, perhaps, its thriving and holding its own on what it can find on a dry stone wall, built chiefly of flints and without any addition of earth or other root-hold. Arabises and Aubrietias also often thrive well in such positions; and I can bear personal testimony to the suitability of nearly all the other plants mentioned by "K." The idea of clothing old walls thus is admirable, or even building rough walls for this purpose. As to sunk fences, there is this objection: There is seldom much height of wall on the garden side, and the stock would make short work of the plants that might spray with beauty the bald surface of the wall on the pasture side. All the members of the cow tribe are most curious about boundary lines and fences. Let the latter be straight and bare, and continue the same day after day and year by year, and the stock are satisfied and take no note of it. But alter the line, plant anything on its top or even on the garden side within view of such stock, and every cow, calf, or bullock must needs come on a tour of keen scrutiny, and ten to one but any plant within reach and the wall itself may disappear under their strict and severe surveillance. But there are many places in most gardens for wall gardening besides dividing fences within reach of stock, and few things afford a wider scope for the display of taste and the development of genius than the skilful manufacture of make-believe old walls and ruins where none exist. This, if carried out with the least amount of skill, would far exceed in artistic beauty and cultural usefulness the majority of piles of stones, bricks, or other hard matters thrown into heaps and dubbed rockeries. Unfortunately, this name is a libel upon every honest bit of rock, while they are not seldom so misconstructed as to starve or kill rather than to foster and beautify the plants posted rather than planted on them. But rough walls composed of earth and stones or other hard matters might readily be moulded into picturesque objects of beauty in themselves, and would afford telling coigns of vantage for the effective display of such plants as "K." enumerates (p. 228) and many others. D. T. F.

QUESTIONS.

5517.—**Wasps.**—Although we had an unusually large number of queen wasps during the spring, I have not seen a wasp for some months; nor have I heard of a nest having been seen in this neighbourhood. Is this the case in other parts of the country?—D. Walker, *Bunordan, Tonbridge Wells.*

5518.—**Tree roots in flower borders.**—I am going to rearrange a long herbaceous border, about 8 feet wide, at the edge of a lawn and backed by a gravel path. I had intended to plant a Yew hedge at the gravel side as a back with plants 3 feet high. I have been told by several people that to do this would be a mistake, as the roots of the Yew would spoil the border, and that the hedge would also harbour snails, slugs, and all kinds of vermin. I should therefore, before proceeding with the work, be glad of a reliable opinion upon the matter.—H. R. C.

BOOKS RECEIVED.

"Through the Kalahari Desert." By G. A. Farini. Sampson Low & Co.

"Life Histories of Plants." By Prof. McAlpine. Swan Sonnenschein, Paternoster Square.

Flower Garden.

VANCOUVERIA HEXANDRA.

Some of the loveliest of hardy exotics introduced into our gardens of modern times have been the wood plants of North America. When we think of Cypripedium spectabile, Trilliums, Dodecatheons, various Columbines, and many fine Lilies, we see how largely we have been enriched by that continent within comparatively late years. A more modest plant, but one of exquisite beauty, is Vancouveria hexandra, a native of Oregon. The flowers, though not conspicuous, are beautiful in their delicate structure, and highly interesting on close examination. The foliage, like that of a dainty Epimedium, also reminds one of an Adiantum, and, like that Fern, has a thin, wiry stem, the whole aspect of the leafage being graceful and Fern-like. A plant in a suitable position soon spreads into a good tuft; it enjoys shelter and partial shade. It is a plant highly to be recommended to those who appreciate refined types of vegetation apart from merely showy qualities.

Flower-sprays of Vancouveria hexandra.

Chrysanthemum Madame Desgrange.—This variety is not only very good for supplying blooms from plants grown in the border; but I hold it to be of equal importance for pot culture. I find it, however, somewhat capricious as to the time of flowering. I put in some cuttings in September, 1885, and again early this spring; each batch was grown on and finally potted in 9-inch pots; the September plants were stopped twice, and the spring plants only once. With me the September-struck cuttings made grand plants, and were in full bloom by the middle and end of August, one dozen flowers being on each plant—about 6 in. in diameter. I may say that I disbudded to one bloom on each shoot. The spring-struck are only now showing bud, the same as ordinary early pot plants. I have now put in a batch of cuttings for next year's blooming plants, the white blooms of which are indispensable for wreath-making and general cut-flower arrangements in August and September.—J. R. Hall, *Fox Warren.*

Transplanting white Lilies.—In The Garden (p. 193) I observe "E. H." gives useful instructions for transplanting the common white Lily (L. candidum), but, unless for increase of stock, I would strongly advise all to let well alone in regard to this Lily. As a rule, it hates disturbance, and resents it by weakness of growth or flowerlessness for two or more years afterwards. We had here one of the finest rows in the kingdom as a back to a ribbon border, and I thought I would grub it up carefully and make many more fine patches in other borders. But from that day now (ten years since) to this we have never regained the grandeur and magnificence of the original row. So to anyone about to transplant this grand Lily I would say, "Don't."—D. T. F.

Veronica Andersoni.—I am glad to see "W." record the merits of this beautiful and almost hardy Speedwell. It is one of the most beautiful and useful plants in the garden, yet, nevertheless, belongs to a class that needs now and then to have its substantial merits recorded to prevent its falling out of cultivation. The variegated-leaved variety makes one of the most effective window plants alike out and in flower. On warm sites and light soil the plants are easily carried through the winter by such simple expedients as "W." points out, but in colder localities it deserves the extra care of lifting and storing under glass throughout the winter in a similar way as the fine Fuchsia fulgens and corymbiflora used to be treated. These two last seem now almost lost to our outdoor gardens, yet I have seen avenues and beds of Fuchsia corymbiflora that nothing more modern can match in drooping grandeur and beauty either in the garden or for furnishing tall vases and stately epergnes, while Fuchsia fulgens formed a splendid edging to its taller relative or such plants as Veronica Andersoni.—F.

Self-sown Asters.—I was surprised this year to observe how well some Asters bloomed that came up from self-sown seed. What surprised me most was their time of blooming as compared with others raised and transplanted in the ordinary way. I should have thought that they would have been quite a month behind; whereas they flowered almost or quite as soon as some sown under handlights. Our soil is a sandy loam, which is, of course, favourable. In the northern counties this way of growing Asters might not be successful, but in the warmer districts the culture of this flower should be a more simple matter than is generally the case.—J. C., *Surrey.*

BLUE PENTSTEMONS.

Why is it that these fine flowers are seldom seen in gardens? Were I asked to select twelve of the finest herbaceous plants, one at least of the species of Pentstemon would be among them. I say "species" because these blue Pentstemons are distinct from the florists' varieties, which are, I believe, the offspring of P. Hartwegi or gentianoides. Among the latter no true blue is found. This distinction is, in one respect, to be regretted, for the two classes cannot, so far as I am aware, be bloomed together. We are unable, therefore, to grow together for contrast the fine scarlet of the florists' varieties and the fine blues of the species. We shall be debtors to anyone who can show us how to achieve this without the laborious and expensive forcing under glass of the former. Thus, I suppose, the result might be reached. These blue species bloom in June and July. P. heterophyllus succumbed to the severity of last winter here, but the others which I am about to name are all hardy with me. I should premise that the natural soil here is chalk, and probably the dry bottom thus secured may help the plants through the winter. Probably, too, it may help to intensify the colouring. I need only add, before tabulating the six or seven species I have bloomed here, that the whole apparently prefer a rich, rather moist, soil, albeit they have seemingly appreciated a dry bottom in winter.

P. speciosus has with me flowers of a fine brilliant blue. It remains a month in bloom, and is excellent for a rockery or select border. It has a neat habit at all seasons. It was cut down to the ground last winter, but came up in spring none the worse. As regards size, the flowers of all these species are much smaller than those of the florists' varieties. P. heterophyllus is similar to the preceding, but the flowers are of a somewhat lighter blue and rose-tinted in the throat. It is a lovely plant, but seemingly more delicate in constitution than the others. The flower answers the description of P. Jefferyanus, which I have not bloomed nor seen. I believe it is to Mr. Thompson, of Ipswich, we are indebted for the introduction of most of the fine species in question. P. glaber, better known than the preceding, is dwarf, generally prostrate in habit, a fine blue, but at times the colour is marred by a purple tint.

The three foregoing much resemble each other in general character. Indeed, I believe that P. speciosus has been classed as only a fine and upright variety of glaber. It is, however, very distinct. P. ovatus is altogether different in character both from those above and those hereafter named. It is very hardy; the flowers are loosely

arranged on the spike, which is from 2 feet to 3 feet high. In the early stages of development the flower is a very poor tone of blue, but, as a rule, it increases in intensity with age. The plant is altogether grosser in character than any of the others, and must, perhaps, be put last in order of merit. I have, however, found it to be very valuable for associating with a large plantation of Poppies, and for supplying the blue tone which that family does not yield. P. nitidus (P. procerus), a brilliant and useful hardy plant, is inferior to the three first named, the individual flowers being much smaller. P. confertus is similar to the last, but neater. Indeed, it makes an excellent "carpeting" plant while its bloom lasts. P. pubescens is the last which I have bloomed. It is a delicate, chaste, and distinct species, but not very effective. It is best, I think, treated as a pot and frame plant. It cannot properly be called blue; it is too purple, and there is a white admixture.

I have unbloomed seedlings of P. Palmeri, and Mr. Thompson's catalogue contains the names of some other fine species which are at present unknown to me. Possibly some one who has wider acquaintance with the subject will supplement what I have thought it worth while thus to communicate. The plants of, I think, all the species enumerated cannot, if raised from seed, be relied upon to bloom until the second year after sowing. —H. S. Leonard, *Guildford*, in *Garden Work*.

PHLOX DRUMMONDI.

This is one of the very best and most durable of all annuals for bedding purposes. It may also be successfully treated as a biennial, that is, cuttings of the finer strains may be rooted in the summer or autumn, preserved throughout the winter under glass, and planted out next season in the same way as Verbenas, Pelargoniums, and other bedding plants. It also seeds freely, and the different strains come pretty true from seeds if grown widely apart. These strains, too, are marvellous in their brilliancy of tint and delicacy of colouring, covering the entire range from fiery crimson and the most brilliant scarlet to the purest whites. The size, form, and substance of the flowers have also been marvellously improved. The habit of this lovely Phlox also favours its continuous blooming. Unlike a Candytuft and so many other showy annuals, it does not expend its strength in developing one great head of bloom and then perishing, but while expanding one shoot of bloom its branching habit is busily preparing successional displays; thus, under fair treatment and in good soil, the Phlox Drummondi goes on growing and blooming from June to November. It will do this all the better if the seeds are picked off as they ripen; or, better still, if the bunches of withered flowers are picked off before allowing them to ripen seeds. It is impossible to exaggerate the beauty of a bed of some of the finer modern strains of Phlox Drummondi, whether the beds are filled with one strain of colour or with a mixture of many hues. Sheets of bloom are no exaggerated description, and the form of the flowers, the bunches in which they are arranged, the habit of the plant, the form and size of the leaves, all contribute to heighten the general rich and satisfying effects of this fine old annual in masses. Perhaps no annual, not even excepting the Aster and the Zinnia, owes more to the painstaking care of our modern florists than the Phlox Drummondi. Amateurs intending to go into its cultivation must see to it that they obtain their supply of seeds from those who have made its cultivation and improvement a speciality.

D. T. F.

Achillea umbellata.—This little silvery-leaved plant is perfectly hardy, and certainly requires less manipulation than the dwarf Cerastium tomentosum when grown as an edging. The latter requires renewing every year; whereas the former will be as effective the second and third years as the first. For carpet bedding it is a gem in every way, and only requires to be known to be appreciated. It is easily increased by cuttings taken off in September or October and dibbled in very thickly under a wall. They give no more trouble than this—after a severe frost in spring, to sprinkle a little sifted leaf-mould over them, and with the hand to press into the soil those that have been forced out by the frost. The few leaves falling from the fruit trees give sufficient covering now until rooted, after which they will take care of themselves.—C.

TUBEROUS-ROOTED BEGONIAS.

It is best to speak of the merits of plants during the season when they can be seen in a condition to show that they are deserving of what is said in their favour, and it is through the latter end of summer, and so far in autumn as the frosts happen to keep off, that one of the chief merits which these Begonias possess—that is, their endurance—can be fully realised. In the flower garden, when Pelargoniums and other free and continuous-blooming plants begin to look unhappy and produce few flowers, the Begonias keep on blooming profusely, and so long as there is an absence of actual frost they show little signs of the waning summer, keeping up their bright cheerful appearance when comparatively few flowers remain. When the suitability of a plant for any particular purpose is proved by those who happen to be first in the field in trying it, it takes much longer than might be supposed before its merits become generally known; and so it is with the plants in question, for though it is now several years since their ability to thrive and bloom freely out of doors was proved, they have yet been slow in making their way.

One of the advantages attending the use of these Begonias in modern flower gardens is that either alone or associated with other plants, flowering or fine-leaved, their appearance is such as to take off much of the formality, which is one of the chief objections belonging to most of the plants that are usually employed in this style of gardening. Those who require beds all of one colour and even in growth, with or without an edging of something else, can have what they want by using one variety; whilst where beds of mixed colours are preferred, tuberous Begonias afford more variety through all the shades of pink, scarlet, and red to the deepest crimson, and from white to straw, sulphur and the various shades of yellow than any kind of bedding plant that I can call to mind. And it is in combinations of colour that these Begonias are seen to advantage, either in beds confined to them alone, or where associated with other plants. Arranged in the last-named way, where suitable things are selected to go with them, either flowering or fine-leaved, or both combined, the Begonias stand unequalled. One of the best combinations is a mixture of pink and red Begonias with white Fuchsias, such as Rose of Castile, or any free-blooming variety, standing at distances of about 2½ feet apart. In the early part of the season the points of the lower shoots of the Fuchsias should be pinched out once or twice to induce spiral growth, so that they may stand well up above the Begonias, and in this way avoid the formal even surface. A few plants of Grevillea robusta or Acacia lophantha—the former looks best—are an improvement.

One of the most telling beds I have met with consisted of red, white, and yellow Begonias interspersed with Amarantus salicifolius and Grevilleas. In another, blue Violas were used as a setting for the Begonias, which were put in at about 2 feet apart. Red and white Begonias with single-stemmed plants of the variegated Abutilon Thompsoni and Panicum variegatum look well.

If, in place of the formal even surface of a single colour and the straight ribbon-like lines that have been so generally adopted in flower gardens, mixtures of plants possessing various colours and shades had been used, intermixed with others differing in their habit of growth, modern flower gardening would not have been open to the objections that have done so much to bring it into disfavour. It is not the kinds of plants used that are condemned by those who object to summer bedding as it is often yet carried out; it is the objectionable way in which they are employed, further aggravated by the studied exclusion of every plant that could soften the masses of glaring colours and the stiff formality of growth.

Apart from their use in combination with the ordinary summer bedders, tuberous Begonias are equally adapted for introducing amongst herbaceous plants in beds or borders, especially with the early-flowering kinds, bulbs in particular, which, when they are over, leave flowerless blanks for the rest of the season. So employed, with forethought and judgment there need be no unsightly bare places; all that is needed is to plant the Begonias, as soon as it is safe to trust them out of doors, in the positions where something will be required to take the place of the plants that either die down altogether, or are flowerless after spring or early summer. For beds where summer-blooming bulbs, such as Lilium candidum and L. auratum, or Gladioli are grown, Begonias are unequalled; when put out as early as the weather will permit, the Begonias at once commence flowering. When the Lilies are in bloom, their appearance is much improved by the presence of the Begonias, which keep on blooming after the Lilies have died down. Not the least of the advantages attending the use of these plants for growing out of doors in the place of ordinary summer bedders that require propagating annually, and take a good deal of attention and room in the winter when there is often little of the latter available either in large or small gardens, is that with ordinary care the bulbs will last for years, and they can be stored anywhere out of the reach of frost, where they can be kept dry from the time the tops have died down until they begin to move in spring; then all they require is putting in pots big enough to hold them and the soil for the necessary support to the growth till the time comes for turning them out. When to be planted out in this way, the pots only need to be a little larger than will admit the bulbs after they have attained a considerable size, as no great amount of growth will be made before the time for planting out has arrived, provided they are kept quite cool. No more heat should be given after the first spring when the plants are raised from seed than is requisite to keep out frost, as the cooler they are the more close and compact the growth will be, a condition which is essential to their subsequent appearance during the season, for if the shoots are at all drawn the plants are half spoilt, as nothing that can be done for them afterwards will remedy the defect.

There are two ways of proceeding for those who intend beginning the cultivation of these Begonias, either to procure plants, or to raise them from seed. The latter will be the course which those who require them for growing out of doors will most likely adopt, especially as the largest flowered varieties are by no means the best for growing in this way (or, for the matter of that, for pot culture), and the general run of seedlings is usually much smaller flowered than the largest of the named varieties raised by the leading trade growers, and which are selected from thousands of seedlings annually grown. Tuberous Begonias will flower well the same season in which they are raised from seed, that is, if treated aright. To get the seedlings on without check or delay they require to be somewhat differently treated from the generality of other plants; consequently a few details respecting their management may be of use to those who have not had to deal with them.

With these Begonias, as with most things raised from seed, there is a marked superiority in the character of the flowers, and in the habit of growth of plants that are raised from a good strain, as compared with those that result from an inferior one. It is, therefore, important that none but the best seed be procured. It should be sown soon after the year comes in; a mixture of sifted peat, leaf-mould and sand is the best material to use. Drain some ordinary seed-pans and fill with the material, press it down and make the surface

smooth ; on this scatter the seeds evenly, but not too thickly, cover very slightly and press the surface a little, stand in a temperature of 55° or 60°, keeping the soil damp, but not over-wet ; when the seedlings appear the pans must be stood in a light position near the glass. There is one peculiarity in the treatment of seedlings of these Begonias necessary to bear in mind to prevent their receiving a check when moved—that is the little plants must be pricked off while they are yet much younger than is necessary with most things; this should be done before the radicle, the first root produced by the seed, has emitted any lateral rootlets, for if the plants stand in the seed-pans until these are produced, they are almost certain to get injured in pricking off, the effect of which would be that they would take some time to recover. The little plants should be put 2 inches apart in pans or shallow boxes, giving them soil similar to that in which the seed was sown; after this keep them in a temperature like that already advised, standing them where they will get plenty of light, and applying as much water as is necessary to keep them moving freely. Seedlings of tuberous Begonias, when well managed, grow faster than many other things, and care must be taken that they are not allowed to stand so long after pricking off as to admit of their roots getting so numerous that the plants cannot be separated without these being broken ; before there is danger of this occurring they must either be moved separately into little pots, or if there is a large number to be dealt with, they may again be moved into boxes, giving them more room. Whichever course is adopted they should finally be moved into pots from 4 inches to 6 inches in diameter, still encouraging them to keep on growing freely with plenty of light and a moderate amount of moisture, admitting more air and giving a little shade as the sun gets more powerful. By the end of May or beginning of June they should be planted out where they are intended to flower, previous to which they ought to be hardened off in a greenhouse or cold frame. They like soil fairly enriched with manure and of a moderately free nature. In autumn, when the tops are cut down by frost, the tubers should be taken up and allowed to become quite dry before being put away ; a greenhouse shelf, or anywhere where they will get enough air to effect the drying process, will answer. Afterwards they must be kept cool, but, as already said, out of the way of frost. So treated the tubers will last for years, increasing in size and in the number of shoots and flowers which they will produce. In ordinary winters the roots will live out of doors with some protection, but I prefer taking them up, especially as this, with the wintering and potting in spring, entails little labour.

Those who wish to grow these Begonias in pots can do so even if they have no accommodation under glass more than ordinary garden frames, or even without the aid of these if the tubers, after they have begun to grow and potted in spring, are stood in the window of a room where they will get light and air until there is no danger from frost, after which they will be better out of doors. When in bloom they make effective window plants, so long as they are not too large to be used in that way. But to have them compact and bushy so that the stems require no support, a condition in which they look much the best and produce the most flowers, they do better out of doors, for, except in the lightest and most airy greenhouses, their stems are liable to get drawn before the end of the summer has arrived.

T. B.

Ferula tingitana. — Among the handsome-leaved Ferulas, this species is one of the most elegant in habit, and as vigorous as it is graceful. It takes several years to form the strong tufts, which all who have seen them so much admire when bursting into their stately verdure in spring. The best way is to plant the young Ferulas where they are to remain at first. The position should be most carefully chosen. The mixed border is not suitable, as the plants die down in early summer, and would leave blanks that could not easily be filled. The best way is to place them singly, or in small groups, a little beyond the margin of a shrubbery, or isolated on the Grass, and so placed that their verdure might be easily visible in the garden landscape in early spring. Deep free soil should be supplied before planting, if the soil be not naturally both good and deep. It would be a good plant to associate with Daffodils and other early-flowering bulbs, which also die down in early summer. The Ferulas are most readily raised from seed, which should be sown as soon as gathered in a nursery bed in the open air.

HARDY FLOWERS AT SANDHURST.

At an exhibition held recently at Sandhurst hardy flowers furnished by Messrs. Sutton formed an interesting feature, and showed how many really valuable things can be grown in the open ground at this season of the year. There was, first of all, the pretty blue Cornbottle (Centaurea Cyanus), now so much employed in a cut state, an easily grown hardy annual of the most valuable character. Then came the following annual Chrysanthemums: C. tricolor Burridgeanum, with its rich dark zones of colour; tricolor Dunnetti, double, white and yellow; coronarium aureum and inodorum plenissimum, an excellent group, showy and gay. Next came the dark Coreopsis tinctoria, and with it an annual not so much grown as it deserves to be, namely, Cosmidium Burridgeanum, with yellow Coreopsis-like blossoms. Then there were single Dahlias in variety, and some fine seedling forms of Delphinium hybridum, Dianthus Heddewigi, and Indian Pink, in its varied double and single forms—all charming in a cut state. Gaillardias were shown in bold and striking bunches, and consisted of such varieties as picta grandiflora, marginata, fistulosa, Lorenziana, and amblyodon. Helichrysum monstrosum was also there in fine variety. Then there were Hollyhocks of excellent quality, concerning which it is worthy of remark that they were raised from seeds sown this year, and that they had reached a height of from 8 feet to 10 feet. Next came the double crimson form of Senecio elegans, the double Jacobæa of the seed catalogues, a subject that well deserves to be grown as a summer bedding plant. Some pretty Rocket Larkspurs were also shown; by some they are regarded as formal-looking, but they supply very pleasing tints of colour. The annual Marigolds were well represented by the orange and lemon African types and by the dwarf, tall, striped, and miniature forms of the French types. Of Sweet Peas there was a capital lot shown in bunches of distinct varieties, so that visitors could clearly distinguish as to their differences in making a selection. Then there were Salpiglossis, bold and extremely showy subjects, that give colours rarely found among other hardy annuals. The strain shown at Sandhurst is best known under the name of Salpiglossis grandiflora. Such wonderful sweet Scabious I think I never before saw; they had huge double Hollyhock-like blossoms, and must have been grown on good soil; they were one of the floral surprises of the show. Then there were giant Sunflowers, and what is known as the New Sulphur, a very showy form indeed, well worthy a place in the garden. The white, yellow, and purple Sweet Sultans (Centaurea moschata) were represented by very showy bunches; the first is much grown now-a-days for cutting. Dotted about were also handsome plants of the striped Japanese Maize. All the foregoing subjects were raised from seeds sown in the open ground this year.

Asters, including such fine types as the giant Pæony-flowered, Victoria, Chrysanthemum-flowered, Crown or Cockade, Fire King, a brilliant red or scarlet Aster, which must be showy in a mass, and several pretty dwarf-growing varieties, were all shown in good condition. Phlox Drummondi, of the grandiflora type, was also contributed in great variety, but in separate bunches; the flowers were very fine and showy. How is it that beds of mixed Phlox Drummondi are not more grown in the flower garden than they appear to be? They are very showy and continuous in bloom, but in order that the beds should be thoroughly effective, the decaying flowers should be picked off to prevent the formation of seed-pods. I also noticed bunches of very fine Ten-week Stocks, all emitting a delightful fragrance. Lastly, there were fine spikes of Gladioli interspersed among the subjects just named.

If promoters of flower shows were to encourage the growth of hardy flowers by the bestowal of prizes on large and small collections, so as to suit the resources of all, instead of for Pelargoniums, Fuchsias, Balsams, Verbenas, &c., that are too frequently produced in very shabby form, and quite unworthy of the many prizes offered for them, a distinct gain would be the result. Especially should this feature be introduced into flower shows held during the two last weeks in July and on to the middle of September. It is done to a small extent, but it is a feature requiring larger development. During the eight or nine weeks just named many country shows are held, and there is also then an abundance of hardy flowers—annuals, biennials, and perennials.

R. D.

NOTES ON HARDY PLANTS.

Helianthemum Tuberaria.—This is so beautiful on rockwork, that we do not begrudge it the extra trouble which it costs to carry it safely through our winters. It cannot be considered to be quite hardy, but it will withstand a good deal of frost. Fogs and wet are its greatest enemies. In a cold frame plants of it in pots are safe enough, and as it is a good plan to root cuttings, say three or four in a pot, in early summer for next year's use, there need not be any lifting and potting of old plants at the end of the season, which, moreover, is not such a pleasant occupation as preparing young stock, to say nothing of the uncertainty of old roots doing well when dug up late, for as the plant keeps on flowering until well into autumn, it is not advisable to take it up early. I am aware that in some parts it lives out all winter, but this is the exception rather than the rule.

Linaria anticaria.—This is an interesting plant, but not nearly so effective as the richly coloured and netted annual L. reticulata with its gold and purple flowers. As regards size, the flowers are larger than those of that kind, and very diverse in their hues and markings, but all the colours—mauve, yellow, brown, and pink—though prettily blended when closely examined, are so indistinct and wanting in effect, that this Linaria is not likely to be everybody's choice. Moreover, the plant is but a very indifferent perennial, at least with me; but most of the Linarias said to be perennial are faulty as regards duration in our climate.

Campanula nitida.—This is at once one of the most beautiful and effective, and perhaps the most shy bloomer of all the dwarf Bellflowers. May not the scarcity of its flowers account in some degree for the limited use made of the plant? Its flowers are large and striking, and there are both white and blue-flowered kinds, and double and single. The single flowers are especially handsome, being nearly 2 inches across, and hang sideways from the dumpy spikes of but a few inches in height. I grew this species for years and only got few and imperfect flowers from it. I could not tell what ailed my plants, for I had seen some in other gardens much happier. Latterly I have grown them in rich soil, nearly all thoroughly decayed leaf-mould, and now the flowers come out beautifully, so I suppose C. nitida likes rich food, and it certainly delights in full sunshine.

Wild Chicory.—It may amuse some to see this native herb recommended for pleasure garden decoration, but it has flowers of a most desirable shade of blue, and they are much liked in a cut state. One old plant has stood here for some years. It grows on a trellis along with sprays of the Virginian Creeper, and is now very pretty. The otherwise naked stems are almost 5 feet high, and are freely studded over nearly down to the ground

with bright azure-blue heads upwards of an inch across. The colour is rich and good, but I believe something is due to the fact that the plant is closely shaded on all sides, though clear overhead. The roots are practically in stones, sand, and manure, for a thick dressing of the latter is given annually owing to the poorness of the soil. Thus circumstanced the results are most satisfactory, though they were not so under other and, as I thought, more favourable conditions.

Gentiana brachyphylla.—This lovely variety of G. verna is now in flower. To say that the blossoms are equal in beauty to those of the type is no mean praise; they are, perhaps, even of a little lighter and brighter shade—a matter which one might expect, seeing that they are produced under a clearer sky than that under which those of verna are brought forth; they are also a little larger, too, and set close on dense tufts of foliage. The foliage is not a deep green, but somewhat glaucous. A good plant, some peat and turfy loam, a flat, moist position in full sunshine, are the conditions which have answered here, but all this dwarf section seem to be benefited by a summer top-dressing of leaf mould and sand.

G. alpina or excisa, as it is sometimes called, is also now in flower—perhaps later than usual, owing to being overshadowed by a tree. It is in all respects smaller than the typical G. acaulis; the palish blue tubes are charmingly spotted inside, and when well grown the plant is excellent in all points. It succeeds under similar conditions to those under which acaulis thrives. Flowers of these Gentians associate well with those of autumnal Colchicums, and there is no reason why the season of the Gentians should not be much more prolonged in our gardens than it now is.

Sedum Ewersi.—This late-flowering and high-coloured Stonecrop is neat and pretty in every way. Its round, thick glaucous leaves are set on such slender stems, that they rest on the ground, the rosy corymbs merely erecting themselves sufficiently to be seen like a setting in a blue-green carpet. If all the Stonecrops were better cultivated, they would be very different from what we nearly always see them. If set back in the ground every year or two years at furthest they would be less scraggy, more abundantly flowered, and better in colour. This kind especially is improved by such cultural care.

Delphinium velutinum.—If I have got this true from seed I must say that it is no beauty. It may interest people fond of the singular amongst plants, but for a garden where pretty forms and good floral effects are desired it is useless. It is all the more needful to state this precisely, because, as a rule, Larkspurs are showy plants. At this season the soft character of the whole plant gets changed into one of roughness, owing to the bristle-like quality of the hairs. The flowers are half closed, of a dull purple colour, with black centres in the form of a bee. The flower-colour is further detracted from by the hairy covering which renders it dingy. The spikes are but laxly furnished with flowers.

Stokesia cyanea.—The flowers of this are now fully expanded—a circumstance anything but usual in Yorkshire in the first week of September. The two drawbacks in connection with this fine Composite from the warm climate of Carolina are want of hardiness and a too tardy habit of flowering. If you set it in the ordinary way with other herbaceous perennials it either proves incapable of taking care of itself or grows so rampantly by means of underground stems, that a flower is rarely seen. Buds may be had in abundance, but they are so long in developing and so late that the heads seldom open. Old hands who have known Stokes' Aster for over twenty years say they have never yet seen it flower. There can be no question as to its beauty and worth, but all, of course, depends on whether it can be made to flower early in September. This may be done by setting strong plants with at least one bold and matured crown in light sandy soil in the full sunshine. It will probably make more progress under than above the surface, but if flowers are the object, all, except one or two, suckers should be removed. This treatment has been adopted here, and besides the big heads, nearly 4 inches across and of a light purple colour, resembling a magnified head of the double Catananche cærulea, the two barren crowns are extra strong for next year. In light soil and sun it is comparatively safe in winter, and quite so if a shovelful of coal ashes is heaped over it. In stiff cold soil it is sure to perish.

J. Wood.

Phytolacca decandra.—This ornamental plant is very suitable for the back of the herbaceous border, or for growing in spare open spaces amongst shrubs. The plant is herbaceous, and has huge fleshy roots that penetrate deeply into the earth in search of food, thus rendering it independent of the weather, as regards moisture, and of easy cultivation. Early in spring it sends up from its crown several stout shoots that soon run to the height of 4 feet or 5 feet, when they divide into numerous branches. These send forth numerous bunches of flowers, greatly resembling those of the Currant, and when these are ripe the plant has a very striking appearance, on account of their great profusion and rich colour. The berries, which are of a bluish black tint, are about the size of Peas, but are rugged and furrowed, and generally contain ten or twelve seeds. These should be sown early in spring, and when the seedlings are up and large enough to handle they may at once be transferred to the positions intended for them. Should the soil be at all rich, they must be allowed plenty of room, or they will soon overgrow anything that may be standing near. Although this plant will not attain a large size in poor soil, it will be found to fruit more freely. Grown as a pot plant, it is valuable for winter decoration in large conservatories.—J.

Yellow Paris Daisy.—Although I have always had a high opinion of this so-called Daisy for indoor culture, I never considered it effective in the open air until this year. Young plants, I have found, do not bloom quite freely enough; they are apt to run away into strong growths, especially in damp summers. The best plants for the open air are those which have become woody and somewhat stunted in their growth. Such plants put out in soil of not too rich a description become a mass of bloom by the end of July, and the flowers as they glow in the sunlight look very bright and cheerful. I advise any reader of The Garden who may have been disappointed with this Paris Daisy in the open to try older specimens. A good way is to put in some cuttings late in spring, and grow them on through the summer till they get well established in 4½-inch or 6-inch pots. If the buds are kept picked off, these will bloom well through the winter, and will then come in for the open air. A two-year-old specimen that had given hundreds of blooms in winter and spring was put into the open ground in June. For a couple of months it has been smothered with bloom, and will probably remain so till frost comes. I think one large specimen such as this is much more effective than a number of small plants crowded together. —John Cornhill.

SHORT NOTES.—FLOWER.

Chrysanthemum coronarium.—This is one of the most useful of annuals for flower borders. Self-sown plants of it yield a supply of flowers early in summer, while those sown in spring keep up the supply till frost sets in. Amongst them we have two very distinct colours, one bright yellow, the other creamy white.—E. B. L.

Veronica rupestris.—This little trailing Speedwell forms on the rockwork at Kew dense glossy mat-like masses of bright green foliage completely covering the stones. The flowers are of a deep rich blue, paler beneath, and are borne on slender spikes. At first sight it looks exactly like Lithospermum prostratum, but its foliage is brighter and fresher, and its flowers are fully as beautiful, although not so durable.

Dianthus Ragged Jack.—Those who are fond of sweet-scented flowers should add this variety of Indian Pink to their collections. Seeds of it should be sown on a warm border early in spring and during the summer, and till cut down by severe frosts it will produce a great profusion of ragged and somewhat insignificant flowers, but which scent the garden agreeably for some distance around them. This scent is especially strong in the mornings and evenings. —W. I.

NEW CARNATIONS AND PICOTEES.

Of the new Carnations and Picotees which have made their first appearance during the season just passed, I put in the first place scarlet bizarre Robert Houlgrave, raised by Mr. Samuel Barlow, of Stakehill House, Castleton, Manchester. It is in the way of that well-known and popular flower, scarlet bizarre Admiral Curzon, but regarded by the florists of the north to be superior to it. It was awarded a first-class certificate at the National Carnation and Picotee Society's exhibition at Manchester on August 14. Mr. Douglas, Great Gearies, Ilford, who has raised several fine seedling Carnations and Picotees, showed several at South Kensington on July 27. Among them were scarlet bizarre Thetis, pure white ground, marked with rich maroon and scarlet, good petal and substance; crimson bizarre Duc d'Aumale, rich crimson and purple, fine form; pink and purple bizarre Felicity, a beautiful pale pink variety, flowers of large size and full substance, in the way of Sarah Payne; scarlet flake Alisemond, well formed petals and good broad scarlet flakes on a white ground; rose flake Thalia, large and full, good broad petals, flaked with pale rose; Diana, flaked broadly and regularly with bright cherry-rose on a white ground (both Thalia and Diana were awarded first-class certificates by the National Carnation and Picotee Society at South Kensington in 1885); and Corisande, pale rose flake on a pure white ground, very full and good. This and Felicity appear to possess great distinctness of character.

Of new Picotees, I think that Mrs. Sharp, raised by Mr. J. P. Sharp, of Birmingham, must head the list. It was shown at the meeting of the Oxford Carnation and Picotee Union in 1885, and again at Manchester on August 14 last, and in both instances it was awarded a first-class certificate. It was shown by Mr. R. Lord, of Todmorden, by Mr. B. Simonite, Sheffield, and by the raiser, and, wide apart as these districts are, it was fine in character in each instance. It has massive broad petals, pure in the ground, and is broadly edged with the liveliest rosy scarlet. Mrs. Anstiss, raised by Mr. Thomas Anstiss, Brill, is a fine, heavy purple-edged flower, in the way of Muriel, pure, fine in the petal, and having a solid edge of bright purple.

Of new purple-edged flowers I may mention Woodkins (Wood and Ingram), the white ground very pure, petal moderately broad, with wire edge of bright deep purple—a good addition to the light purple flowers; Queen Adelaide (Wood and Ingram), heavy purple, large full flower, with solid broad margin—excellent in form; Juliette (Fellowes), medium purple, good broad smooth petal, fine large full flower, quite distinct in character; Catherine (Fellowes), heavy purple, pure white ground, petals of fine form, broad and smooth; and Mrs. Nicholay (Fellowes), light purple, a very large and full flower of excellent quality, and having a good free habit of growth.

Of rose and scarlet edged flowers there are Henreuse (Douglas), medium edge of rose, full flower, broad petals with a regularly defined edge; Mrs. J. Wood Ingram (Wood and Ingram), medium rose edge, the white pure, petals of good substance—one of the best of its class; Duchess (Fellowes), heavy scarlet edge, very large full flower, quite distinct and very attractive; Maud (Fellowes), light rose, fine broad smooth petals—a very chaste and fine flower; Mary D. Anstiss (Anstiss) is a very pleasing flower, broad stout petals and an edging of rosy scarlet—said by the raiser to be a good grower and very fine (this was awarded a first-class certificate of merit at the South Kensington meeting on July 27); and Orlando (Fellowes), light rose edge, large, full, and fine. Singular to state, not a single new red-edged Picotee has put in an appearance during the present year, to my knowledge.

Of yellow Picotees some few new varieties have put in an appearance, especially those raised by Mr. J. Douglas. Smith Barry (Wood and Ingram) has a bright yellow ground heavily margined with crimson, and is decidedly attractive. R. D.

Victoria Aster.—This, in my opinion, is the best of all Asters. We have grown a quantity of it this season for cutting, and most serviceable it has

been. This Aster likes rich food. Our best plants of it are growing on a border well manured from the pigstye; they were sown thinly in boxes in April, and as soon as large enough, were planted out in rows 1 foot apart; the season being genial, they have grown and flowered most satisfactorily. I may add that not the least amongst the many good qualities belonging to this Aster is the way in which plants of it may be transferred from the open ground to pots without so much as shedding a leaf. In lifting them we take a fork, and thrust down deeply so as to get all the roots. We then carefully shake away the soil, and having fitted the plant into the pots, fill up with finely sifted soil, and press all down firmly. We then set them in a pit where they can be kept rather close for a day or two and shaded from bright sunshine; they soon get established, and may then be utilised indoors. The clear whites and various shades of pink or rose are very bright under artificial light, and on the dinner-table strikingly effective.—J. G., *Hants.*

Rose Garden.

PROPERTIES OF GOOD ROSES.

The general principles or properties laid down as influencing the staying properties of Roses are likely to prove most useful. Depth and substance of petal are doubtless solid bases for the building up of staying power, and are more than a match in this connection for mere numbers, though the latter are by no means to be despised. A curious sample of staying power came under our notice this year in regard to one Rose sometimes cited as mostly wanting in this useful property—Merveille de Lyon. A bloom of this variety was awarded the highest honours as the best Rose staged at a show in competition with such good staying Teas as Souvenir d'Elise, Innocente Pirola, Maréchal Niel, La Boule d'Or, &c. Instead of staring at the judges with open eye, as usual, it continued perfect in form throughout a long, hot summer day in a rather close tent without speck or flaw, and was allowed by the exhibitors of some of the finest stands of Teas ever seen by the writer to be without doubt the most perfect Rose among many hundreds shown. La France seems to make up by the number of its petals for its want of substance, and under favourable conditions stays well. The petals are so crowded together, that they do not seem to have room to fade, while it is rare indeed that it can open its eye. But, fragrant and exquisite as La France is, it would doubtless be yet more valuable were its petals thickened. In that case, however, they would also have to be thinned, or the Rose enlarged to something like the size of Pæonies, for we very much doubt if we have a Rose with so many petals as La France. How far liberal culture extends the staying property of Rose blooms is a most interesting inquiry. Possibly a moderate *regimen* will be found the best for fostering or developing the endurance of individual blooms, on the same principle as temperate or even hardy living develops to the uttermost the strength of athletes. Be that as it may, it seems almost certain that our pampered treatment and gross feeding of our Rose trees not seldom result in floppy blooms, that suddenly collapse, or have staring eyes, when expected to look their very best on exhibition tables.

Those blooms suddenly cut off from a full larder are the likeliest to fade or lose colour the soonest unless their wants can be supplied afterwards—a feature of Rose culture as yet hardly attempted, but which may become important if the present fever-heat of Rose showing is to be kept up. Possibly as our knowledge of vegetable life and nutrition is enlarged it may be as easy to suckle Rose blooms on or off the plants as it is to suckle prize Gooseberries, each tube containing its special mixture to uphold substance as well as sustain colour. Meanwhile, those rosarians are likely to be the most successful who are careful to avoid over-feeding, on the one hand, and semi-starvation on the other. For example, I have seen most of the exquisitely delicate pink that constitutes one of the chief charms of La France washed out of it through overdoses of soapsuds and house slops; while the petals, always thin, have been run out into gossamer-like texture by gross over-feeding. The idea that there may be a fixed sum of excellence, to be equally divided into colour, size, form, substance, vigour, floriferousness, &c., or more or less converted into one or more of those qualities, is at least ingenious and deserving of careful consideration. That the constitution of our Roses is being undermined and their individual life shortened in the feverish race for enlarged and improved blooms can hardly be doubted. The earth sickness that affects our modern Roses, their craving for maiden root runs, and refusal to do their best unless these are provided, are modern symptoms of culture and experience that were wholly unknown to our not remote progenitors. Their Rose bushes virtually lived for ever; ours, in many cases, are annuals, biennials, or triennials at the longest. We want to link on all modern improvements to the hardiness and longevity of the elder Roses. Whilst willing and anxious to devote the utmost care and skill to the perfecting of Rose blooms, we demand of the raisers of new Roses that they shall be endowed with sufficient stamina to bear the forcing strain of modern cultivation in its fast gallop towards perfection without being crippled or killed through the strain or by the speed.

D. T. F.

Branch of Sweet Brier (Rosa rubiginosa).

Rose Cramoisie Superieure.—I was much struck the other day with the effect produced by this bright little Rose in the Handsworth Nurseries. There was a large bed of it in which the bushes were about 18 in. high and smothered with flowers. It is a capital Rose at this season.—W. G.

SWEET BRIER.

Few flowers are more full of charm than the old Sweet Brier. It fills the air with sweetness in the first warm days of April, when its leaves are only half grown; bears a wealth of bright little Roses at highest summertide, and a heavy load of scarlet hips to cheer the short late autumn days. It is at home in the poorest soil, growing willingly in almost pure sand. A double line of Sweet Brier forms an impenetrable and most beautiful hedge, the interlacing prickly branches giving it strength and stiffness.

ROSE NOMENCLATURE.

Turning to the catalogues of the florists, one man says a certain Rose is a Tea, another a Hybrid Tea, another a Hybrid Perpetual, and another, perhaps, a Hybrid Noisette, till I am at a complete loss to know what it is. This leads me to look up the botanical classification and history of the Rose, which, although very interesting, fails to throw much light on the particular variety in question.

Under this state of affairs the best that we can hope for is a garden classification, but let us have one that will give the purchaser some idea of the nature and habit of the plant he is asked to buy. All florists admit that the term "Hybrid Perpetual," under which, perhaps, the most interesting of our Roses are classed, is a complete misnomer. These Roses are not perpetual bloomers, as the term implies, but bloom at intervals or stated periods, usually in spring and autumn, although they are frequently treated in ways best known to the florists, so as to bloom in the winter and other periods of the year. The French term "Remontant" (meaning literally "to grow again") is more significant and certainly a much better term than "Hybrid Perpetual."

The ever-blooming or Monthly Roses are not strictly ever-blooming, but bloom at random, or apparently without any definite periods. This term, however, is not as objectionable as that used to designate the preceding class, and conveys a tolerably accurate idea as to the blooming habit of the varieties it comprises, but I should consider "random-blooming" a better term.

The term "Bourbon" designates a class of Roses which originated in the island of Bourbon [here we have a geographical name], and was undoubtedly the result of a cross between the Damask and Bengal Roses. It is usually classed as an Ever-blooming Rose. It does not, however, possess the same habit of bloom as the Bengal and Tea Roses, but blooms periodically, the periods being more frequent than with the Remontant Roses.

The Noisette Roses are a class supposed to have originated from a cross between the White Musk and the China or Bengal Roses, and created some excitement when first introduced. They are certainly a remarkable and beautiful class of Roses, but there appears to exist some confusion in these with the climbers and Teas, and they are usually placed in the catalogues as a distinct class. Most of the Noisettes, I believe, are climbers, but some are not, or at least are not so distinctly characterised. They were named in honour of the man who originated the variety. But historical and geographical names are not wanted in our catalogues; we want something indicating the character of the plant.

The Hybrid Teas are Roses of recent introduction, the result of crosses between the Remontants and Teas, and are undoubtedly destined to supplant some of the older varieties in popularity, as they combine in varying degrees, according as they favour the Damask or the Tea, the robust habit and brilliant colouring of the Remontants, with the exquisite perfume, delicate tints, and more constant blooming habit of the Teas. The La France and Bennett are types of this class. By the way, I would like to ask as a matter of curiosity, how the yellow shades in our Tea Roses were derived. Are they natural to the species canina, or do they originate from crosses of this species with some other, the sulphurea, for instance, which is distinctly characterised by its deep yellow flowers?

The Hybrid Noisette is another class of recent introduction. The Ball of Snow, Coquette des Alpes, and Coquette des Blanches belong to this class. The white Musk origin is apparent in the pale tints of the flowers. The last two classes are in some confusion, and are indiscriminately classed by florists as Hybrid Teas or Hybrid Perpetuals.

But it is easier to find fault, I suppose, than to apply the remedy. It does seem to me, however, that some effort should be made to extricate the most beautiful and charming flower that Nature has given us from the confusion into which it has so sadly fallen.

After revolving the matter in my mind for some time I have finally, for my own convenience, adopted the following classification: First, I divide all Roses under two heads—shrubs and climbers—as all the varieties can, as a rule, be readily assigned to one or other of these divisions, which indicate the habit of the plant. These divisions I sub-divide into three classes each, significant of the bloom: 1, annual blooming Roses, or those which bloom but once a year; 2, periodical blooming Roses, or those which bloom at certain periods, more or less defined as the case may be, such as the Remontant and Bourbon Roses; and, 3, random or ever-blooming Roses, or those which bloom apparently at will, such as the Bengal and Tea Roses. (I prefer to retain the title "ever-blooming," as it is a term in common use and pretty generally understood.) This gives me six distinct classes.

First, annual blooming shrubs, which may be designated by the general title of "shrub Roses," including the Damask, Provence, Moss, French, White, Hybrid Chinese, Hybrid Bourbon, and Hybrid Provence, or most of those now classed as "garden Roses."

Second, periodical blooming shrubs, including the Remontant and Bourbon Roses. If the term "Hybrid Perpetual" must be retained, let it be a title for this class.

Third, ever-blooming shrubs, including the Bengal, Tea, some of the Noisettes, and perhaps also the Macartney and microphylla Roses, which may be designated under the general title of ever-blooming Roses.

Fourth, annual-blooming climbers, including the Sweet Brier and hardy climbing Roses.

Fifth and sixth respectively, periodical and ever-blooming climbers, including the Musk and certain of the Noisettes. I am not sufficiently familiar with the latter varieties to say just which class they should be placed in, nor can I say from my present limited knowledge under what classes the Hybrid Teas and Hybrid Noisettes should come, but I imagine it would lead to a division of these now popular Roses.

I offer these remarks as a suggestion to our horticultural societies, with a faint hope that they may lead to a better classification of the Rose than we have at present.—William Hewett, in *Rural New Yorker*.

Rose Lady Mary Fitzwilliam. — In "J. D. E.'s" interesting notes on the new Roses at Waltham Cross (p. 247) occurs the following statement: "Amongst pink and rose-coloured Hybrid Perpetuals, Lady Mary Fitzwilliam holds high rank; it is supposed to partake of the Tea section, but it is certainly nearer the Hybrid Perpetuals." Now, I have grown this fine Rose for some years, and in foliage, habit, form, and even perfume, should pronounce it almost three-quarters Tea—assuredly much more closely allied to the latter than Hybrid Perpetuals. Not only this, but by virtue of its autumnal blooming it is also a Tea, and this latter quality adds greatly to the value of this perhaps the finest of all the pedigree Roses yet sent out. I forget at the moment what Mr. Bennett says of its parentage, but its whole character proclaims it a Tea, and no doubt one preponderating parent was a Tea. At a time when every grower is seriously setting about expanding his Teas at the sacrifice of his so-called Hybrid Perpetuals, I must utter my protest against removing such an obvious Tea as Lady Mary Fitzwilliam from this favourite family of Roses.—D. T. F.

NOTES.

Old Chrysanthemums.—One of the first, if not the first descriptive account of this now popular flower was that written by Mr. Sabine (*vide* Trans. R. H. S., vol. v., p. 322) in the year 1826. It is well known, and has often been referred to by more modern writers. I have just come across another and less well-known contribution to the history of the Chrysanthemum, written in 1833, by Mr. A. H. Haworth, and published in the *Gardener's Magazine* (vol. ix., p. 218). Haworth mentions "various seedling varieties as having been recently exhibited," and these he further tells us were "chiefly obtained from seeds of the Early Blush, Early Crimson, and the Two-coloured Red." In this paper he prophesies that the Chrysanthemum would be immensely improved by seed-saving from suitable kinds. "We must try the seeds whenever we can procure them; and their unequalled sportiveness will reward us for the trouble of rearing them, by countless numbers of new forms, faces, and colours, surpassing all we at present know. The sports of colours in the flowers by casual branches from old plants are well known, and capable of being propagated and perpetuated." Haworth describes forty-eight varieties, and mentions such as have seeded in our climate, or have yielded bud sports, and he refers to the figures at that time published. All the varieties are at this date known by descriptive names only, such as the Tasselled Salmon or the Clustered Pink, and even at this early period synonyms were not unfrequent. It is interesting to find Haworth doing for the Chrysanthemum what he also did for the popularity of Narcissus.

Scarborough Lilies.—Here and there in sunny windows one may see the old Vallota in bloom again. It is nigh on thirty years since I first saw it blooming in a window in the town of Norwich, where flowers have long been valued and largely grown. A friend lent me the other day an interesting old book, called Threkeld's "Synopsis stirpium Hibernicum," which is, if not the first, certainly one of the first of essays in the English language on the plants of Ireland. Caleb Threkeld was a Cumberland man, who practised medicine in Dublin about 150 years ago, and it is he who tells us that the white Clover is the Shamrock or Seamer-oge of the Irish people. Threkeld, in speaking of Melilotus germanica, a plant more recently known as Trifolium cæruleum, tells us that "the Norwich people strive in their floralia who may outvie each other in the finest flowers, and he who grows the prettiest flower wins a flowery garland as a conqueror." "Hence," he concludes, "they boast that their Norwich is a city placed in a garden, or a garden placed in a city, whichever you will." We have now four or five varieties of this fine old Vallota purpurea, viz., magnifica, major, eximia—the white-eyed variety—all differing more or less from the type, but the finest form I have ever heard of is that grown at Bicton, which produces from five to ten flowers on a scape, the individual blooms being large and rich in colour. Of all evergreen bulbs, the Vallota is perhaps the best as a window plant, but at Muckross Abbey, near Killarney, it luxuriates in open-air beds and borders, as it may possibly do elsewhere in light sandy soils near the sea.

Convolvulus Scammonia.—The Scammony plant is a great success if planted on deep sandy soil and treated as an ornamental climber, and it has the advantage of growing well where its near relative the Jalap plant fails to bloom. We have a Scammony plant here on a pyramid of stakes about 6 feet in height, and it is quite covered with its piquantly-shaped, angular-pointed leaves, and every morning the little white cups open out by the hundred in the sunshine. It is a very rapid growing plant on deep, rich, light soils, and would soon cover a trellised porch or arbour with its flowery growths. Our plants of this species came from Mr. Ware five or six years ago, and were in 2½-inch pots; but they soon grew rampant after being planted outside early in June. There is a little secret in the treatment of all half-hardy plants which are to be risked out of doors entirely. It is this: always plant them out in May or in June, so that they may make a good long summer's growth outside before the frosts come to cut down their leaves. So treated, their roots become firmly established ere winter comes, and a little protection in the form of dry ashes, turf mould, or Cocoa-nut fibre is pretty certain to preserve their land-locked roots from injury. As so treated, Scammony would be hardy nearly anywhere, and it is so distinct and effective as to be worth a little trouble.

Oriental Poppies.—When we cut off the seed-pods and flowering stems of these big red Poppies about two months ago I thought we had done with them for this season, but I see that a few stray blooms are again opening their showy petals. No doubt these Poppies become cross-fertilised when growing near each other, and so it sometimes becomes difficult to distinguish between P. orientale and P. bracteatum in our gardens to-day. Just now we have blooming here for the first time a soft rosy-salmon variety of P. orientale, given to us by the Rev. Denis Knox, of Virginia. It might be called a pale crushed strawberry colour, and is certainly the most distinct of all the five or six varieties known to me. It has the characteristic dark blotches near the base of the petals. One of the most showy of all our varieties is one which came from Mr. Clarke, of Weymss Castle, under the name of P. bracteatum var. pulcherrimum. It is stately and rigidly erect in habit, bearing great glistening blood-crimson-hued flowers nearly a foot across when expanded in the sun. Four or five years ago I obtained a pod of seed from a good form of P. bracteatum growing isolated in a neighbouring garden. We reared two or three dozen of healthy young plants, but scarcely two are quite alike. One is very dwarf, flowering at 18 inches, the flower being open and large. Another tall, slender, erect growing kind has the flowers half open, so that, as "A. D." once remarked, they appear somewhat like an old-fashioned wine-glass. As seen well grown in a mass, these Poppies are very effective, and it is pleasant to be able to expect finer forms from seed.

Snapdragons.—The best varieties of these are very beautiful and well worth a place in all good gardens. Last autumn I obtained seeds of a very dwarf-growing variety with white flowers, which I saw growing in Messrs. Ireland and

Thomson's nursery, near Comely Bank, Edinburgh. It comes nearly true from seed—say, 90 per cent. of the seedlings are pure white like the parent—and its flowers are now very useful. A good long row or a bed of this variety would be very serviceable wherever white flowers are in demand at this season. We also grow a deep rich kind having flowers of a dark blood-crimson colour, and both are so good that we hope to keep them pure and strong by putting in a batch of slips every year. Either alone or contrasted together, this snow-white variety and the velvety crimson one are so fine in their way, that we have rooted out the common kinds which formerly luxuriated on the tops of our old walls, and have sown the seeds of these, Belvoir Yellow, and best crimson Wallflowers, and hope that they will supplant the poorer kinds. So far as I know, no plants are more showy or grow better on walls or ruins than do these Wallflowers or Snapdragons (Antirrhinum majus), but along with them seeds of Stonecrop, Sempervivum, and Saxifrage may be tried, and Erinus alpinus and Linaria alpina, although not always at home on the borders, are generally a success on old walls.

Cyperus Papyrus.—All things considered, is there a more stately, graceful, or more interesting foliage plant, usually grown in hothouses, than this Sedge, once so important in the world of letters? It grows like a weed if divided now and then and planted in a larger pot of pure loam, and if the pot be drained with broken bones instead of crocks, so much the more luxuriant do its tufted wands become. In some places where it is cultivated these tufted stems are very highly valued as indoor ornaments, and if placed in vases of water refreshed from time to time they endure long in beauty. They also keep a long time in a dried state, and so used are an addition to the winter vases of stems, Grasses, and dried fruits. The plant exists yet near Syracuse in a wild or naturalised state, but is generally to be seen in botanical gardens, while rolls of Papyrus, and the materials for writing or drawing on them, may be seen in most museums of antiquities. Apart, however, from history or romance, the Papyrus is really the most stately and beautiful of all the Sedges grown in our hothouse gardens, and it does not require a very high temperature to grow it well. A good specimen passed the winter in a warm greenhouse, the temperature of which often descended as low as 45°. It does best if planted on a mound of earth in a tank of water, but may be grown nearly as well in a large pot plunged in a pan or saucer.

Lobelia ignea.—Of all herbaceous plants we have had but few at the same time so distinct and effective as this crimson-flowered Lobelia. It is not hardy everywhere, but well worth the trouble of protection during winter, seeing that its crimson-scarlet spires are now so brilliant as contrasted with the white Rose-like blossoms of the Japan Anemone. This Lobelia may be readily reared from seeds sown as soon as ripe, or they may be kept until the spring following—say February, and then if sown on a gentle hotbed will germinate quickly, and soon grow on large enough for pricking out in prepared boxes or into open-air beds in May. A quicker mode is to divide old tufts just as they begin to grow in the spring, at which season this plant breaks up quite safely and readily, every shoot forming a flowering plant. Some of the finest beds and groups of this plant I ever saw were formed on this plan of division in the spring, after which the shoots were planted about 12 inches apart in deep rich soil. Either as a flowering plant, or as grown for its purple leaves and stems, it is one of the most distinct and desirable of all the herbaceous plants known to me. L. splendens, L. cardinalis, and the white, red, and blue forms of L. syphilitica are pretty, but none, as I think, equals L. ignea, or Queen Victoria, as it is sometimes called.

Calceolaria Kellyana.—Of all the Slipper flowers introduced from time to time to our gardens none baffled cultivators more effectually than did the curious C. Fothergilli, a native of the windy Falkland Islands. I have had seeds from thence and also living plants, but never could grow this dwarf and singular species, and all I really know of its flowers is derived from Edwards' drawing in one of the earlier volumes of Curtis's *Botanical Magazine*. But the best substitute for the wild species is a hybrid obtained years ago between C. plantaginea and C. Fothergilli by the late Mr. Kelly, a nursery gardener of Edinburgh, and now known under his name as above. It is a dwarf plant, nearly hardy, possibly quite so in mild dry soils, its hairy leaves lying flat on the surface of the soil, and its two to three-flowered scapes being about 6 inches in height. As a plant for edgings or for a sheltered nook in the rock garden it is unique, its flowers and habit reminding one somewhat of its parent, C. Fothergilli, but it is a much more easy plant to grow. Although hardy or nearly so, we generally pot up a plant from the open air and preserve it through the winter in a greenhouse or cold frame. It is easily increased by cuttings or by division of the tufted root stock. It has long been grown in the botanical garden at Edinburgh, from which northern Eden our stock of this and other good things originally came. Veronica.

NOTES ON LILIES.

In a discussion which took place in The Garden a year or two ago on Lily culture in pots I asserted that the annual disturbance to which the bulbs are subjected is not so necessary as it is generally supposed to be, and that a maximum of development may be obtained by keeping them for several years in the same soil. Subsequent experience enables me to confirm the statement then made, and I am now sure that in the culture of Lilies in pots a great deal of labour might be saved. Several years ago, having a number of Japan Lilies in pots, some of them through lack of time were not repotted. These started very strongly into growth, and nothing was done to them with the exception of giving them plenty of water with occasional doses of weak liquid manure when in full growth. In other respects the treatment was identical with that given to those that had been shaken out and repotted in the usual manner. Some of these were large specimens in 12-inch pots, and they carried individually nearly 200 blooms, which in size and colour left nothing to be desired. Being wishful of further proof, I last year purposely left some pots untouched, with identical results. The most convincing example of the non-necessity of annual repotting was found in an 8-inch pot, which contained a plant with 70 good blooms, one stem alone bearing 18. This was as perfect a specimen as could be grown in a pot of that size; not a leaf turned yellow, the foliage having that deep glossy hue which characterises the varieties of speciosum when in perfect health. From the time these plants started into growth the pots were packed with roots, and as soon as they commenced to grow freely they were top-dressed with Clay's fertiliser, and when they were in full growth they had frequent waterings with weak liquid manure. L. auratum I have also grown in the same way, and I have an idea that some of the more delicate-rooted kinds, such, for instance, as Krameri, would give better results if they were allowed to remain undisturbed for a year or two.

Lilies are not like many bulbous plants; the roots do not die away, but remain in a more or less active condition all through the year. When the stems die down in autumn the soil will be found to be full of white fibres, and in the process of shaking out the bulbs to repot, some of these, even with the best care, will be lost or injured. This may not inflict much injury in the case of strong-rooting free-growing kinds such as speciosum, but in that of those of more weakly growth and feebler rooting power this root-disturbance must be to a great extent detrimental. In the case of plants in small pots it is very easy to shift them on, giving a small shift; the active fibres do not then suffer, but soon begin to enter the fresh compost, which they will almost fill by the time top growth commences. When at length they come into pots so large that it is not considered advisable to re-shift, they may remain for two years therein, and if fed regularly from the time they begin to grow they will bloom satisfactorily. The great point in the case of Lilies thus grown is to commence feeding as soon as the plants begin to grow. If this is deferred until the buds form, as is generally done in the ordinary way of culture, the flower-stems will be lacking in strength.

Lilies in groups.—The fact that Lilies are not shown to the best advantage unless planted in masses is not so fully realised as it should be. This is especially the case with such hardy kinds as the Tiger, the Orange, umbellatum, and the varieties of speciosum and candidum. What finer garden picture can be formed than by having a half hundred of the lovely Madonna Lily planted together, especially when the purity of the bloom is enhanced by contrast with the deep hue of Evergreens of some kind? The bright tints of the Orange and Tiger Lilies are equally effective, and I never remember to have seen anything more pleasing than a long border rather thinly planted with dwarf shrubs with a row of Elms at the back, the overhanging branches of which gave grateful shade, and in the subdued light of which the glowing colour of masses of the Orange Lily was seen to great advantage. When this border was first planted a few bulbs were set here and there, but as no digging was ever done and short Grass and Moss covered the soil between the shrubs, they had waxed in strength and increased in number with each succeeding year, so that they had more the appearance of being a natural growth than of having been planted. The hardier kinds of Lilies, if planted in the first instance in well-prepared soil and left alone, will increase rapidly, but the soil around them should not be deeply dug; simply hoeing to keep down weeds with an annual mulch of decayed manure or leaf-soil applied at the commencement will preserve the roots intact, guarantee the bulbs against mutilation, supply them with nourishment, and, in a word, will ensure to them the conditions the most natural, and consequently best fitted for their welfare. In planting Lilies of this description, and which can be relied on to resist with impunity the trials of our climate, it is better to thoroughly prepare a smaller area of ground than to dot in the bulbs indiscriminately.

By planting a number of bulbs together, that particular spot is consecrated to them, and they are not likely to fall victims to forgetfulness, which is often the case when they are dotted about indiscriminately. Whenever Lilies are planted in this way, a position, if possible, sheltered from high winds should be chosen for them. A strong westerly gale accompanied by heavy rain will batter the flowers and beat the stems down to the ground unless staked, and the staking of any quantity of Lilies is often not practicable. Although in some instances the planting of Lilies in mixed flower borders is unavoidable, it is to be shunned as much as possible; they should always be sheltered by an undergrowth of some kind. To my mind, there is something unnatural in the appearance of Lilies springing from the bare earth; the slender stem, with flowers out of proportion to its strength, plainly bespeaks the need of support or shelter of some kind.

L. auratum in the open ground.—How many thousands of this Lily are annually put into the

ground to perish it would be hard to say; but the number of bulbs that in a general way can be found in a tolerably populous neighbourhood in the enjoyment of truly perennial vigour may be counted on the fingers of one hand. Here and there, however, one comes across one, the long-continued health of which is a matter for surprise, seeing that the conditions under which it has thriven are to all appearance identical with those that have proved fatal to so many bulbs. Why it is that some bulbs remain sound and increase in bloom-bearing power from year to year, whilst their near neighbours speedily decay, is difficult of explanation; but it would seem that the bulk which can be carried safely through two years in the open ground will in all probability enjoy a long life. A friend of mine has a bulb that has bloomed in more counties than one, and, notwithstanding the removal, is this year flowering with unabated vigour. In a small garden near here there was a bulb which the owner grew year after year among his Gooseberry bushes. It had no protection in winter, but bloomed with great vigour, the bulb eventually attaining the dimensions of a good sized lamp-globe, when it suddenly collapsed, dying apparently of old age. I believe that in the case of imported bulbs destined for the open ground it would be better to grow them one year in pots, if possible under glass, and not dry them off in winter, planting out with roots intact the following spring. It would also be well not to allow flowers to form, picking off the buds as they form. In all cases it would be advisable to do this, so as to concentrate the energies of the plant on the formation of the bulb. There is no doubt that the deprivation of the bulbs of active roots for a considerable period is contrary to the nature of Lilies, and this, in conjunction with a long voyage, has the effect of reducing vitality. The flowers produced are the result of the previous year's growth, so that the close of the blooming time finds the bulbs in a flabby, exhausted condition, and not able to stand against the effects of our damp English winter. There is, however, one point in connection with the growth of this Lily in pots that has to be taken into consideration. The common practice is to allow but little soil for the bulbs to root into, reserving the greater portion of the space for the nourishment of stem-roots, which undoubtedly play an important part in the formation of good blooms. I am of opinion, however, that these stem-roots may be made in a great measure to usurp the functions of the real roots, and by reason of their excessive production and the small amount of food at the disposal of those that issue from the base of the bulb, these latter come badly off for nourishment. It stands to reason that the bulbs cannot be so well fed when they have but 2 inches of soil under them as when they are enabled to enjoy all the pot can hold, and as our object in the present instance is not the production of flowers, but the strengthening of the bulb, therefore I think it better to pot the bulbs, so that the roots that come from them can obtain as much food as possible. Imported bulbs treated in this way are almost sure to retain their plumpness, even if they do not increase in size much for the first year or so. When they are planted out they immediately lay hold of the soil, and are sure to make good growth. It is a moot point whether home-grown bulbs are in the long run more satisfactory than imported ones. It would also be interesting to know the difference, if any, in the behaviour of those raised from seed or from scales. It is reasonable to suppose that seedlings would possess the greatest vigour. I am strongly inclined to the belief that our gardens will never be properly stocked with this Lily until we get a plentiful supply of home-grown bulbs. The question of deep *v.* shallow planting has often been discussed in The Garden, but this, I think, must depend upon soil and locality. Locality, too, must influence the choice of position.

In the colder districts of Great Britain I doubt if L. auratum can have too much warmth; indeed, I doubt whether this Lily should ever be grown in shady places; the more warmth the greater maturity and, consequently, solidity of growth. In Japan it is found in full exposure, but springing from Grass and low Rushes, and the bulbs are but slightly buried, which points to the need of their being within the influence of solar heat. The finest results in the open-air culture of this Lily have been obtained by planting among Rhododendrons, and Bamboos, Bracken, and various other things that have been recommended for shelter. I have never, however, seen the common Bramble mentioned in connection with this subject, although I doubt if anything better could be found. Some support for the slender stems, with shelter to the roots from hot sun as well as from frosts and cold winds, when starting into growth is necessary, and this the common Bramble is capable of affording.

When Lilies are planted amongst Rhododendrons or other Evergreens, these in time become so rampant that the Lily stems do not get sufficient light in their earlier stages of growth; whereas in the case of the Bramble it is easy to cut them down now and then. The interlacing branches would afford just the right amount of support, whilst enough foliage remains on through the winter to shield the tender Lily shoots when beginning to grow in spring. Of course, Brambles would not be admissible in the dressed portions of the flower garden, although the double-flowered kind might be used there even, but there are in many places positions where clumps of Brambles would fit into the surroundings. Some of the American kinds might be tried in this way, thus combining fruit and flower culture in a very happy manner. Not only auratum, but some of the hardier kinds of Lilies might be extensively used in this way.

Lilies in sunshine and shade.—It is generally accepted as a fact that Lilies enjoy a partially shaded situation during the hot summer months, and there is no doubt that leaf and flowers attain a higher development when screened from the fiercest rays of a midsummer sun. It is a question, however, whether many of the Lilies that we attempt to grow in the open air get as much heat as it is their nature to require in an average summer in this country. Such vigorous kinds as the Tiger will do anywhere, but the more delicate texture of an auratum, Krameri, or japonicum would seem to need the direct influence of solar heat to mature the bulbs and to enable them to bear a lengthened contact with the cold, damp-rooting medium to which they are subjected with us. A good Lily grower once said that he would guarantee lengthened vitality in auratum if good sound bulbs were planted at the foot of a sunny wall or hedge, and doubtless this Lily and others of a kindred nature would frequently succeed in similar positions when failure has attended the attempt to grow them in shady places. Very often bulbs planted in a chance manner succeed infinitely better than those set out in presumably ideal conditions. I was much impressed some time since by a discussion which took place in The Garden on the relative behaviour of Lilies in the sun and in shade. A remarkable instance of this was recorded by a correspondent who wrote from the Isle of Wight. Now, if shade is necessary to the growth of Lilies anywhere in this country, one would naturally suppose it to be absolutely so in that warm locality. A bed, however, made in the approved method, well drained and in a north aspect, proved a complete failure.

The remarkable feature, however, was the contrast afforded by some bulbs of auratum, which, not being required for the bed in question, were dotted about indiscriminately. One of these in the hottest place in the garden bore the second year sixty good blooms. This points to the fact that Lilies, especially the tender kinds, need a considerable amount of ripening, not exactly in the sense that a Hyacinth or Tulip does, because no Lily should become devoid of roots, but they should be subjected to solar influence sufficiently to endow them with solidity of tissue. I feel quite convinced that with deep culture, so as to allow of the roots running down after moisture, and a living mulch of some kind many of our intractable Lilies would do far better planted in the full sun than in the cosy, sheltered, more or less shaded positions so often chosen for them. With respect to Lilies in pots, they, being grown under more artificial conditions, are undoubtedly the better for shelter during July and August. By experiment, however, I have proved that they make a stouter growth if exposed to the full sun until July, and after August they should again get all the sun possible. This exposure I find influences the growth of the bulbs to a considerable degree. J. C. B.

Garden Flora.

PLATE 562.

FRENCH POMPON ZINNIAS.*

By the introduction of this new race of Zinnias another beautiful addition has been made to the list of those half-hardy annuals which render our open-air gardens so brilliant during late summer and autumn. The development of this race has been the work of many years, for it has always been the aim of florists, especially those on the Continent, to produce a strain of Zinnias which would combine a refined and fully double flower with a dwarf and neat habit of growth. The present race, which has been aptly called dwarf Pompon-flowered combines these characteristics admirably, in addition to a wonderful range of colours which are more varied even than are to be found among Dahlias. The value of such a beautiful dwarf strain of Zinnias as this is cannot be over-estimated, for it is capable of producing a more brilliant effect than any other class of plants.

Single flower of Zinnia Haageana.

These Pompon Zinnias have been developed from the old Z. elegans, but this has been a very slow process when we consider how long this beautiful Mexican annual has been in the cultivator's hands. It was introduced as long ago as the first year of the present century; for many years no break was made from the original type, which was, of course, single. A few years ago double Zinnias were a thing unknown, but when the double forms did appear they were warmly welcomed, because at that time double flowers were in fashion. Perhaps, some day, the single Zinnias, which are in danger of being driven out of cultivation by the double flowers, will be recognised in the same way. The double Zinnia has been the subject of improvement ever since the double forms first appeared; single forms have become almost entirely lost in large, full, double forms, the size of many of them being nearly equal to that attained by many Dahlias. But the uniform perfection of shape is

* Drawn from flowers sent by MM. Vilmorin, Paris, August 30, 1885.

FRENCH POMPONE ZINNIAS

yet wanting in the case of tho large growing strain of Zinnia, perfect as some of the flowers are; and, in addition to brilliant colours and variations in point of size, we also get differences of shape, which really lend an additional attractiveness to the flowers.

Without doubt the introduction of the existing beautiful double forms into these flowers has materially enhanced them in popular esteem.

Double-flowered Zinnia elegans.

The period of steady, though certain, development into perfect doubleness in any flower is always a difficult one, because semi-double flowers seldom please anyone, and usually are rough and irregular. For semi-double Zinnias little can well be said; indeed, the single-flowered forms, like that of Z. Haageana, are far more pleasing than are any of these intermediate flowers. Some of the single Zinnias are very beautiful, such as the yellow, carmine, rosy purple, scarlet-crimson, and orange. These, with the white, which is after all not a good white, will be always acceptable for their large showy blossoms and brilliant colours.

The form of the flowers in the Pompon race is of the most perfect type, while their colours are extremely varied, some being flaked, striped, and spotted, and some even parti-coloured, being half one hue and half another. The self coloured blood-reds, plums, orange-reds, soft mauves, and other hues are truly beautiful, and the dark ones especially show richness combined with brilliancy. There can be no doubt that, in the process of doubling, the Continental florists, who have accomplished so much in this direction with other flowers, have also succeeded in materially improving the Zinnia's habit. This has been largely done apart from the dwarf or compact-habited strains, for the robust kinds are now much less tall than were the old singles, and exhibit much more compact and sturdy growth. The average height of any really good strain of the strongest growers is from 20 inches to 24 inches, while the dwarfer strains range from 12 inches to 16 inches in height, and are very dense and bushy. In both sections there is great variety of colour, and, what is more, hues which some other more popular flowers fail to present. The double Zinnia Haageana and the hybrid Z. Darwini are both beautiful, scarcely inferior to the forms of Z. elegans.

Zinnias have not yet become so widely grown as they deserve to be; indeed, it is probable that many who garden have not seen a fine double strain, and therefore are ignorant of the handsome forms, rich colours, and the various other admirable qualities which Zinnias possess. Still, it cannot be long ere we shall see them as common as are more popular tender annuals. In the production of masses in big beds, for instance, it would be difficult to excel in beauty the strong-growing forms of Zinnia elegans if planted in good soil and given ample room for growth.

Zinnias come under the denomination of half-hardy annuals. The seed should be sown in a gentle bottom heat about the first week in April, and the plants hardened off and put out into the open ground to flower. Many spoil their plants by keeping them in the seed-pans and boxes till they are planted out, and in consequence the plants become drawn and grow tall, instead of fine, free-branching examples. When they are grown thus thickly together the roots cannot well form good balls with soil adhering to them, and when transplanted the plants are some time before they make a start, and when they do they seldom branch out. Those who pay special attention to Zinnias prick off their plants from the seed-pans into other boxes, or into a bed in a cold frame, where they are put sufficiently far apart to form good balls of roots. It is a good plan to pot a few of the earliest of the plants, and grow them on to come into flower as soon as possible, so as to produce a succession. The soil for the Zinnia should be of a light, rich nature. Leaf mould, manure, and a good sandy loam make an excellent compost. In this the plants root freely, and when they do this, they seldom fail to do well.

Crocus zonatus.—Our first Crocus now in bloom is a delicate leafless little thing with soft lilac flowers nearly white inside. At the base of the perianth segments and surrounding the style is a bright yellow, orange-tinted ring or zone; hence, I suppose, its specific name. It is a brave, although delicate-looking, little blossom, and reminds one of springtime as its blossoms sway and flutter in the autumnal sunshine. The Crocus of autumntide is C. speciosus with purplish blue flowers, but as yet there is no sign of its buds appearing. The real difficulty with these tall, slender-tubed autumnal bulbs, both Crocuses and Colchicums, is to grow them well, and at the same time shelter their fragile blossoms from the equinoctial gales. One good way is to grow them in deep cylindrical Hyacinth pots, and then, as soon as their flower-buds appear, they may be plunged in a carpet of suitable leafage. It is next to an impossibility to grow them well under any permanent carpet of vegetation, nor do they, as a rule, exist long if planted on the Grass. Now and then they do fairly well on dry sandy unmown banks in full sunshine; but any, except the most common sorts, are as yet far too valuable to be experimented with on a large scale.—F. W. B.

Double-flowered Zinnia Haageana.

WORK DONE IN WEEK ENDING SEPT. 14.

September 8 to 14.

We had a welcome rain—0·52 inches—on the 10th, but, excepting this, the weather of the week has been fine and sunny, and our work has gone on uninterruptedly. Propagation of flower garden bedding plants and of hardy perennials, such as Phloxes, Pentstemons, Carnations, Pinks, and Pansies, we have continued as opportunity offered. Soft-wooded plants, such as Alternantheras and Coleus, that require the heat of a pit to strike them, are all now in, and a commencement has been made to take the offsets off the hardier succulent bedders, which we dibble into light soil in any sheltered corner, and by-and-by protect them with any old spare lights that may come to hand, and in the depth of winter cover them up with mats and Bracken. Besides the propagation of flower-garden plants, this department has taken up the bulk of our time to keep the whole free from the appearance of weediness, that at this season soon sets in if there is the least neglect in respect of picking off decayed blossoms and foliage, or of keeping the growths of plants within the restricted bounds of designs, such small items of labour we are specially careful not to neglect, and consequently our flower-beds are just as bright—frequently brighter—in the early days of October as they are at the end of August—a condition that is surely worthy of the bestowal of a little more than the usual labour throughout the whole of the present month. I do not overlook the fact that there are cuttings to be taken, and this necessarily thins out the beds, but with care such thinnings can be made to improve the appearance of the beds, and if only old hands that have become experts at the work be entrusted with it, this will be the case; at least, it is so in regard to ours. Grass edgings

and framework edgings to beds—Herniaria glabra and Sedums—we trim up once a fortnight, and all groundworks are picked over once a week. Our most effective flowers at the present time are Fuchsias, Sunflowers, Marguerites, single Dahlias, Lilium auratum, Hyacinthus candicans, Violas, and herbaceous Lobelias, and our best foliage plants are Castor-oils, Hemps, New Zealand Flax, Acacia lophantha, Solanums, Cannas, and Fish-bone Thistles. The mixed borders of flowering plants are now exceptionally brilliant with Stocks, Asters, Zinnias, seedling Verbenas, Gladioli, Tigridias, and Phlox Drummondi. These we keep free of weeds, the tall growers tied up, and all in something like order by occasionally cutting away portions of plants that are getting so thick as to cause premature decay by rotting if left to themselves. Since the rain kitchen garden work has been at high pressure. We have thinned out seed beds and planted other small plots of Lettuce and Endive, and the last lot of winter greens; sprouting Broccoli; pulled up Onions and laid them on the walks to dry, and after weeding the ground they had occupied, drills were drawn in readiness for planting out Cabbages for early spring use when next we are favoured by rain. Earthed up Broccoli and part of Celery, and partially thinned out plants of winter Spinach. Potato digging still goes on with all the rapidity that time from other necessary labour affords. Fruit gathering will not wait, and on most days an hour or two has to be given up to this kind of work. We have gathered the few Pears we had of Williams' Bon Chrétien and the following other early kinds, of which we have moderate crops: Beurré Hardy, Beurré d'Amanlis, Beurré de l'Assomption, and old Early Bergamot. Apple gathering is not a formidable operation this season, hence the few we have are doubly watched to harvest them as soon as the birds have found out that they are ripe. Plums, Peaches, and Nectarines we look over every day to gather all that are ripe. The heavy crops that the trees have borne will, with a view to next year's crop, necessitate the bestowal of a good deal of labour on the trees as soon as the present crop is gathered. Washings of foliage and drenchings at the root and rich top-dressings must now be the rule if good crops are expected next year. Strong-growing trees of Peaches and Nectarines must be root-pruned; we shall begin at once; our mode of doing this is of the simplest description. We dig out a straight trench, and cut off all roots 3 feet from the stem of the trees (the remainder is not disturbed, except to scrape off the old mulching and loose soil, which we replace with new); this trench we fill in with good loam, a few half-inch bones, and a small percentage of chalk, then we trench the remainder of the border, which we crop with vegetables, and the work is complete. This mode of root-pruning we have now practised biennially for many years past, and our first failure to obtain a crop of fruit has not yet occurred. Indoors we have been busy with the like kind of work; some of the trees in our early and second Peach houses needed curtailment at the root, as the wood was getting too gross, and by doing the work thus early there will be no loss of fruit next year. Watering and mulching are essential as soon as the work is done, to induce the roots to work in the new soil before the sap becomes sluggish in action. In this part of the country we have abundant sunshine to ripen the wood, without closing up the house, but in districts not so favoured it will be advisable to keep the lights on, and even warmth in the pipes, when the nights are chilly—of course, combined with a fair amount of ventilation. Early vinery borders are now being given their annual dressing of fresh soil and manure; the old surface mulching we take off till the roots are reached, and then about 4 inches of new loam, bones, charcoal, and mortar rubble are given, and pressed down firmly, and over the whole a dressing of good manure, which presently, on the approach of cold weather, will be supplemented with a deep layer of long litter by way of protection from frost. Planted out Violets in frames. Though the plants have lifted with good balls, it will be necessary to keep them somewhat closely shut up till established in their new quarters, after which they will be fully exposed to the atmosphere till frosty nights begin. Gave Strawberry plants greater space, weeded them, picked off runners and rubbed off small side crowns; we never allow them to want water or to get overcrowded, or the roots to descend into the gravel, and to these small details of culture is no doubt due that thorough maturity of the crowns that has always, without exception, been the lot of our plants, and, as a matter of course, satisfactory crops of fruit have resulted. Cut the remainder of early Muscat Grapes, put them in bottles, and partially pruned the Vines by cutting back the shoots to within a few buds of the one to which they will be finally pruned a couple of weeks hence. The inside border as soon as well watered will be top-dressed, mulched with clean straw, and will then be utilised for winter flowering plants, some of the Chrysanthemums being already fit to house. Hants.

FRUITS UNDER GLASS.

The Orchard House.

Although a great deal of the fruit has been gathered, the next six weeks include a very important period in the successful management of orchard houses. Every tyro now knows that trees requiring potting should be taken in hand as soon as the fruit is off, otherwise new roots cannot be formed before the leaves fall. This work cannot, however, be performed in one day, or under any set of cut-and-dry instructions, as late kinds which are quite as valuable as earlier sorts are still in fruit, and none would think of hastening the ripening for the sake of potting. The compost and the mechanical part of the work are, of course, always the same, but the management of late trees differs in one great essential—the wood and roots must be thoroughly ripened. Early started trees can be removed to the open air as soon as they have recovered from the potting; late ones, including Walburton Admirable, one of the finest Peaches grown, must be kept under glass, not only until they have recovered, but until every leaf has fallen, and the dry, bracing air of the house has hardened the wood and plumped up the silvery blossom buds. In bad seasons it is sometimes necessary to warm the pipes every day for a few weeks; this year it is possible, nay, probable, fire-heat will not be needed, as the abundant supply of air given during the hot weather has favoured a short-jointed growth of moderately strong wood well set with terminal buds. These late sorts cannot, however, be over-ripened; therefore, it will be well to err on the safe side by giving a little fire heat with plenty of air during wet, cold weather. This important point secured, late trees may be taken out and kept with the early ones until the time arrives for housing in January. The next item of detail is pruning—if a little thinning can be called pruning; every shoot that has done its work must be cut out close to the young growth left to grow at the time of disbudding; also any gross shoots which have been pinched and repinched, but partake too much of a sappy nature to produce perfect flower-buds. When this has been done the knife may be sheathed, as shortening back is best performed after the fruit is set in the spring. In course of time shortening back becomes unnecessary, as old trees make short growths with a wood bud at the base, another at the point the removal of which would render the shoot useless, as it would die back to the base bud, and the fruit from that shoot would be lost. Experienced gardeners who can distinguish wood buds and approve of shortening often venture on cutting back in the autumn, but I do not approve of the system, as it checks the roots of newly potted trees and can be avoided by judicious summer pinching.

Potting up is included in the period I have named; every tree intended for future forcing should be potted up in September or very early in October. The nurseryman's trees may not be ripe enough to bear lifting and sending a considerable distance, as the check and delay in transit often affect the foliage to an extent from which it never recovers. Trees, it is true, must be bought in every year, but every forcing garden should have its reserve ground for the reception of newly purchased trees, be they maidens or cutbacks. The first, which have never felt the knife, I prefer, as they can be pinched and trained into neat pyramids or bushes in one season, and lifted for potting very early the following autumn. If the shelter of glass can be afforded until the roots have taken to the compost, so much the better, otherwise they may be plunged to the rims of the pots in a warm sunny border, well mulched and syringed on fine afternoons, and remain there until the late house is furnished in January. For Peaches and Nectarines I would always strain a point, but Plums, Pears, and Cherries do quite well out of doors, always provided they can be protected from bud-destroying birds.

Selection of trees should always precede the potting up from the reserve ground, as the first-comer gets the pick of the nurseryman's stock. Moreover, an experienced person can tell at a glance by the foliage and growth whether the trees are healthy, and not unfrequently if they are true to name. The best quality is not always found amongst trees which have made strong growth, for either they have not been regularly lifted and transplanted or the ground is too heavily manured. Be the cause one or the other, they invariably suffer after removal to poorer soils, and for this reason alone they should be avoided, but there is yet another objection—gross wood which does not get properly ripened is subject to gumming, and this disease is always followed by disappointment and premature death. The nurseryman who lifts and transplants annually does not stand so prominent in the eyes of the inexperienced, but those who know a good tree when they see it invariably select his trees, for they know the moderate wood which they have made is hard and ripe, and short fibrous roots are plentiful. Unkind or unsuitable stocks sometimes produce a weak growth, but then that growth does not look healthy, and no one would think of taking a tree whose stock is not clean and free and the union perfect.

Late houses should be cleared of Pears and Plums as the fruit is gathered, to make room for Golden Drops and the late varieties of Pears, which must have an abundance of light and air to bring out their best qualities. Although Plums this year are a complete drug and Golden Drops are plentiful, there are very few places in the United Kingdom in which they will ripen or even become passable on open walls, and yet a few dishes of this king of Plums are invaluable for the dessert after Peaches and Nectarines have passed away. Why not, then, now glass is so cheap, devote a whole house to them, either in pots or trained on trellises like Peaches? Once the fruit is set, glass alone is quite sufficient to bring it to perfection in ordinary seasons, but I would not trust to glass without the aid of fire-heat for dispelling damp, which is quite as fatal as frost when the trees are in flower. A flow and return pipe attached to a slow combustion boiler would be found quite sufficient for a large house, and the cost of fuel—a ton of slack—for tiding over that critical period would not exceed a few shillings. Independently of the rich golden harvest, a house or corridor stocked with Plums, next to Cherries when in flower, is one of the most delightful promenades imaginable. Another advantage is the facility with which trees can be grown into a fruit-bearing condition either in pots or on walls before they need protection under glass.

Pines.

As winter will soon be upon us, the final arrangement of the plants should be made complete without delay. Fruiters in various stages should be got together and plunged in a brisk bottom heat with the crowns near the glass, where they can have the advantage of proper atmospheric moisture until the fruit begins to change for ripening. As many of the plants which have recently thrown

up will remain on hand throughout the winter, the structure should be light, compact, well ventilated, and fitted with blinds for running down at night or during severe weather. A sharp air temperature being an important factor, an abundance of hot-water piping, which will produce the necessary heat without becoming overheated, should be at command, as a dry, husky heat at all times, and during the winter in particular, is a drawback which should be avoided. Overhead syringing having been discontinued, atmospheric moisture must be produced by filling the evaporating pans with diluted liquid, and damping the surface of the bed when the maximum heat has been attained and the house has been shut up for the day.

Queens intended for early starting will now be going to rest, and must be kept as quiet and steady as possible for the next two months or more. By rest it must be understood that a free circulation of air not over-laden with moisture and a steady bottom-heat of 75°, with the pots plunged to the rims in a gently declining bed of tan or leaves, will best suit the plants, as a lower temperature will endanger the roots now clustering round the pots and in the drainage. The supply of water must also be reduced, and in course of time discontinued, but for the present an occasional watering with guano or liquid manure in a diluted form whilst feeding the roots will let the plants down gradually, and a sudden check will be avoided.

The next important batch is the stock of strong spring-potted suckers now filling their fruiting pots with roots, and as these will make a growth before they start in the spring, they may be kept steadily progressing for some weeks longer. All shading on the hottest days must now be discontinued, and the glass kept perfectly clean, as they will make rapid growth this month, and the great secret of success is bound up in keeping the foliage broad, stout, and stocky. These plants should be carefully, but well watered with gentle stimulants as often as may be found necessary, and the beds of sweet fermenting leaves regularly syringed to keep up the proper degree of atmospheric moisture. Get all young stock in small pots plunged up to or over the rims in light pits as near the glass as possible, and see that the fermenting beds do not become dry, as lack of root moisture may cause any that are pot-bound to start prematurely. It is now late for potting, but of two courses it is better to choose that which will favour growth than a check, and as many pits are now well adapted for keeping young stock progressing throughout the winter, this convenience may justify giving a few of the best suckers a shift from 5-inch to 7-inch or 8-inch pots. The pots for this purpose should be liberally crocked, the soil light and fibry or peaty, and a sweet bottom-heat of 80° should be ready for their immediate reception.

Composts.—Without good fibrous turf the Pine grower makes but poor progress, and yet many owners of broad acres begrudge a moderate supply. Bare patches in a conspicuous part of the park or an old pasture field, are no doubt objectionable, but the Pine grower's wants in these days are so small, and the method of taking a strip, say 1 foot wide, and leaving one, is well understood by gardeners, and leaves nothing for the most unpractical owner to cavil at, as what is generally termed inoculation combined with thick seeding converts the bare strips into rich verdure in a few weeks. All soils, it is well understood, do not produce suitable turf; indeed, there are many estates on which it cannot be found; on others, as I know from experience, there may be, perhaps, one small piece of pasture so well adapted to the growth of this fruit, that the grower will risk a trifle for an annual supply. A conscientious man will not ask for more than he requires, but that little should be given him ungrudgingly, as it is very unjust to expect him to make bricks without straw. Now is the time to lay in a stock for spring use, as the herbage is still fresh and the roots are ripe. Moreover, it is not yet too late to top-dress with good garden soil, load for load of turf, and seed down with lawn Grass seeds and Clover. If any restraint were laid upon me, I should select my ground, nick it out with an edging iron, and take every alternate strip for my Pines. The turfing spade is the best tool for this work, as every sod can be taken of uniform length and thickness, and rolled up as for turfing a lawn. If these rolls are stacked one way in narrow ridges where they can be protected from rain and snow, or in open sheds, the air will pass through them and the turf will cut down in excellent condition at any time after the Grass has perished. Turf from an old calcareous pasture is frequently used, but the fibre speedily perishes when it becomes heavy and tenacious and the roots of fruiting plants do not winter well in it. Turf from an upland pasture on the old red sandstone, on the other hand, holds its fibre, and for this reason is the best adapted for Pines, as it never becomes sour or inert, and water passes freely through it. Correctives, including charcoal, burnt earth, sea sand, or broken bricks, one or all are, of course, necessary, and should be kept constantly on hand ready for use. Stiff loams can also be corrected with a good percentage of sandy peat, and I have seen excellent plants and fruit grown in heavy loam to which a good quantity of wheaten straw reduced to chaff in a chaff cutter had been added. Poor soils can always be enriched by the addition of bone dust or other highly concentrated artificial manures when taken for use, but animal manure in a solid state should be avoided; not so in a clarified liquid form when the plants have filled their pots with roots. Clean crocks and pots are important factors, and the best time to cleanse these is during the prevalence of inclement weather in the winter.

W. Coleman.

Eastnor Castle, Ledbury.

Indoor Garden.

THE CHRYSANTHEMUM IN AMERICA.

I am pleased to state that the Chrysanthemum is extremely well adapted for cultivation in this country. It grows well and blooms superbly. Some of the largest and finest blooms I have ever seen in this or any other country were those exhibited by Mr. E. M. Allen, an amateur of New Jersey, last year, at the New York exhibition, and Mr. Allen has only a little suburban garden and no greenhouse or glass structure whatever. He lifts the roots before hard frost sets in, winters them in his cellar, brings them forth in spring, and divides and plants them out of doors. He attends to staking, tying, watering, cultivating, and disbudding them in the evenings after business hours. In dry greenhouses our Chrysanthemums seed freely. The seeds germinate readily, and from the seeds sown in March we get large blooming plants next autumn, or when the plants are only seven months old.

The next Chrysanthemum exhibition of the New York Horticultural Society promises to be the most important ever held in the United States. The exhibition will be held in Cosmopolitan Hall, from Tuesday, November 2, till Sunday night following, thus giving mechanics, labourers, and others in and around the metropolis a good opportunity of viewing the queen of autumn in its greatest perfection. The hall is to be illuminated in the evenings by electric light. Over £480 have been offered in prizes, but before the middle of October it is expected that this sum will be greatly augmented. In order to justify the society in its liberality and ensure the success of the exhibition, already 49 members have subscribed a guarantee fund of some £366, and it is expected that before the end of another month this fund will be still further increased.

The grand prize—first premium, £50; second, £30; third, £20—is for twenty-five distinct varieties, double, to be shown in pots not exceeding 14 inches in diameter, one plant in each pot, each plant to have a single stem 1 inch or more above the surface of the soil. Among the other principal first prizes are £8, for a group of ten standards; £2 8s. in each case for six plants of pink, yellow white, bronze, and crimson varieties. In the florists' division the chief prizes for plants in pots are £2 in each case for six Chinese, six Japanese, six Pompons, six large-flowered Anemones, six small-flowered Anemones, and six singles, also £3 for six standards. Duplicates of these are also offered in the amateurs' and gardeners' class. For cut flowers, £2 in each case are given for twenty-four blooms, distinct varieties of the several types; and £1 to £1 4s. for twelve blooms. The schedule contains 142 classes, and the prizes—first, second, and third—run in the same liberal strain.

The following "perfection in plants and cut flowers" has been adopted by the society:—

Plants.

	Points.
1. For health, vigour, and freshness combined with size	20
2. For judicious training without contortion and unnecessary support	15
3. For profuse, well-finished, finely developed flowers	30
4. For distinct and effective variety	20
5. For taste in arrangement and harmonious grouping	15
Total	100

Cut Flowers.

	Points.
1. For finely developed flowers	30
2. For distinct varieties	20
3. For freshness and brilliancy of colouring	20
4. For uniformity in size	15
5. For taste in arrangement and correct nomenclature	15
Total	100

W. F.

PELARGONIUM CULTURE.

During June and July few plants furnish a greenhouse or conservatory better with flowers than the different types of Pelargonium; nevertheless, of late years plants of a different character have come more prominently to the front. Growers of plants for Covent Garden Market find that such things as Paris Daisies, yellow and white, bring more money than Pelargoniums, and do not cost so much to grow them to a flowering size. One very large grower told me that it did not now pay to grow Pelargoniums for market, but that he would keep up a fair stock of them for the turn of the market when it did come. It is a mistake to purchase Pelargoniums when in flower, as removal from one place to another at that time causes the petals to drop. We have this week been shaking the plants out of the pots in which they flowered, and have repotted them in smaller pots. This should be done about three weeks after the plants have been cut down; if too long delayed, they receive an unnecessary check. Greenfly invariably attacks the young growths. It is useless searching for it. The best way is to suppose it to be there, and fumigate the house containing the plants before repotting them, that is, if they are not out of doors. They will do very well out of doors from the time when they are cut down until it is again time to repot them. After repotting has been performed they are best under glass, but ventilation must be abundant; shading the glass is, however, not only unnecessary, but injurious. I am aware that many will be ready to say they have but one greenhouse, which it is desirable to keep gay with flowers all the year round; therefore the sun would make short work of the plants that are in flower. To such I would reply that their newly potted Pelargonium plants should be placed in the lightest part of the house and near the glass. It is also desirable not to use the shading more than is necessary. Some are very careless in this respect; they let down the shading with the first glimpse or two of sunshine in the morning, and there it remains all day, whether the sun is likely to be injurious to the plants or not. This is all very well where Ferns or fine-foliaged plants are grown; even then, however, too much shade is injurious, but in the case of a mixed collection of greenhouse plants, shading is required merely to protect the tender blossoms. It may, if carried to excess, utterly ruin the constitution of some

plants, especially such subjects as Cape Heaths and New Holland plants. These, by the way, are, metaphorically speaking, quite as much in the shade as Pelargoniums. The latter will soon make healthy, vigorous growth after they have got hold of the new potting soil, and when the pots are well filled with roots, repot into pots of a larger size.

As regards soil, we use for our Pelargoniums good one-year-old turfy loam, a fourth part of decayed manure, as much leaf-mould, some sand, and an 8-inch potful of crushed bones to each barrow-load of loam. The largest plants are potted from 6-inch pots into 8-inch ones. Pelargoniums shifted as just directed will now grow freely; in many cases the growths indeed will be too numerous and will require to be thinned; remove those that are most slender, allowing the stoutest to remain at equal distances apart, or as nearly so as possible. As winter approaches, the plants should have all the light they can get and plenty of ventilation. The supply of water to the roots must be sufficient, but it is easy to give too much. In the first place, give no water for a week after repotting, and none till the roots are comparatively dry again. In winter give sufficient artificial heat to exclude frost, treatment which applies to all the large-flowered sections, show or decorative. Fancy kinds ought not to have quite such a low temperature; the lowest for these during winter ought to be 40°. They should be placed at the warmest end of the greenhouse, which in most cases is some 5° warmer than the coolest end. The plants keep growing all through the winter, but the experienced cultivator wants them to rest during December, January, and February; and therefore they receive no more water than they actually need; the soil is not, however, allowed to become dusty dry. A close atmosphere with an oversupply of water will doubtless be favourable to the development of aphides as well as be productive of spot on the leaves. The aphides will appear, notwithstanding the most skilful culture, but in winter it is not difficult to destroy it by fumigating.

On one occasion I had a favourable opportunity to compare two collections of exhibition plants growing in the same neighbourhood during winter. The one looked very much superior to the other all through the winter and spring, but by the time the flowers were fully developed the poorer-looking collection was superior to the other, not only in profusion of bloom, but also in quality. I was the grower of the poor collection, and have never forgotten the lesson which it taught me. My only fault was too much anxiety for the plants during winter. I should not have watered too much, nor have been so fearful of the plants being injured by frost. Firing in winter to make all secure from frost may be a safe policy, but the plants may be injured through too much care. The large specimen plants shown at exhibitions have the young shoots carefully trained out during winter and spring until the lower ones are quite in a horizontal position, and the inner ones arranged regularly all over the space from centre to circumference. When the flower-stems are long enough, each of them must be supported by a neat stick. Slender grown Osier stems, with the bark on, are best for this purpose. The shoots of the fancy varieties should be trained out in the same way, but the trusses require no separate support.

Cuttings are generally put in when the plants are cut down in July or August, but this is too late. It is easy enough to obtain a sufficient number of cuttings in May from the plants that are about to flower. If a single cutting is inserted in the centre of a small pot at that time, and the pots are placed on a shelf in the greenhouse, the cuttings will soon form roots, and there will be time to grow them on during the summer and autumn into thrifty little specimens, which will flower well in 5-inch and 6-inch pots the following season. It is easy to obtain seeds of the best varieties, and if sown in March or April they will grow, in the course of the season, into good flowering plants for next year. The tops ought to be pinched out of the seedling plants when they are about 4 inches high; they will throw out three or four growths from under this point, and no more pinching is needed. J. Douglas.

Great Gearies, Ilford.

Lathyrus Drummondi.—I observe that "A. D." writes approvingly of this Everlasting Pea, which I think is very scarce in gardens, probably owing to the difficulty experienced in raising it from seeds, which in my case has hitherto been a bar to my being able to form an opinion as to its merits. If "A. D." can indicate a method of getting up the seed of this Lathyrus I shall feel obliged, for up to the present I have been unable to raise a single seedling of it. The fault, I am bound to own, lies with myself, for the seeds had every appearance of being good. I soaked them before sowing, plunged the pot in bottom heat, and covered with Moss, which I kept continually damp. This treatment I have never before found to fail in the germination of hard-coated seeds. In the case of this Lathyrus it has, however, quite failed, and the seeds are just the same as when sown; they have neither rotted nor shown signs of germinating. It may be that, like some other hard-coated seeds, they require to be sown as soon as ripe.—J. C. B.

Tuberoses in a cold house.—There is an impression abroad that Tuberoses can only be flowered in heat. This is a mistake. If they may be had in bloom in May and June, they must of necessity be forced into flower in heat. But I have this season proved to my satisfaction, as I have no doubt others have previously, that they can be flowered in the finest manner in a cold house. In March last I put two Tuberose roots into a 6-inch pot, using a good light rich soil, and placed the pot on a shelf in my cold house. Here they remained until the beginning of May, and then I noticed both bulbs began to grow. From that time until now they have grown strongly, and have occupied the sunniest and airiest position. The plants are now nearly 5 feet in height, and they have developed fine spikes of bloom; each will carry two dozen or so flowers in pairs; some are already fully expanded. They are as fine as any I have ever seen grown in heat, and of pearly whiteness. Therefore anyone with a cold house in a sunny and open position may rest assured that they can grow Tuberoses, and that this is no longer an exclusive privilege enjoyed by the gardener who has the command of artificial heat. Why, then, should not amateurs grow and flower Tuberoses? I am sure there is no reason why, and I hope the practice will become much more general than it appears to be.—R. D.

Solanum jasminoides.—Some one has recently been writing in praise of this graceful and useful climber, rafter or roof plant. It is one of the very best for cutting, as well as for general effect when growing. Small leaves, slender shoots, and innumerable racemes or bunches of small white Potato-like flowers on slender stalks impart to this plant a chaste grace and distinctive beauty possessed by no other cool greenhouse climber, for it only needs frost to be excluded to preserve the plant in safety in winter. The finest plant I have ever seen was in a very cool greenhouse, and in the south and west of England this Solanum endures ordinary winters, with or without protection, on ordinary walls. Grown in the open, however, it is neither so white nor so graceful as grown under glass. Under the latter a temperature of from 50° to 55° is the best suited to develop the purity of the flowers. In very low temperatures or in the open the white is apt to be suffused with lilac, which greatly injures the flowers for bouquet and other purposes. The best place for the somewhat fragile blooms of this Solanum is the outer rim or fringe of bouquets. Here, resting on a fringe of Maiden-hair Fern, they have a grace and delicacy that can hardly be equalled, and assuredly not excelled, by any other flower. Old established plants bloom the most freely, and if the shoots are thinned and the older ones spurred in almost like a Grape Vine annually, it is astonishing what masses of bloom may be produced from a rafter 15 feet or so in length.—Hortus.

CAMELLIAS AS STOVE PLANTS.

A note made of Camellias under stove treatment (p. 227) concludes thus: "The only effect the change of temperature has had on these plants is it causes them to open their flowers earlier, so that, judging from the above facts, Camellias should force easily." But they do not, as all experience proves. The writer does not say how long these particular Camellias had been under stove temperature, or whether, in fact, they had actually bloomed in tropical heat. As to the forwardness of the flower-buds at the present time, that really proves nothing, and is just what was to be expected. It is during the opening of these forward buds that the effects of stove-heat will be felt, and if three-fourths of the buds are not shot off in the process of expansion, the writer's experience of Camellias under high temperatures is different from that of ninety-nine out of every hundred of your readers. Instead of Camellias forcing easily, they will not submit to be forced at all in the ordinary sense of the term. Hurry their pace at opening, and the flowers simply throw themselves off in the bud state, or a step beyond it, in pailfuls. And they have done so from the beginning, do it now, and to all appearance, unless their nature is changed, ever will do so. The only season or condition in which Camellias will bear a stove temperature, say from 60° to 70° or more, is when they are making their young wood, and up to within a little of the period of their forming their flower-buds. With partial shade and semi-aquatic treatment at top and bottom during these stages, a high temperature may not be hurtful, but helpful; but beyond this stage it is dangerous to the crop of bloom. It is also injurious to the plants by forcing them to grow out of season, and if persevered in is likely to keep the Camellias in a feverish state of semi-perpetual growth, or to prove fatal to any bloom at all. To all who may be about to try a stove *regimen* for their Camellias, or to believe that they should force easily, we would utter an emphatic "Don't."

Hortus.

Tacsonias.—Among greenhouse climbers I think that the beautiful Tacsonia Van Volxemi ought to be in every house. It has large crimson flowers that are borne on thread-like stems, which vary from 12 inches to 18 inches in length, and, as these occur at almost every joint, some idea of the effect produced by such a number of flowers depending in this way may readily be formed. Although not so vigorous as mollissima, it is sufficiently so for ordinary purposes, and will cover as much space in a season as can generally be devoted to one variety. T. exoniensis is a hybrid between the varieties above named. The flowers are of a deep rose-pink colour with a violet throat, and possess the good qualities of those of both parents. Unfortunately, most of the Tacsonias are subject to scale, which, if not looked after and kept in check, increases to a great extent, and soon throws the plants out of health, but, as these pests are mainly on the stems, they may be destroyed by using a stiff brush and some of the insect-destroying compounds.—J.

Planting out Gardenias.—Growing Gardenias in pots is, as every gardener knows, a tedious plan. In order to grow them well the roots must have a run among good feeding material. But it is not the mere gain in the way of growth to which growers in general have to look; it is the crop of flowers. Well, then, if anyone wishes to have them by the bushel, make a young plantation, as is often done with Camellias, and let the plants have their own way for a while, and there will be abundance of flowers at more than one season. I used to grow them in the ordinary way in pots, but since I have been convinced that planting out is the best plan I have discarded pot culture. The way I did was to take a portion of a warm temperate house in which there

was some staging; I had a compost of loam, peat, and leaf mould mixed together, to which was added some sand. This was placed on the stone bench, levelled, and then planted, and half the attention needed for pot Gardenias served the purpose in this case. Several dozens planted in this way yield quantities of bloom to succeed Camellias and to take their place up to November. The sorts which I have used are G. Fortunei and radicans; the former is a vigorous grower and needs pruning; the latter may be allowed to go on as it likes. Syringing and occasional brushing are all that is necessary to keep the plants clean. I have advised numbers to try this method of cultivation; and, so far as I have been able to learn, all have done so with satisfaction and success — J. A.

Garden in the House.

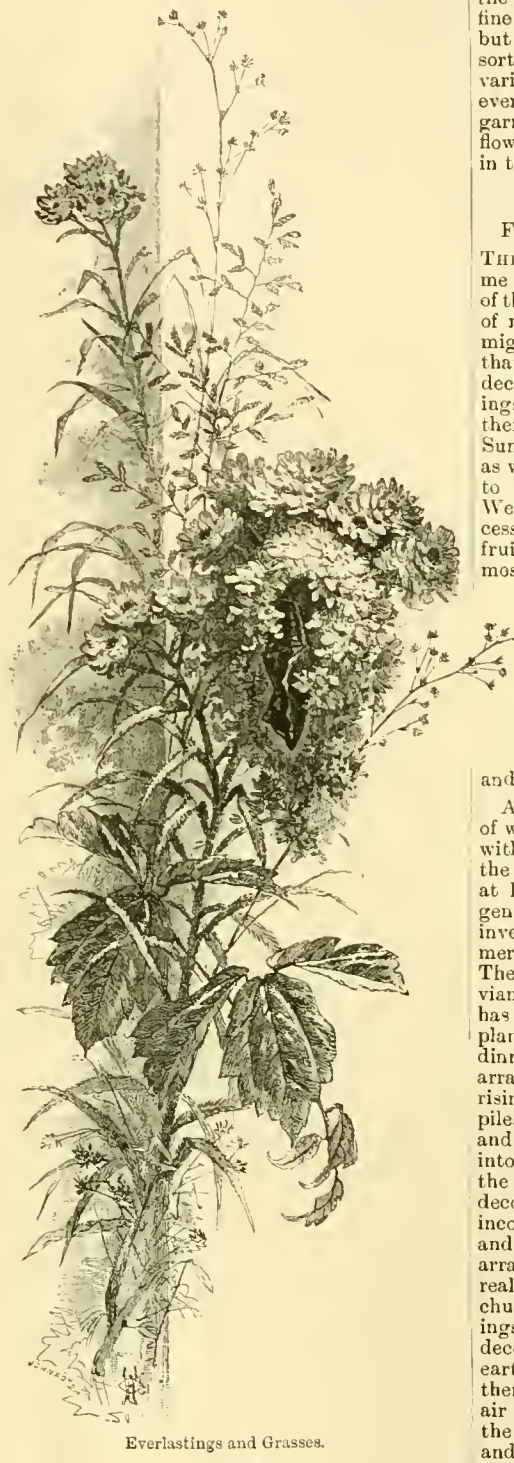
EVERLASTINGS AND GRASSES.

The class of flowers represented by the annexed illustration has become now-a-days almost as indispensable for decorative purposes during the winter as other classes of plants are during summer. Helichrysums, Antennarias, Gnaphaliums, the Australian Helipterums, Acrocliniums, Rhodanthes, Ammobiums, Xeranthemums, and many others are now largely grown and carefully dried before the flowers have become fully open, bunched and sold for winter decoration with some of the more ornamental Grasses. Their cheapness, too, brings them within the range of everyone; indeed, no one need be without a bouquet of Everlastings. Most of them are annuals too, and a little corner of the garden could be devoted to their culture, which is easy enough. They should be sown in spring, and, when up, thinned out to the required distances apart. We have seen Rhodanthe Manglesi sold for a mere trifle by street hawkers, and charming in the shape of plants it looks, while cut and placed in vases it is no less beautiful. The Ammobium is white with a yellow centre, as are also a few of the Helichrysums and Xeranthemums. The Grasses, many of which could be gathered by the wayside, make excellent bouquets by themselves, but mixed with Everlastings, Statices and a few Eryngos, if obtainable, they form most interesting winter bouquets. K.

White Agapanthus.—I am glad to find "F." (p. 212) commending the merits of this most useful variety. Singularly enough, though that and the variegated type of umbellatus have been long known, neither seems to have made much progress in general cultivation. Nor is the type half so common as its merits, in regard to foliage and bloom, entitle it to. It is one of the most useful and effective of vase or basket plants, and is admirable as an edging to beds of Lilies or other plants either near to water or otherwise. The variegated type seldom flowers so freely or grows so strongly as the green. But then the silvery foliage and graceful habit of the plant place it in the first rank among variegated plants without a flower at all.—D. T. F.

Nasturtiums for window boxes.—All admire the glowing colours of Nasturtiums, but all do not know what capital plants they are for balcony and window boxes. The confined root space checks over-luxuriance, and their ability to withstand drought especially fits them for elevated positions. In order to see their flowers to the best advantage, keep them in separate colours, which range from yellow to velvety crimson, and have only one kind in a box. I find a good stiff loam to be the best soil for them, a light, well-manured soil promoting too rank a growth early in the season at the expense of the late summer display. Good loam, on the contrary, pressed down firmly maintains a healthy growth throughout the entire season. Of course, much of the success attending the cultivation of Nasturtiums depends on regular attention to watering and, above all, to picking off the seed-pods, for no plant can continue to flower for months at a time if loaded with an exhausting seed crop. After midsummer a pinch of Standen's manure given in the water once a week to each box will serve to keep the foliage green and flowers plentiful.—J. G. H.

Scented leaves and flowers.—For indoor decoration there is always a large demand for flowers and foliage that are fragrant. Thus the Lemon-scented Verbena (Aloysia citriodora) is



Everlastings and Grasses.

always a favourite. If planted out against a sunny wall where the wood can get well ripened, it yields an endless supply of fragrant sprays. On the coast it is seldom that the winters are sufficiently severe to injure the old wood, but during severe frost a mat may be put over it. In more inland localities it is safest to put some straw first, or dry Bracken, and then a mat over all. Myrtles being evergreen are always welcome indoors, especially when in blossom. The common white Jessamine is also a capital plant for yielding sprays for cutting. Trained on a fence or hedge it is very floriferous, old plants being much more so than young ones. The scented-leaved section of Geraniums when planted out is valuable for cutting. Heliotropes, especially dark-flowered ones, are very popular indoors. Then there are the Mignonettes, a host in themselves, many very fine and distinct varieties being now obtainable; but for fragrance I do not find any of the new sorts to equal the old well-known small-flowered variety. Sweet Brier should find a corner in every garden; a bush or two of it to supply garnishing for bouquets, or sprays for mixing with flowers in vases, should always find a place even in the smallest of gardens.—J. G., *Hants.*

FLOWERS FOR HARVEST FESTIVALS.

The timely article (p. 185) on this subject induces me to make a protest against the glaring excesses of the majority of harvest decorations. Were masses of material considered to be a desideratum, then might the huge piles of fruits, vegetables, and flowers that litter up our churches and chapels rather than decorate them be admissible. Because the buildings are large is no sufficient reason for decorating them with armfuls or cartloads of Hollyhocks, Sunflowers, Dahlias, &c. Crowd or litter them up as we may, there must needs be room enough and to spare left for the sightseers or worshippers. Were this otherwise, then he who was most successful in converting his church into a barn or fruit, vegetable, or flower market would be the most skilful decorator. Some may be surprised at my reference to vegetables; but one of the most profusely decorated churches ever seen by the writer (it was in Leeds) had a bank of cut flowers and pot plants, almost reaching from the tiled floor to the vaulted roof, resting on a basis of Potatoes, Carrots, Turnips, Parsnips, Beets, Onions, Cabbages, Cauliflowers, &c., the mixture being as incongruous as the mass was overwhelming and the odour anything but inviting or agreeable.

All this massing of vegetable matter in places of worship is out of place, and wholly incompatible with refined taste, which is ever in harmony with the fitness of things. Besides, most decorations at harvest festivals and in other places, or for general purposes, are effective and pleasing in the inverse ratio to their size. The rage for bulk, mere mass, in decoration threatens to abolish it. The remark, that you can neither see guests nor viands at dinner for the decoration, is losing, or has lost, its force. The huge wagon-loads of plants, and flowers, and plate that cumbered dinner tables have generally given place to chaste arrangements of flowers or foliage on the cloth, or rising a few inches above it. But the massive piles turned out as vulgar from our dining tables and drawing rooms seem to have rushed pell mell into our churches and other places of worship, to the scandal of refined taste, the enslaving of lady decorators and others, and the discomfort and inconvenience alike of preachers and people. Little and good, and, above all, chaste and artistic arrangement of material are the main merits in all really successful decorations, whether in the church, the home, public halls, or national buildings. If, on the other hand, these harvest-festival decorations are designed as gifts, first fruits of the earth, for the clergyman or the poor of the parish, then let them be brought and piled up in the open air or in the school-room, and not crowded into the church, to its disfigurement and defilement, and the discomfort or distraction of the worshippers. By this arrangement neither parson nor people could suffer, while the church would gain immensely in cleanliness and beauty by being free from massive overcrowding of vegetable matter during its harvest festivals.

The general suggestions of the writer in question will be found useful. The cutting of Hollyhock flowering stems into lengths for decorative

uses has, however, the serious drawback of leaving a very bald and raw finish on their crowns, where their beauty should culminate. Where largely used for such purposes, either the entire stem should be employed or the crown of it only, the lower part being cut away to reduce it to the requisite height. In this way all the terminal lengths of the spikes would be utilised to the best decorative purpose, while the single flowers could be picked off the lower portion of the stems and used in those flat arrangements for which their brilliant colours and staying properties so admirably adapt them.

Further, where Hollyhocks are greatly in demand for decorative purposes, it is well to prepare them for the work during the growing season. Flowering spikes of moderate strength and length are really most useful for decorative purposes. There are several ways of obtaining these, such as growing a batch of late plants on purpose, growing the plants rather thickly in poor soil, and running a knife through the main stems of Hollyhocks and forcing such stems to break back with generally weaker ones. By such simple methods the decorator will find hosts of suitable spikelets ready to his hand when wanted for church festivals or other decorative purposes. Gladioli are simply magnificent in size and form for church decoration, and the other plants named by the writer just alluded to are useful. As to Sunflowers, though so heavily used by some, I am pleased to find he ignores the commoner and heavier examples, and only recommends the Harpalium rigidum, though some of the other Helianthuses are equally adapted for the purpose. But as so many of our churches have been groaning under their golden burden of enormous Sunflowers for years, I heartily thank him for his aid in abating the Sunflower nuisance by his silence about them. D. T. F.

Grasses for winter.—It is a good plan to lay in a store of the different varieties of Grasses at the present time for use during the winter months when they cannot be obtained in the fields. In cutting them for this purpose each variety should be tied in separate bunches, and care should be taken that they are not bruised together, for, if this is the case, when the bunch is opened each spike will be found to have dried in its crushed position, and its form will thus be quite spoilt, and its value for decorative purposes destroyed. All Grasses should be dried in an upright position, particularly those of a drooping character. Oats while still green are also very pretty in large arrangements, especially ears of black Oats, which I have but very seldom seen used. This variety forms a charming contrast to ordinary Grasses and Sedges, and I have constantly used it myself when I have been able to obtain it. The great value of Grasses is, that, in addition to giving a light appearance to a vase, a large plume of handsome Grasses and Sedges enables you to dispense with many flowers. To some this may be no object, but to many it must be a matter for consideration. The bloom of the Ribbon Grass is extremely pretty for mingling with flowers. It has a silver-like lustre in some stages of its growth, whilst in others it assumes a rosy pink tint, which is equally pretty. In the trumpet of a March vase, which has been dressed with pink and white flowers, a few spikes of the Ribbon Grass bloom help to carry up the colour with charming effect into the green of the other Grasses, flowers, and foliage employed in its decoration. For a trumpet vase the graceful drooping Oat Grass is best adapted. The common Horse-tail is also not to be passed over, as it, like the Grasses, forms a valuable addition to floral decorations, and may be found growing in moist places in country lanes, or on sandbanks by the sea.—A.

Cheap Roman Hyacinths.—We have tried some of the lowest priced bulbs of these Hyacinths and have found them to be so small and badly matured, that one spike only of bloom was produced by each of them; whereas, the best bulbs, which are only from 2s. to 4s. more per hundred, produced at least two spikes each, and we have found many of them to throw up three spikes. Indeed, so inferior are the cheap bulbs, that we can only count on having a hundred spikes of bloom from a hundred bulbs; whereas, we can always depend on having two hundred spikes from bulbs for which we only pay 3s. more money.—J. Muir, *Morgam.*

Fruit Garden.

PEACHES AND NECTARINES.

Of all the fruits under general cultivation, there is no class with which I am acquainted so completely shrouded under false nomenclature as the Peach. In every walled garden south of the Trent, and in many sheltered places north of the Tweed, we find not only good crops, but long lists of varieties of this delicious fruit grown, but how few there are who can name correctly the sorts with which they are best pleased. If Peaches, like Apples and Pears, lived out generations of gardeners, one might not feel surprised, as many of our finest varieties so closely resemble each other, as to render it extremely difficult for those who have not paid particular attention to the flowers and the foliage to distinguish them. This, however, is not the case, as we now rarely meet with trees over 40 years of age, and when we do, the chances are ten to one in favour of Royal George, Grosse Mignonne, or Noblesse. Their having outlived the planters and their labels, then, is not the cause of this false nomenclature, for everyone knows the sorts I have named. Moreover, comparatively new sorts as frequently turn out wrong as right, and often cause great inconvenience to those who have been patiently growing them on to a fruit-bearing state. To those who think a Rose under another name would smell as sweet, the name of a Peach might be of small moment, but let them try their hands at early forcing or planting a wall with varieties for giving a steady succession of fruit from July to the end of October; let them buy, as I once thought I was buying, half a dozen trained half standards of Hale's Early, and, after devoting two years to their management for forcing, find they have been supplied with a Peach quite as late as Walburton Admirable, and they will at once discover that there is something in a name. The Peach in question, which by the way no one, even including the firm who supplied it, seems to know, is a good one, and I would not on any account be without it for winding up the season, but it is not what I at the time wanted and paid a good price for. Many would have blamed the nurseryman; some would have said, never go there again for stone fruit trees; but I have not done either, for I am in love with the excellent stock, and I know the most honourable men get taken in sometimes when absolutely obliged to depend upon others, not only for their supply, but also for the manipulation of the buds. Viewed from this standpoint, it must be admitted that private growers who supply the trade with buds may quite unintentionally make mistakes, and so contribute to the confusion, as it is well known that thousands of Peaches are propagated from trees which nurserymen never see in bearing. When the florist sees or secures a good flower, he never sets full value upon it until he has ascertained its name. Why, then, should the fruit grower lag behind when, by paying attention to the flowers in the spring and the foliage in the autumn, all trees with false names can be detected the first year? Their true names may be a more difficult matter, but notes on size of flower, colour, character, and quality of fruit will soon enable him to correct many mistakes.

Peaches and Nectarines are divided into two classes by their flowers, which may be large, light coloured, and handsome, or small, darker in colour, and unattractive. The fruit may be rich, luscious, and melting, or tough, stringy, and adhesive. The first are called melting Peaches, the second clingstones. The leaves, a certain guide in all the old varieties and in most of Rivers' seedlings, will be found serrated on the edges and glandless, crenated with round glands, or crenated with kidney-shaped glands, three simple forms of structure which again divide themselves into sections. If the amateur wishes to ascertain whether his trees are true to name or not, he must obtain a small book and rule each page into four columns—the first for the number, the second for the name, the third for the size of the flowers, and the fourth for the formation of the leaves—thus—

No.	Name.	Flowers.	Leaves.	Remarks.
1	A Bec.	Large.	Round glands.	
2	Royal George.	Small.	Glandless.	

The first notes when the trees are in flower will enable him to fill in the third column; the second, when the leaves are fully developed, will complete the fourth column; size, colour, shape, and quality of fruit will be entered under the head of remarks at the end of the season. Furnished with one of the many books now published in which all the Peaches and Nectarines are divided into sections, we will take No. 1, A Bec. The notes taken in March show the flowers to be large, which is quite right; but when we examine the next column we find the glands are reniform, and we at once know the tree is not A Bec. In No. 2 all the characteristics are correct; the remarks bear out the assumption that the tree is true to name, and Royal George is done with. No. 1 is not true, but we know it belongs to the section having large flowers and kidney-shaped glands. In this way the trees, be they old or new, having false names, can be picked out in one year, and all can be thrown into their proper classes for future comparison. Peaches this season being generally plentiful, the preceding remarks may draw attention to their nomenclature, which, all must admit, is in a very unsatisfactory state; and the annexed list of sorts, which I have tried and thoroughly tested, may be of use to planters, who should soon be selecting their trees. There are, it is needless to say, great numbers of new varieties most likely equally worthy of cultivation. Some of these I am now testing, but should like to see more of them before I express an opinion upon their merits.

Early Peaches.

Early York.—Fair size, marbled with red; flesh melting; flowers large; leaves with round glands.

Hale's Early.—Medium size; skin deep crimson; flesh pale yellow and melting; flowers large; leaves with round glands. A good Peach.

Early Grosse Mignonne.—Full size; skin pale red, thickly covered with bright crimson dots; flesh white, veined with red; flowers large; glands round. One of the best.

Large Early Mignonne.—Fruit large; skin pale lemon, with bright crimson cheek; flesh melting, tender, and very rich; flowers large; leaves with round glands. A great acquisition to our early forcing Peaches.

A Bec.—Fruit large, one side higher than the other; skin bright crimson next the sun, pale lemon, covered with crimson dots; flesh melting and delicious; leaves with round glands. This and the two preceding are the best forcing Peaches grown, and they also lead the van when grown on walls. Being rather tender, they should be gathered before they are quite ripe.

Doctor Hogg.—Medium size, with deep suture; skin deep crimson; flesh firm, but melting, with rich flavour; deep red at the stone; glands reniform. An excellent Peach; packs and travels well.

Mid-season Peaches.

Alexandra Noblesse.—Fruit large; skin pale, flushed with pink; flesh white, rich, and melting; flowers large; glands round. Free, very hardy, and not subject to mildew.

Grosse Mignonne.—Fruit large, melting, and delicious; skin mottled with red and covered with soft down; stone small and rough; flowers large; leaves with round glands. One of our finest old Peaches; good forcer, and does well on walls.

Belle Beauce.—Fruit large and flattened; skin thin, downy, and brilliant crimson; quality excellent; flowers very large and handsome; glands

round. Rather shy when forced hard, but one of our most telling exhibition Peaches.

Bellegarde.—Fruit very large, flattened or depressed; skin dark purple; flesh rich, vinous, and juicy; flowers small; leaves with round glands. A grand Peach; forces well, does equally well on walls, and is one of the best for exhibition.

Dymond.—Fruit large and extremely handsome; skin deep crimson; flesh rich and delicious; flowers large; glands round. This variety is very hardy, a sure cropper, and, taken at all points, is one of the finest Peaches grown.

Stirling Castle.—Fruit large, slightly depressed; skin deep crimson; flesh white, tinged with red at the stone; flowers small; leaves with round glands. Equal to, and by many preferred to, Royal George, which it resembles, but, unlike that fine old variety, the foliage is seldom attacked by mildew.

Violette Hâtive.—Fruit above medium size, round and flattened; skin dark red, almost purple; flesh melting; flowers small; leaves with round glands. One of our hardiest and best Peaches, not unfrequently substituted for Bellegarde.

Royal George.—Fruit very large, round, and depressed; skin pale in the shade, marbled with deep crimson next the sun; suture deep and broad; flesh yellowish white, red at the stone; flowers small; leaves glandless. Too well known to require recommendation.

Crimson Galande.—Fruit large, round, and very handsome; skin pale straw colour in the shade, bright crimson next the sun; flesh white, tender, melting, and red at the stone; flowers small; leaves with round glands. A beautiful Peach, worthy of extended cultivation.

Magdala.—Fruit medium sized; skin smooth, almost like that of a Nectarine; white blotched with crimson, deep crimson next the sun; flesh greenish, melting, and very rich; flowers large, handsome, deeply coloured; leaves with kidney-shaped glands. One of Rivers' best Peaches.

Noblesse.—Although the off-spring, Alexandra Noblesse, is considered hardier, no selection can be complete without the parent. Fruit large, round, with small nipple at the apex; skin pale yellow, mottled with crimson when highly finished under glass; flesh white, slightly red next the stone, and very rich; flowers very large; leaves without glands.

Belle de Doué.—Fruit large, roundish, or oblate; skin covered with dark red; flesh melting, rich, and vinous; flowers small; leaves with round glands. A good Peach, not unlike Stirling Castle, but perhaps a few days earlier.

LATE PEACHES.

Barrington.—Fruit very large, round, with prominent nipple; skin downy, marbled with red next the sun; flesh firm, tinged with red next the stone, rich, and good; flowers large; glands round. A fine hardy Peach.

Walburton Late Admirable.—Fruit very large and round; skin yellowish green, mottled with crimson next the sun; flesh yellowish white, firm, juicy, and rich; flowers very small; leaves with round glands. One of our best late Peaches.

Sea Eagle.—Fruit very large, rather pale; succeeds Barrington, and keeps a long time after being gathered; flowers large; leaves with round glands. This and the two preceding occupy the front rank amongst late Peaches.

Nectarine Peach.—Fruit large and pointed at the apex, nearly smooth like a Nectarine; flesh firm, rich, and melting; colour pale unless fully exposed to the sun; flowers large; glands reniform. A very useful Peach, and keeps well after being gathered.

EARLY NECTARINES.

Advance.—Fruit medium sized, round, with a deep suture; skin dark bronzy green, deep crimson next the sun; flesh greenish white, rich, with Stanwick flavour; flowers large and handsome; leaves without glands. A very good Nectarine and a few days earlier than Napier.

Lord Napier.—This Nectarine is a host in itself, and should be planted wherever Nectarines are grown. Fruit very large, sometimes 9 ounces, pale cream, mottled with red next the sun when grown under glass, full crimson against a wall; flesh white, tender, juicy, and very rich, with Stanwick flavour; flowers large, glands reniform. A grand Nectarine, but rather tender in the flesh, and should be gathered before it softens for travelling.

Hardwicke.—Fruit large; skin pale purple next the sun; flesh greenish white, red next the stone; flowers large; leaves without glands. A good, but now neglected Nectarine.

Murrey.—Fruit medium-sized, round, one side higher than the other; skin pale green, dark red next the sun; flesh white, rich, and melting; flowers small; leaves with reniform glands. An excellent old variety, and forces well.

MID-SEASON NECTARINES.

Recent additions have made this section very rich indeed, all the varieties added by the late Mr. Rivers being well worthy of cultivation. Elruge, Violette Hâtive, Pitmaston Orange, Pine-apple, Balgowan, and Downton Improved will always be front-row sorts, and may be duplicated to any extent either under glass or against walls.

Stanwick Elruge I always associate with Napier, as I look upon these as the cream of the cream in the two sections. The fruit of this variety is very large; I have grown it 9 ozs.; skin suffused with crimson down to the stalk, bright crimson in the sun and almost black against a wall; flesh rich and melting, with high Stanwick flavour; flowers small; leaves with round glands.

Byron.—Fruit large, ovate, resembling Pine-apple; skin rich orange, marked with crimson; flesh orange, rich and red at the stone; flowers very large; leaves with reniform glands.

Milton.—Fruit very large and handsome; skin deep red under glass; purple-black against a wall; very juicy, rich, and finely flavoured. A grand exhibition Nectarine.

Spenser.—Fruit very large; skin deeply coloured even in the shade; colour peculiar, a kind of crimson overlaid with brick-red. One side of fruit a little higher than the other, still handsome, and promises to make a fine exhibition Nectarine.

LATE NECTARINES.

Albert Victor.—Fruit very large, flattened at the apex; skin pale green in shade, mottled with red when exposed to strong sun; flesh greenish yellow, tender rich, red next the stone; flowers small; glands round. A delicious Nectarine richly imbued with Stanwick flavour, but its pale green colour is rather against it.

Victoria.—Very large, roundish oval, flattened at the apex; yellowish in the shade, crimson on the sunny side; very rich, with Stanwick flavour. One of the best when grown under glass, but rarely succeeds in the open air unless the climate is extra good.

Humboldt.—Fruit very large, a seedling from Pine-apple; skin deep crimson, almost black against a wall; flesh orange, rich and excellent; flowers large; glands kidney shaped. Although earlier than Victoria, this will take a prominent place amongst late September Nectarines.

Eastnor Castle, Ledbury. W. COLEMAN.

Cox's Emperor Plum.—"G." does not overrate the usefulness of this Plum, the recognised name of which is Denbigh, formerly Denbigh Seedling. We have grown it for upwards of half a century, and as a Plum for preserving we consider it unequalled, and, moreover, it is excellent for dessert. The late Mr. Cox, of Ludlow, re-named it Cox's Emperor, and sent it out as a new variety about twenty years ago. Long ago it was cultivated at Denbigh, in the Vale of Clwyd, by a local celebrity, one Fulk Phrys (*Anglice*, Foulkes Price), whose name it now bears in that locality and surrounding country. Now, as Fulk Phrys is undoubtedly the original name in this country, should it not have the preference, unless the variety could be shown to be similar to any existing older variety?—JAMES DICKSON AND SONS, *Chester.*

Pyramid Gooseberry bushes.—Although the naturally low-spreading and spine-guarded Gooseberry is rarely seen as a tapering pyramid, it may be grown in that way so as to look much more attractive than in its ordinary state, and its fruit may be gathered, without stooping, as conveniently as that of an espalier Pear or Apple tree. We have recently seen a garden with several of its walks bordered by very pretty specimens of erect Gooseberries and standard Red Currant trees alternated, the Gooseberries simply tied to a slender iron stake rising about 7 feet above the surface of the ground, and pruned so as to gradually diminish from base to top to a mere point. The base of each cone was about 15 inches in diameter, and the whole perfectly furnished with fruiting spurs. Summer pinching of the shoots is practised to prevent the plants getting out of shape, and also to induce fruitfulness, and they are neatly pruned in winter. The kind best suited for this work is the rough red; it seems to make the handsomest pyramids, and is also a very desirable kind for eating or preserving.—R. T.

Diseased Grapes.—What is the cause of the disease on the Grapes which I send? It has done a great deal of damage in the case of Black Hamburghs. About five weeks after they are ripe, a slight indentation appears on the berry, followed by a red fungoid growth, which has destroyed one-third of the crop. I have now seen thirty-six crops on the Vines and never, until last year, have I seen this disease. I intend to keep our Grapes back another season, as they are not wanted till the end of August, when they might be used before the disease overtakes them.—D. LESLIE, *Appleby Castle, Westmoreland.*

*** As far as we can see, your Grapes have been badly spotted; that is, injured by sudden chills of cold air when the house is hot. The sudden opening of doors and sashes will often cause a depression or indentation on the berries, as described by you. The fungoid growth is an after result. The disease is said to be constitutional in the case of some varieties. The affected berries should be cut out.—W. G. S.

American Blackberries.—I send you a branch from my American Blackberries to show to what size they grow here in Surrey. I have also seen them do well in the garden of a friend some eight miles from Sheffield. Our American Blackberries have been planted about five years, and for the last three they have borne very large crops. They were at first very small plants, and were put in rather late in the spring. They are planted in a row just in front of our Raspberries, and are mulched with manure in winter at the same time as the Raspberries. The Blackberries are supported by wires, about 4 feet high, stretched between posts, but are not trained in any way. They are pruned in spring, and some of the growth is cut off after flowering to make it possible to get along the row. This summer they were watered once, just as the fruit was beginning to ripen, as we were afraid the drought might make the fruit drop. I suspect people who fail with American Blackberries do so from coddling; ours are fully exposed to the east and a good deal to the north.—T., *New Egham.*

*** The berries on the branch sent were plentiful, large in size, and in flavour excellent.—ED.

Strawberries degenerating. — Strawberries, like all other cultivated plants, do degenerate by incessant propagation from one and the same stock and by perpetual growth upon the same plot of soil, some varieties being more prone to this than others. Equally certain it is that change of soil will in a great measure renew their fertility, but I imagine that the addition of manure to such permanently used soil tends to give increased leaf vigour only. I draw this inference from experience in my garden. I have here a very old one; it possessed a Strawberry bed in evident vigour when I took possession in the month of September some years since. This I had cleansed and well manured, but was disappointed in the results the following season. I again, however, fed and grew the plants well, but the result was less

fruitfulness and greater vigour. Meantime I had given rooted runners from these plants to a neighbour not far distant which produced a good crop, and I have since learned that my old stock had been growing in this garden for very many years. I have obtained a change of plants, and have grown them on the same bed; being a convenient one, I elected to again employ it for this crop, and the result has been most satisfactory.—W. Earley.

Madresfield Court Grape.—All that "Cambrian" says (p. 234) of this fine Grape is true. But he should have added, beware of cracking, or given an antidote for this before advising amateurs generally to plant it. Perhaps no Grape Vine in cultivation has caused more disappointment among amateurs than this, and it is almost cruel to advise this class of cultivators to grow Madresfield Court without providing them with an anti-crack berry recipe.—Hortus.

Ripening the wood of fruit trees.—Mr. Hobday's timely remarks on this subject (p. 192) are as valuable as they are practical. There is one other radical aid to maturity, however, which he does not mention, that is, root-lifting or pruning. This arrests the supplies instanter, and so enables the sun to deal more effectually with the fluids sent to the front as to very materially hasten and heighten the fertility of the wood. After September every available means should be adopted to plump up flower-buds and harden the growth made for next year, and, unless under very exceptional circumstances, no more water should be given to fruit trees in the open air.—D. T. F.

The Magnum Bonum Plum—There is no accounting for tastes, but "J. G. H." will not get many to agree with him that the flavour of this Plum, grow it how we may, "is very good indeed—little short of that of the Green Gage." With the flavour of the latter, or such Plums as the Jefferson and Golden Drop, in one's mouth or memory, the Magnum Bonum must retire to the kitchen or culinary department, for which it is very well adapted. As a rule, however, it is rather a shy bearer compared with other excellent kitchen Plums, and hence it is now comparatively little grown, though in size and appearance and flesh, and even quality for culinary purposes, it is excellent.—Hortus.

Apple Beauty of Bath.—This valuable early Apple does not appear to be so widely known or grown as it deserves to be, and as far as I have seen it at exhibitions held this year it seems to be largely confined to the west of England. It is by no means a new variety, for I am informed that it was raised some twenty years since, and came from a pip of the Juneating raised by a market gardener in the neighbourhood of Bath, hence its name. I saw it this season at two or three west of England shows, and it was at the head of dessert Apples for flavour, and was represented by medium-sized handsome fruits, rather flattish, a good deal in the way of Fearn's Pippin, and with handsome crimson markings on a brownish yellow skin. As there is not a great number of good early dessert Apples, I think that Beauty of Bath deserves the attention of fruit growers. It comes in with the first earlies, such as Early Julien, Juneating and Mr. Gladstone. That it is a good and constant cropper there can be no doubt, bearing on trees of small as well as of large size. As many as four and a-half bushels have been gathered from eight small trees planted a year ago, and this year they have also produced a good crop. The fact that it invariably takes the first prize offered for dessert Apples ripe and fit for table at shows held during August is one of the best proofs of its earliness and quality, and it is all the more useful at that period for dessert; it comes in along with Jargonelle Pears, and makes side dishes for a large dessert when Strawberries are over. Apple Beauty of Bath therefore deserves the attention of fruit cultivators.—R. D.

* **Fruit trees with wet feet.**—The essential element of success in a case in which extra fine Apples were produced, says the *Country Gentleman*, was water—an abundance of water and wet feet from April to October. Alongside the handsomest show of Ben Davis Apples ever seen was a generous flow of water coursing down—not suffered to flow constantly, but as often as the soil seemed to need it. The same was true of the small fruits, and the result was Kittatinny, Lawton, and Wilson Blackberries, averaging in size well grown Siberian Crabs, and Black and Red Raspberries (of the finer kinds) rivalling Strawberries in solidity and form.

Trees and Shrubs.

THE UPRIGHT INDIAN SILVER FIR.

(ABIES PINDROW.)

In this country well-furnished and well-grown specimens of this interesting Fir are certainly few and far between, and for which the planter alone is responsible, for as the tree is perfectly hardy, there is no reason why special situations suiting its peculiar wants may not be chosen. Being somewhat predisposed to early spring growth, and in consequence liable to injury from what is termed late or unseasonable spring frosts, which occasionally nip hard even during the first weeks of May, this fine tree, when improperly placed, not unfrequently suffers rather severely from loss of the newly formed shoots, which gives it anything but a desirable appearance. By careful choice of soil and site, the latter in particular, the above evils may, however, be greatly obviated, and indeed entirely removed, and stately, well-furnished specimens produced, the only conditions being that a northern or eastern aspect be chosen, and a cool, late soil and sheltered situation—conditions that are readily enough procured on most estates.

In its native country this Fir is a noble tree, attaining heights of from 60 feet to 150 feet, with a densely clothed stem, the habit of growth being broadly conical, or the lower branches short in proportion to the tree's height. The stem is tall and straight, with a gradual taper from base to apex. Branches disposed in horizontal whorls, short and spreading. Leaves very variable in size and arrangement, those on young trees being thickly and regularly disposed on all the branches, 1 inch long on the under side by half that on the upper, the greater number bifid, and with two rather indistinct silvery lines beneath. In adult trees the leaves are 2 inches to 2½ inches long, and arranged in two rows horizontally. The colour is of a deep green, or if one might use the term blackish green, it would be far more descriptive. Cones oval, 4½ inches long by 2½ inches diameter, and produced singly (sometimes I have noticed them in pairs) on the upper sides of the three topmost tiers of branches. When they have attained full dimensions they are of a deep purple colour, and highly ornamental to the tree.

I have examined several thriving specimens here, and in all cases the leading shoot is welted or thickly covered with longitudinally arranged raised surfaces like whipcord. To the touch the whole shoot appears as if composed of india-rubber, and readily yields to finger pressure. The buds are remarkably large and prominent, oval in form, resinous and scaly. In young trees, after they have attained, say, 4 feet or 5 feet, the growth is very rapid, frequently as much as 16 inches of a leading shoot, and from half an inch to three-quarters of an inch in diameter, being produced in one season.

We have been fairly successful here at Penrhyn in the cultivation of this handsome Fir, and several well-branched, vigorous-growing specimens are the result. The average annual rate of growth is nearly 18 inches, and it is not at all unlikely that after the trees have attained to a certain size and age their growth rate will be increased, although I can hardly say that this is the case with a 40-feet specimen growing in the park; but it is also but fair to add, in this particular instance, neither soil nor situation received the amount of consideration that is necessary for the successful development of this particular tree in the climate of Britain.

Our finest specimen of Abies Pindrow is growing on a rocky eminence midway between the castle and the kitchen garden, but is well sheltered from the prevailing winds of the district by taller growing trees, the soil being loam freely mixed with broken rock fragments, and deeply top-dressed by leaf-mould in all stages of decomposition. Its present height is between 40 feet and 50 feet, with a trunk girth, at a yard up, of 44 inches. Cones have for years been produced abundantly, but always on the upper part of the tree, but no attempt at raising seedlings has yet been resorted to. The branches are rather irregularly produced and of uniform length, but reveal in a marked degree the peculiarities of the tree in its native wilds. This tree cones at a very early age, specimens of not 5 feet in height bearing these whilst still in the nursery borders. The strong, robust leading shoot formed by the tree is particularly noticeable, more especially when grown, as they are here, alongside numerous other members of the same family, including Pinsapo, nobilis, Nordmanniana, &c. I measured the diameter of leaders on six different plants growing in the park and nursery grounds, and found the average to be fully 1¼ inches, there being but little taper from the

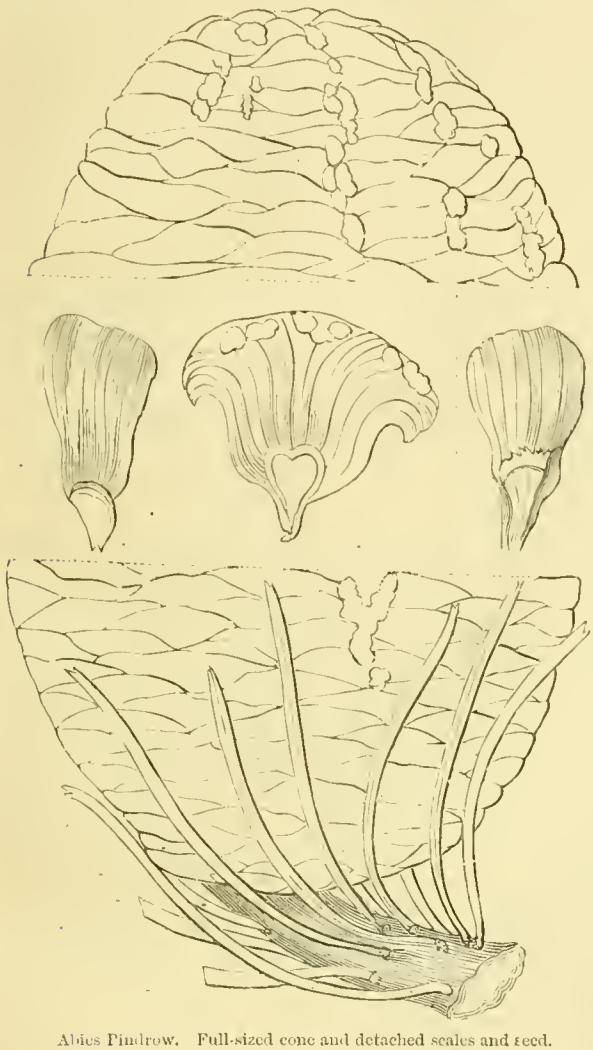
Abies Pindrow; coning branch and cone (reduced).

last year's start to the top of the shoot. Young trees of this Fir especially present a remarkably stiff, sturdy, and unyielding habit of growth. As regards quality of British-grown timber I know nothing, but Gordon tells us that it is "good, but soon warps and rots if exposed to rain and sun." It was sent to us in 1837, and is found more or less plentiful on the alpine heights of North-western India, at altitudes ranging from about 7000 feet to 13,000 feet.

The nursery management of Abies Pindrow requires more care than is usually bestowed on the generality of Conifers, as for the first half-dozen years we have, here at least, found it more susceptible to injury from unseasonable frosts than at any other stage in the tree's existence. To obviate this, choose a well sheltered—sheltered from the sun, but not wind—piece of ground facing north or east, in which to place the plants, and let the soil be free, but heavy, so as to prevent as much as possible an early start to growth. By this means the young trees will become gradually inured to our climate, and may be planted out with safety in similar situations when 6 feet in height. Although the leading shoot and tips of the branches may be cut back by frost during severe seasons, still no Conifer would seem to suffer less or pass through the ordeal with greater success than the one in question, and we have here more than one fine, healthy, well-furnished

specimen that at a certain stage of their existence certainly looked far more fitted for the rubbish-heap than ever to become suited for gracing the conspicuous positions they now so nobly fill. A. D. Webster.

Seaside Pines.—It may not be generally known that the Black Austrian Pine is an excellent seacoast tree. The rich massive foliage preserves its somewhat sombre, but healthy green in all situations. It should be planted in masses, as when isolated as a specimen, or standing singly among deciduous trees, it is rather apt to be overturned by storms, because the roots are rather spreading than descending, and the head of the tree becomes very heavy and branching. The Corsican Pine, also a capital seaside tree, is of more rapid growth than the Austrian. It is a good tree to plant in exposure, and is not particular about soil, appearing to thrive equally well in heavy clay and in thin poor soils. It is the last of the Fir tribe that rabbits will attack, no mean point in its favour. Pinus insignis is a real seaside beauty, for of all the true Pines this is the greenest, and in mild districts the most rapid in growth, and is all that can be desired as an ornamental forest tree. In high cold districts it is not hardy, from its habit of making a second growth in autumn.—M.



Abies Pinsdrow. Full-sized cone and detached scales and seed.

Cut-leaved Alder (Alnus glutinosa laciniata).—One of the finest trees that exists in this country of this Alder grows near the margin of the lake at Syon. So fine was this tree even fifty years ago, that a drawing was made of it for Loudon's "Arboretum." It was then 63 feet high, and the head as many feet through, and with a trunk 3 feet in diameter. It is a grand specimen, and in summer, when its leafage is in perfection, it is one of the most beautiful trees in the place. It is excellent for planting by waterside, as it not only flourishes in such a situation more vigorously than elsewhere, but the low-spreading branches have a beautiful effect in such a position. It is, in common with all the Alders, a good subject for planting in swampy ground, provided the water is not excessive, at least for the greater part of the year.—G.

AN AMERICAN ARBORETUM.

The Arnold Arboretum of Harvard College, which contains 165 acres of land, quite varied in character, is yet in its infancy, having been commenced only in 1874, when the seeds of the first trees were planted; so that, excepting the older trees previously on the place, of which there are many, a great portion is only nursery plants. Along the roadways will be planted both native species and those of foreign introduction, including all the varieties, so that even one not possessing special botanical knowledge can at a glance comprehend the arrangement and see by comparison the plants which best endure our climate. The arboretum will thus be a living museum, where the nurseryman, gardener, and private landowner may come for trustworthy information regarding all trees or shrubs, which will save them the cost of personal experiments, and of delays caused by unfortunate selections.

The collection of living plants at the arboretum is richer in species than any other in the United States, numbering at the present time over 2000 species and varieties of woody plants. Many of these may prove failures; but it is the work of the arboretum to show by living illustrations what to select and what to avoid. Experiments are also being made with seeds of plants taken from widely different localities, with the hope that additions may be made to our lists of hardy trees. This has already been done in several instances, such as Abies concolor, Pseudotsuga Douglasi, and several others; the seeds of those plants brought from the warmer parts of the Pacific coast having proved of little use to us in our changeable climate, while seeds from plants of the same species growing in Colorado under conditions similar to those in New England have produced plants which, so far, stand our climate as well as our native trees.

A shrub garden has been made, comprising about two acres, laid out in beds 10 feet wide, by 275 feet long, sufficient in extent for 1157 species and 357 varieties. The shrubs are systematically arranged, and not only botanically, but, as far as possible, geographically, American plants coming first. Here anyone with even a limited knowledge of plants can take notes of these growing specimens, which will enable him to gain more knowledge than months or even years of study of books or catalogues could give, and will help him to make such selections as he would like to plant. All this is done at the expense of the arboretum, thus giving all who wish to avail themselves of its privileges and advantages a real school of instruction free of all cost; and this will go on from generation to generation.

Among the larger Orders planted are fifty species of Spiræas and thirty-two varieties; thirty-four species of Clematis; twelve species of Euonymus and nine varieties; fifteen species of Rhamnus; fourteen species of Caragana and three varieties; forty-four species of Prunus and nineteen varieties; fifty-two species of Roses and eighteen varieties; nineteen species of Blackberries and twenty-four varieties; twenty-eight species of Philadelphus; twenty species of Ribes; fourteen species and seven varieties of Cornus; twenty-one species of Snowballs and three varieties; thirty-one species and eleven varieties of Honeysuckles; twelve species and three varieties of Huckleberries and Blueberries; sixteen species and five varieties of Rhododendrons; nine species and thirteen varieties of Ericas; and fourteen species and thirteen varieties of Lilacs.

Coniferous trees, such as Picea, Abies, Larix, and Pinus, are planted in single specimens and groups. Those of the best known utility will be planted for permanent effect, while unknown varieties will be so distributed that, in case they fail or prove unsuitable, they can be removed without defacing or marring the permanent planting, the effect in the landscape being also carefully looked after. It is the intention to give the preference to American trees in large groups and single specimens, while native shrubs will be planted as an undergrowth of the larger trees. For this purpose over 62,000 plants were collected last autumn, comprising all the best native shrubs in the New England States. Many thousands were planted in the spring of 1885, the most noticeable perhaps being at a point on the right of the entrance to the arboretum, planted with White Pines to correspond with the magnificent Hemlock grove on the opposite side. Within the last five years miles of boundary belts have been planted, comprising all the native trees as far as possible; and a grove of Pinus resinosa (the Red Pine), to the number of fifty or sixty, which in ten years will make a fine appearance. This is one of the most beautiful of American Conifers, and is well deserving of more general cultivation both for ornament and timber.

Among the many promising trees, the following deciduous kinds—Betula papyracea, Catalpa Kæmpferi and speciosa, Cladrastis amurensis, Fraxinus americana (a remarkably fine form of this species, with beautiful foliage, bright and shining above and glaucous beneath)—were especially noticeable. Fraxinus mandschurica and potamophylla—these two are from Northern Asia and Japan. Juglans mandschurica.—This tree was raised from seed eleven years ago, and has borne several crops of fruit. Phellodendron amurense (the Amoor Cork tree).—One of the two original plants raised from seed being pistillate and the other staminate, seed was perfected. It is believed that this is the first seed that has been produced in this country. Prunus sibirica. Quercus Daimio, macrocarpa, palustris, and Prinos. Syringa japonica.—A very rare species of Lilac from Japan, flowering in the middle of July; the trusses are a foot or more in length and pure white. It is a small tree rather than a shrub. Pyrus.—There is a fine collection of species from Northern Asia and Japan, which are very beautiful in flower or fruit, such as spectabilis, Toringo, and baccata, and their varieties.

Of the Conifers may be mentioned Abies brachyphylla, from Japan. A. concolor, from Colorado, one of the finest specimens in the arboretum. A. Fraseri and balsamea var. Hudsonica. Chamæcyparis (Retinospora) obtusa and pisifera, and their varieties. There is no doubt that the many varieties of this plant in cultivation came from these two original species. Juniperus communis aurea. Picea alba, a variety known as Maxwell's Golden Spruce; P. alba cærulea, Engelmanni, excelsa and its many varieties, pungens and its varieties, many of which are very handsome, and being quite hardy promise to become very desirable for general ornamental planting. Pinus Buogeana, excelsa, flexilis, Jeffreyi, Murrayana, parviflora, ponderosa, resinosa, Strobus and its several forms. Pseudotsuga (Abies) Douglasi, the Douglas Fir or Red Fir of Oregon.—*Transactions of Massachusetts Horticultural Society.*

The Rest Harrow (Ononis fruticosa).—I was glad to see this little shrub noticed (p. 216). Growing under ordinary conditions it is looked upon as a pest, but it is really ornamental. Here it grows in rough pastures on the hillsides, as though it was an indigenous plant, but this I believe is not so. One place where it abounds was formerly forest, *i.e.*, within the last century or two. From this it would appear to be a shrub which would grow well under trees, or at any rate in odd corners of the shrubbery.

Judging from the persistent way in which it grows in spite of frequent cutting, it must be one of our hardiest shrubs. Perhaps some one who grows it would give their experience of it. I only know it wild.—Rustic.

Kitchen Garden.

ROTATION OF CROPS.

Experience has taught us that farmyard manure contains in some form or other the elements upon which most plants feed, and that that, in combination with deep tillage, suits the majority of plants and enables them to thrive fairly well for several years together on the same land. Potatoes, for instance, in small gardens occupy the same ground year after year without any visible deterioration, especially if the seed be changed frequently. Onions, again, are often in small gardens sown year after year on the same land. But both these and Potatoes occupy the ground but a short time in comparison with some other crops—Cabbages, for instance—and where the land is well manured with an occasional sprinkling of lime, combined with deep cultivation, the question of rotation is of but little moment. But where rotation is really important is in dealing with the Cabbage tribe. If we want to avert such evils as clubbing, rotation must be insisted on. No one should plant successional crops of Cabbages or Brussels Sprouts on the same land. Deep culture in combination with liberal manuring solves, as I have said, a good many difficulties, but under the most favourable conditions, as to depth of soil and manuring, it would not be wise to neglect rotation in the case of green crops generally. In a garden always fully under crop it is not possible to follow out strictly any system of rotation, but I always make it a rule never to plant any of the Cabbage tribe on the same land two seasons in succession. In the matter of Potatoes fresh land can be brought up from below, and artificial manures can be employed to supply the wants of the plants. Compost can be used in the drills with the same objects in view, and the same remarks apply to root crops generally. Of late years the tendency has been to move what was formerly regarded as permanent crops more frequently than was at one time done, and with advantage to the crops themselves. Asparagus, Globe Artichokes, Horseradish, Strawberries, and Raspberries are looked upon less as fixtures than they were formerly, and all such things are improved by frequent removal. E. Hobday.

Lettuces for spring planting.—If seed has not been sown some should be put in at once in finely worked ground and where the sun shines freely through the greater portion of the day. In the case of plants raised at such a late date, it is not safe to trust them in the open ground through the winter. They should enjoy the protection of a handlight or frame in severe weather. In the open ground worms are apt to draw them under, and what with melting snow, alternating with hard frosts and a continuance of heavy rains, the greater portions of the plants are apt to come to grief. Even when the plants are raised, as they should be, at an earlier date, their fate is always an uncertain one in the open ground. Transplanting and a warm position at the foot of a wall will do much to save them, but those who require an abundance of Lettuces at an early date should have two strings to their bow. By sowing quite early in September for the open air, and a fortnight later to keep over in frames, the risk of failure is obviated. The Brown Cos is, of course, the best for autumn sowing, but it is a good plan to sow some of the Paris White Cos about now, as these come in well to succeed the hardier kinds, and if planted out early on good ground they make fine heads at a comparatively early date.—J. C. B.

Tomato Blenheim Orange.—This variety is a decided acquisition; it is very early, prolific, handsome in shape, juicy, and of fine flavour. It was raised by Messrs. Carter, between the yellow Green Gage variety and a red one. It has been in fine condition at their nursery at Forest Hill.

PROGRESSIVE EARTHING OF CELERY.

I am glad to see "R. T." (p. 220) protesting against this practice, as a waste of time and labour and a means of depriving the roots of moisture. The earth against the stems is only useful for the purpose of blanching them, and can be of no use as a fosterer of growth. On the contrary, its mere mechanical weight must of necessity prove a physical hindrance to enlargement of size. Besides, the debilitating effects of blanching on vital vigour unduly handicaps the plants in their efforts after enlargement. All artificial blanching is a weakening process, and in this way it cannot fail to be injurious to the Celery. There is yet another reason against the practice. A perfect stick of Celery should be of uniform quality throughout. This it can hardly be, unless it is blanched simultaneously. Blanched piecemeal, it will vary in crispness, tenderness, and sweetness in the ratio of time its various parts have been blanched. There is no objection, but the reverse, to the progressive surface-mulchings of soil recommended by "R. T." These may husband moisture and stimulate growth. But the earthing up of Celery for blanching should be mainly performed all at once. The word "mainly" is used advisedly, for occasionally Celery is earthed up too high at one operation, to the serious injury and, at times, the decomposition of the plants. If only the tips of the leaves are left out and the plants are strong and in vigorous growth, they may receive a sudden shock from which they will hardly recover; but if about 6 inches of leaf be left out of the earth, and especially if the plants are prepared for earthing up by the removal of superfluous leaves and suckers a day or two beforehand, and especially if a dry day is chosen for the occasion, they may be earthed up at one operation, though it is good and safe practice to add a little more earth a fortnight or three weeks after the main earthing. But this one earthing and a little afterwards is as different as can well be from the progressive earthing that so many cultivators still indulge in—a practice which deprives the roots of this semi-aquatic plant of moisture and places the stems of a free and loose marsh plant in a vice of hard soil during the most important period of its growth. Hortus.

Pipy Celery.—Mr. Peter Henderson writing on this subject in the *Gardeners' Monthly* in allusion to an article which appeared in The Garden says: The writer takes the ground that hollow or pipy Celery is always the consequence of using seed of some worthless kind. That this is true in general there can be no question, as a most extensive practice in growing and testing the different kinds of Celeries well proves; but our experience also has proved that on stiff heavy soils the same variety of Celery will be specifically heavier than on boggy soils formed mainly from leafy deposits. I first discovered this some twenty years ago. We had two places in which we grew Celery, one, leafy deposit and the other heavy clay loam, and in marketing the crop, we found, which was nearly of the same bulk, that that on the clayey loam was nearly one-third heavier than that grown on the leaf-mould soil. All giant or tall-growing Celeries should be avoided; as a rule they are always more hollow than dwarf-growing sorts, give twice the labour to work, are inferior in flavour, and under the same conditions rarely give as much weight of crop. No market gardener who knows his business ever grows the "giant" Celeries here now.

Tobacco in Wales.—In April last I received a packet of Tobacco seed from Messrs. Carter for trial. It was sown in a cutting box, germinated in a gentle heat, and the plants were hardened off by the middle of May. When they became too close in the seed box they were transplanted to other boxes, and thus given more room. By the end of May they were 6 inches in height, and then they were planted out. The spot selected for them was an east border that had been previously cropped with early Peas. The surface was hoed over and the plants were dibbled in like Cabbages. For many weeks after being planted no rain fell, and they only made slow progress during June and July, but when rain came in August, they grew rapidly, and they are now 5 feet in height, a perfect thicket of huge luxuriant leaves. Judging, therefore, from the way in which Tobacco has succeeded here under somewhat rough and inexpensive treatment, I feel sure that it would succeed as a field crop.—J. Muir.

Tar paint.—I am about to tar some outbuildings, and am told that if paraffin oil is mixed with the tar it will be an improvement. Is that so, and in what proportion should it be applied?—M.

*** Take of gas tar a given quantity and place it while cold in an iron furnace or three-legged pot. Make a slow fire beneath it, and when the tar nearly boils add half a pint of turpentine to every gallon. Stir well, and when it has boiled or been kept at boiling point for half an hour it will be ready for use. It can be applied to ironwork or wood when hot, but we always prepare a quantity and keep it in casks for use cold, as it works as freely as oil paint and lasts several years. New work, if wood, should be thoroughly dry, and iron free from rust, when the first coat is applied; hence the importance of having the varnish ready for use as soon as the building or fence is finished. A second coat should follow as soon as the first is well set, when a single coat every two or three years will suffice. We have not tried paraffin, a cheaper article which may answer equally well, but the cost of the turpentine varnish is a mere trifle compared with its excellent quality, viz., 2d. a gallon for gas tar and 4s. 2d. per gallon for turpentine. It may be well to remind the inexperienced that some little tact must be brought to bear on the incorporation and boiling, otherwise the mixture will prove unmanageable. This difficulty we get over by using a nine-gallon pot for four gallons of the varnish, and suspend the pot on a horizontal rack or arm by means of which it can be moved quickly from the fire.—W. Coleman, *Eastnor Castle, Ledbury.*

Obituary.

John Cox, long gardener at Redleaf, died at The Firs, Marlborough Road, Ryde, on the 30th ult., aged 71. Mr. Cox some years ago resigned his situation at Redleaf, and retired to the Isle of Wight. His health began to fail as long ago as the summer of 1881, when he had a sunstroke, and gradual softening of the brain has been going on since then; but he retained his mental faculties in some measure until two or three days before his death, although his speech and hearing were very imperfect. About three weeks ago he had an apoplectic seizure and then sank rapidly. He was interred, on the 2nd of September, in Brading Churchyard, a suitable resting-place for one who had lived all his life in a garden.

Nerium Oleander (*T. Barnes*).—A very fine specimen, but arrived too withered for our purpose. Oleander flowers do not travel well.

The "Garden Annual."—Gardeners should *at once* communicate any changes of address to the editor of this, or corrections cannot be made for the new edition.—Address, Editor, "Garden Annual," 37, Southampton Street, Strand, W.C.

Names of plants.—*Charles Harris*—1 and 2, varieties of Athyrium Filix-femina; 3, Lycopodium alpinum; 4, a Saxifrage, probably oppositifolia.——*W. S. B.*—The name of the berried shrub which grows in Glen Farg to a height of 8 feet or 10 feet is Berberis vulgaris.——*F. H. L.*—Abelia rupestris (shrub), Amaryllis Belladonna (bulb), Gongora portentosa (Orchid), Begonia Rex (variety).——*D. M. Russell.*—1, we do not name Roses; 2, Ragwort (Senecio Jacobæa); 3, Epilobium angustifolium; 4, Hypericum hirsutum.——*W. E.*—Yellow is Œnothera missouriensis; purple is Aster Amellus.——*G. F.*—Some species of Silphium, but as the lower leaves are not sent we cannot determine the species.——*B. Foster.*—Epidendrum macrochilum roseum.——*A. C. Bartholomew.*—Barnardia scilloides, Calceolaria chelidonioides, Campanula Hendersoni, Alstræmeria psittacina; 2, Sedum spurium; 3, Sedum oppositifolium; 4, Sedum album.——*J. H.*—Diplacus glutinosus.——*Blechnum.*—1, Asplenium Adiantum-nigrum var. acutum; 2, Lomaria alpina; 3, Cystopteris fragilis; 4, Polypodium vulgare var.; 5, a form of Athyrium Filix-femina.——*F. E.*—Chrysanthemum (Leucanthemum) maximum.——*O. B.*—We cannot undertake to name varieties of garden Peas.——*C. & Son.*—Very immature, probably Polyporus terrestris in an infant state.

Names of fruits.—*Pomme Poire.*—1, Warner's King; 2, Echlinville Seedling; 3, send when ripe; 4, Williams' Favourite.

WOODS & FORESTS.

TREES FOR CLAY SOILS.

To the casual observer there may not be much difference between the trees of different districts, and to a certain extent the species upon one kind of soil insensibly blend with others growing upon lands very diverse in character. Even botanically there may be little to indicate the varying conditions, but practically they are plainly enough marked. In clay itself there is, of course, a great deal of difference. These remarks apply to what is known as the Oxford clay—a bed whose depth has not been ascertained. The Oak has, I suppose, an affinity for most clays; at any rate, it is a tree which thrives on clays of quite a different nature in some parts of Sussex I am acquainted with, and there the timber is spoken of as being of especially good quality. After all, quality is the end and aim of tree culture, as an apparently fine lot of trees may turn out to be of little timber value. In this respect planting the Oak upon the Oxford clay is perfectly safe, because for soundness of quality and durability there is no soil with which I am familiar where better Oak is grown. From an agricultural point of view, these soils are of but very doubtful value. Occasionally in an especially favourable season some fair crops are produced upon the arable portions, but the pasture is generally poor and indifferent. The Oaks on this class of land are relatively slow in growth, but this is compensated for in the worth of the timber when grown. There are other trees which I shall mention, and many of them produce good timber on clay, but the Oak is, *par excellence*, the tree. In many cases good Ash is grown either with Oak or on soils of a similar nature, and in the case under review this, to a great extent, holds good. Ash for the production of the best timber always requires to be grown in plantations in contradistinction to the field or the hedgerow; but on this clay I have found the greater proportion of Ash trees, when grown under the less favourable conditions, to be of fine texture, and, so far as the boles grew, were free from knots, and all which could be desired for the best work. Of Elm I cannot speak in quite the same terms, as although the wood produced is usually of good quality so far as soundness goes, it does not often grow to the size or with the clearness of grain which is essential in this wood for the best uses. Of Beech I cannot speak with any degree of certainty, as at the moment of writing I have not any data to judge by. On the whole, however, I do not look upon it as a tree especially suited to clay planting, as it generally succeeds best where the subsoil is free and rocky. In many cases where the soil is moist and otherwise suitable, the Poplar can be successfully grown upon this clay, and I also know of many Willows of good size growing under corresponding conditions.

With regard to Conifers generally, I do not look upon them as being well adapted to such soils. Plantations of Larch here are apparently doing very well, but, on the other hand, there are many young trees which are dying off. Of the smaller species which do not, as a rule, reach a timber size there are plenty which do well, a great number no doubt being indigenous. Perhaps after the trees which have been mentioned the Hazel in coppices is most abundant. This seems to do well upon the clay, but possibly does not grow so rapidly as it does upon some other soils. Of Thorn and Elder there are always large quantities, and the common field Maple does well. While speaking of this, it may be well to note that where the Maple thrives the Sycamore should succeed, and by analogy in other respects it is a tree which seems suited to the Oxford clay. These notes as far as they go are the result of observation and experience in dealing with the woods here, and I have no doubt there are others who have remarked many circumstances connected with trees upon this class of soil which have escaped the writer's attention. I take it to be an important point in forestry literature that more information should be diffused upon this subject of trees and soils; therefore any notes upon it would, I have no doubt, be appreciated. D. J. Yeo.

HARVESTING TREE SEEDS.

The best tree seeds are those produced by fully fertile, healthy, vigorous trees, growing not too closely together in a favourable soil and situation. Very young trees usually furnish a large proportion of barren seed, while very old or weakly trees yield seeds which are not only difficult to keep, but also produce weak plants. Seeds ought to be collected only when they are ripe; such as are not fully ripe when taken off the tree do not possess the germinative faculty in the same degree as ripe seeds, and, moreover, lose that faculty much sooner. The ripe fruits of some species hang on the trees for a considerable time, and such one need be in no hurry to harvest; but there are other species, the majority of the seeds of which, with or without the rest of the fruit, are shed as soon as, or soon after, ripening. Among these are several kinds of deciduous Oaks, Silver Firs, Birch, &c. The collection of such seeds evidently admits of no delay. Rainy weather ought, whenever possible, to be avoided for the collection of seeds, especially of such as are small; but this prohibition, as a matter of course, does not extend to such seeds as are to be sown at once, or, which comes to the same thing, as cannot under any circumstances be preserved.

Hand-gathering from the trees is the most costly method, but is the only one applicable in the case of small or light fruit, such, for example, as Elm, Maple, Ash, &c., or of small light seeds that escape from the ripe fruit still hanging on the tree, as those of the Deodar, Silver Fir, Birch, &c. The seed-collector must climb to the crown of the tree, with or without the help of a ladder, as he can best manage, and with a sack slung over his shoulder. What he cannot reach directly with his hand he must draw to within arm's length of himself by means of a hook attached to the end of a light, but strong sapling of sufficient length. Branches and branchlets break off less easily when drawn upwards than if pulled downwards; hence it is always advisable for the collector to climb up to the highest point he can attain and begin by plucking off the fruit hanging at the summit of the tree. Gathering seeds or fruits from the ground after they have fallen from the trees is economical, and applies especially to large, heavy fruit which fall more or less perpendicularly, and which do not break up and allow the enclosed seed or seeds to disperse. To facilitate the fall of the seed or fruit, the branches of the trees may be shaken.

When trees marked to fall within a year or so are chosen as the seed-bearers, it may be found inconvenient or impossible to fell the trees as soon as the fruit ripens. On account of the nature and small size of the fruit and seed, shaking the trees and picking the seeds from the ground may also be inapplicable, while hand-picking would be unnecessarily expensive, since there is no reason for sparing the fruit-bearing branchlets and twigs of such trees. The fruit may then be broken off singly or in bunches with the aid of a strong hook forming a sharp angle of about 30° firmly attached to one end of a long sapling. The inside edge of the hook should be sharp and serrated and slightly curved inwards. The hook should be passed over the fruit-bearing branchlet or twig at the point at which it is to be broken off, and jerked downwards; or, if that does not suffice, it should be twisted round once or twice, by which means the branchlet or twig, as the case may be, will be firmly caught in it and a single jerk will then suffice to cut the former through. Where small wood has no value, and there is no objection to thinning out the crowns of the trees, branchlets of a certain thickness may be cut off with a bill-hook, and the fruit then hand-plucked from them. Some trees produce bunches of fruit, the common stalk of which dries up at maturity and early disarticulates from the rest of the branchlet.

In the case of seeds having a thick and fibrous covering the rind must be torn off with the aid of special shears, and in the case of seeds included in a capsule or pod or between scales, the quickest method, when practicable, is the application of heat, under the action of which the valves of the capsules or pods and the scales of cones open out or disarticulate, and allow the enclosed seeds to escape. In many cases simple exposure to the sun suffices; in others, however, a higher and more sustained temperature is required in order to bring about the full expansion of the seed vessel.

With seeds having leafy appendages, the wholesale removal of the appendages, except one by one with the hand, is not always possible without injury to the germinative power of the seeds; but whenever practicable, it should be effected. If the seeds are hard or tough, friction, more or less rough, suffices to detach these appendages. When this is the case, a very expeditious method is to nearly fill a large stout sack with the seeds, and to thresh these or work them violently backwards and forwards, according to the toughness of the seed, until the appendages are detached or crushed, when they can be easily separated by the ordinary process of winnowing.

The seeds of many trees have to be plucked before they are quite dry, in order to prevent their being disseminated and scattered far and wide. Other kinds of seeds contain a great deal of moisture even when they fall off naturally. Such seeds should be spread out not more than from 2 inches to 3 inches high in a dry, airy, sunny place, and turned over with a rake twice or thrice daily for a period varying with the kind of seed and the dryness and temperature of the weather. After this they should be piled up higher, the raking being continued as before, but being limited to only once a day. This latter process should go on until the seeds are sufficiently dry. Experience alone can tell when this is the case. It is needless to say that in cold weather the seeds should be removed under shelter while dew is being deposited. As regards seeds that are moist even when they are shed naturally, this drying is really the completion of the ripening process. W.

Foreign seed-collecting.—As in the case of collecting native tree seeds, it is a well-known fact that seed collectors abroad as a rule pay very little attention to gathering the best seeds they can find. Seeds are not unfrequently procured from medium-sized trees growing along the outskirts of Pine forests. In such situations it is often impossible to depend on the progeny. The pollen of most coniferous trees is produced in very large quantities, and is often blown about to a considerable distance. To this cause may be attributed the sickly condition of the plants raised from much of our home-ripened seeds, as is observable in Abies Menziesi, A. Douglasi, A. nobilis, Pinus monticola, P. Laricio, and others. Such examples prove the necessity of foreign seed collectors penetrating the Pine forests in order to secure seeds in a pure and perfect state. The rarer species of Conifers now cultivated in this country are not yet to be had in such quantities as to be grown as forest trees. The chances, therefore, of impure seed are very great.—J. M.

Larch seed—native *v.* foreign. — "Yorkshireman's" criticism of my remarks on this subject has not added much new information or brought forward any new facts. He seems to pervert facts and impute nefarious motives to me. I did not impute any base motives to nurserymen, such as "Yorkshireman" says; nor do I think that seedsmen seek to "deceive their customers by selling spurious foreign seed for home-raised seed." The truth is, nurserymen have to take the seed, whether it be foreign or native, whatever its quality may be, from the seller, seeing that they must have seed of some sort so as to supply their customers. Seedsmen have, in fact, very little control over the parties used to gather tree-seeds at home. "Yorkshireman" says, "There is really no

occasion for nurserymen to sell foreign seed for home-grown." Certainly not, since home-grown seed is preferable in every way to foreign, only it is not so abundant nor so easily procurable as the foreign. But, he adds, "home-grown seed is plentiful, and can be had by those who want it." It must be in Yorkshire that home-grown Larch seed is plentiful, and if that be so, it is strangely odd why Yorkshire seedsmen do not endeavour to supply the demand. Good home-grown Larch seed is never abundant any season, or, if it is, it is very curious how it cannot be got. "Yorkshireman" says there is no difference between that which is fit and that which is not.—J. F.

PREPARING GROUND FOR TREE-PLANTING.*

On the greater part of land which has not been used for agricultural purposes there will be much growth detrimental to the health of young trees if left untouched. Heath, Broom, Furze, Brambles, and other course woody plants must be removed, that there may be nothing to impede the full development of the trees. We would prefer burning, as the surest and most expeditious mode of checking the growth of Heath, where such an operation can be performed with safety, and where danger is apprehended, the flame can be stopped by turning over a line of sods across the direction of the flame. Even burning will not eradicate Heath, but will so check its growth that, by the time it recovers, the trees will be beyond all danger of injury from it. Were it not that, where the Heath is rank, the young trees might be choked by it, we do not consider it otherwise detrimental. Broom, if old, can easily be destroyed by cutting over above ground; but, if young, the stems will be covered with eyes, and such cutting will only induce a more rapid growth; therefore, it will be necessary to take such up by the roots. Whins are in this quarter more detrimental to the growth of plantations than other underwood plants, as well as more difficult to eradicate, and, where they grow close, simply cutting over above ground is altogether lost labour. The greatest care should, therefore, be taken to remove them by the roots, and any necessary expense incurred by this operation will be amply repaid in the smaller amount of labour required in the future management of the plantation. Raspberries and Brambles will sometimes, especially on gravelly soils, be found a great nuisance. It is next to impossible to eradicate these; perhaps the best plan is to cut the canes successively till the young trees are beyond reach of injury from them. All other growth, such as Birch, Hazel, &c., which, in almost all cases, will be entirely unworthy of a place in the new plantation, should be cleaned off, so that not only the growth of the young trees may not be impeded, but also that subsequent operations on the ground may have as little interruption as possible. In certain localities the clearings may be of value as firewood, and may somewhat lessen the expense of preparation. If such is not the case, let them be collected into heaps and burned, and the ashes blended with the soil.

Fencing.

Fencing is an indispensable operation in the preparation of ground for planting. It ought never to be considered a point of minor importance, but ought to be attended to immediately after the clearing of the ground, lest the future operations of making roads, drainage, and pitting might suffer damage from stray cattle or other causes. In selecting a fence for a plantation the first object to be aimed at is durability; next, the least possible ultimate expense. In some cases a necessity for ornament may guide the selection, but in all other cases, and where the requisite material can be obtained, we would prefer a stone dike, both for durability and ultimate cheapness. In many situations, however, it may be difficult, or altogether impossible, to obtain stones; in such cases a wire railing with Larch posts offers a good substitute; and, if economical considerations extend beyond the present, a little extra labour and expense in charring the ends of the posts or dipping them into some solution to resist the decomposition which inevitably ensues from contact with the soil, and coating the part exposed to the atmosphere with boiling coal tar, or other solution suitable for the purpose, will eventually remunerate, by increasing the durability of the paling; but, where cheapness guides the choice, a dike and ditch, with a hedge of Whins on the top—the materials of which the dike is built being taken from the outside—will form a fence of considerable efficiency, although this is, at best, but a clumsy and not very certain protection to the plantation, especially for the first three or four years, when the trees are young. In such places as require an ornamental fence, a hedge is, no doubt, the most suitable; Beech, Hornbeam, Holly, and Thorn are the more common materials, but the two former do not offer such resistance to animals as may, in many instances, be desirable; the two latter will, in time, make an excellent fence, especially Thorn, which offers greater resistance to animals than Holly, and is also much cheaper. Holly, being evergreen, may be preferred in some instances; still, as a general rule, we would prefer Thorn. Hedges, however, require to be protected for a number of years by a paling. Care should be taken to select such material, and give it such treatment as will make the paling last till the hedge is a sufficient fence. Hedges also entail considerable expense, not in the original laying down merely, but on account of the continued yearly attention which must be paid to them, but they amply repay it.

Making Roads.

It ought to be the object of the tree planter to provide the greatest possible facilities for the removal of felled timber, as such facilities will greatly enhance its value. In former times this was never thought of till the trees were of large growth, when gaps were made in the fences, if any fences existed, and avenues cut through the wood. This must often have been at haphazard, and the soil was in all cases unfit for bearing the conveyance of heavy loads, added to which, the stumps and roots of the cut trees combined to form a road as execrable as any in the backwoods of Canada. Nor are roads needful for the removal of felled timber only, but for the protection of the plantation when, in a growing state, they are highly advantageous, and also for preventing the necessity of removing prunings or thinnings over the fences. All these considerations enforce the necessity of forming roads at the commencement of operations for planting. The particular distances at which they should be made must be regulated by the extent, plan, and situation of the plantation, keeping always in view the economy of labour in conveying timber of large growth to the roads, taking advantage also of level tracts or gentle declivities leading to the outside of the plantation, and avoiding, if possible, ascents, thus lessening, as far as possible, the amount of animal labour required. In forming the roads, particular attention must be paid to drainage, especially where the soil is not hard. In most cases a drain on each side, with the material taken from them laid over the centre of the road, so as to give it a convex form and throw the surface water into the ditches, will be sufficient. When the inclination of the ground renders it necessary to provide cross drains, they should be built with stone, and have very strong stone covers. A road should not be less than 7 yards in width, so that loaded carts might pass with ease without injuring the edges of the ditches, and also to give room for loading and turning carts. A road made in this manner, when a plantation is laid down, will, by the time the timber is fit for cutting, be in a state to bear any ordinary load.

Drainage.

The next operation is drainage, which, except on very dry soil, is all but indispensable. In proceeding with this, it is necessary to examine the inclination of the ground that the main drains may have the advantage of all the fall possible. The distance of the main drains from each other must be regulated by the nature of the ground. If level, or nearly so, the small drains cannot be expected to be effective farther than from 150 yards to 200 yards; but, where considerable declivities exist they will act farther, and the mains should be carried along the natural hollows. As a general rule, small drains should not be less than 2 feet deep, and, if the fall permit, an additional 6 inches would make them much more effective. If the ground is very wet, we would not be inclined to place them farther apart than from 24 feet to 30 feet. Where the ground is not so wet, the distance may be increased by 6 feet or 9 feet. To keep the drains clear, the mains require to be from 4 inches to 6 inches deeper, and where a natural fall does not exist to carry off the water from the mains, no labour must be spared to secure it. It sometimes happens that very steep ground requires to be drained—in such cases, instead of leading the drains directly down the declivity, we would carry them obliquely across, taking care that sufficient fall is secured to carry off the water speedily. The propriety of this mode will be apparent when we consider that the particles of water in the soil of a deep declivity will have a greater tendency to settle down the declivity than sideways into a drain running straight to the bottom. A drain carried obliquely across the face of the declivity catches all the moisture as it percolates downwards, and, if a quick fall is secured, the water will have no inducement to penetrate into the soil below the drain, but will run off and secure a perfect drainage; whereas drains cut straight down the declivity would do little more than carry off the rain water which might fall into them. The advantage of judicious draining must be apparent to even the most casual observer. Stagnant water about the roots of the young trees prevents that development of the roots necessary for their healthy growth; hence, on undrained ground, young trees have a stunted, unhealthy appearance, make little progress, and in many cases die out altogether. It may also frequently be noticed on ground where the drains are too far separated, or too shallow, that the trees by the sides of the drains are thriving and growing rapidly, while in the centre between the drains they have the stunted appearance peculiar to undrained ground.

Making Pits for the Trees.

This is necessary for all hardwood trees. In ordinary cases slit planting is sufficient for trees of the Fir tribe, but hardwood trees will not succeed so well unless better pulverised soil is provided than can be got by slit planting. For trees of the size ordinarily got from the nursery, pits 2 feet in width, and depth regulated by the nature of soil, will be sufficient. The pits should be dug some months previous to the time of planting, that the action of the weather may pulverise the soil and make it more congenial to the tender roots of the young plants. Ordinary-sized hardwood plants, on gravelly soil especially, with a southern exposure, will require pits of much larger dimensions. In such situations pits of the ordinary size will retain too little moisture to sustain the young trees; whereas if a greater area and depth of the soil is loosened and the stones removed, the original channels through which the water percolated are disturbed, and far greater power given to retain moisture. In such situations, Firs, especially if intended for standards, would require to be treated similarly, and even in ordinary soil, if Firs are of larger size than common, they will require pits prepared for them.

* Communicated to the Transactions of the Scottish Arboricultural Society by Mr. John Darling.

Cryptomeria japonica.—A rapidly growing hardy tree, but one that will not bear exposure to high winds. It is very ornamental, the foliage being of a rich green, and somewhat Fern-like or Moss-like in character. Although planted in quantities in the Azores and elsewhere for light packing-case timber, it is not likely to be sought after in this country as a timber tree. The wood is very light and soft. It likes a somewhat damp soil. Of the other species, C. elegans, I cannot speak except in the character of a shrub. It is a very beautiful plant, and should it grow to the dimensions of a forest tree in this country, will be a very striking object in the landscape, from the coppery tint assumed by the foliage in winter. In its native country, Japan, it grows to the same size as C. japonica.—H.

Osier planting.—I am seeking information respecting the planting of Osier beds. Can you give me the name of a firm to whom I could apply?—L. J. L.

No. 775. SATURDAY, Sept. 25, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TEA ROSES IN SEPTEMBER.

I do not remember ever seeing these so plentiful as this year. With us standards and dwarfs in the open and strong bushes against walls have all yielded abundance of good late blooms, and there will be daily supplies till severe frosts cripple them. Madame Lambard is remarkably free, and in the bud state very beautiful. Souvenir d'Elise in a warm position is also very free, and one of the best. Souvenir de Paul Neyron, both as a standard and on an exposed wall, is very serviceable, and one of the strongest of growers. Catherine Mermet on its own roots and planted against a south-east wall is in flower many months in the year, and this day (Sept. 18) I have cut a handful of really fine blooms off it. Altogether this is one of the finest Teas in cultivation. Safrano on a south wall is usually the first and last in bloom, and the buds of this variety are frequently in demand. Homer in the open is rather small, but wonderfully free, and its blooms find plenty of admirers, as do also those of the very free blooming alba rosea. Comtesse de Nadaillac is a general favourite and one of the best of Roses. Etoile de Lyon grows strongly and is fairly free blooming, but with us not good so late as other varieties. Anna Ollivier is of good habit and produces abundance of beautiful blooms, and the same may be said of Innocente Pirola. Climbing Devoniensis is now giving us several lovely blooms, and mixed with this we have Madame Berard, a variety much resembling the good old Gloire de Dijon. The latter is good everywhere this autumn, and succeeds in a much cooler position than the majority of Teas. Noisette Céline Forestier is one of the best for sunny walls, and a capital variety for cutting from. Even Maréchal Niel is giving us good late blooms, and a newer Noisette, W. A. Richardson, is just now very charming in the bud state. Perhaps the most useful Rose we have is the Bourbon Souvenir de la Malmaison. It is planted in various positions, and in each instance on its own roots. The finest blooms are cut from a large plant growing against a sheltered wall, which the sun reaches only late in the afternoon. Dwarfs of it in the open are usually in bloom before any of the hybrids, and flower almost continuously till severe frosts set in. Cuttings of ripened wood put in the open ground next month or not later than November strike readily, or the old stools may be divided. When growing strongly the plants push up extra strong branching suckers, much the same as some Teas do, and it is these that yield so many good blooms in succession. It does not do so well on light soils, and Somerset would really appear to be the favourite locality for this Rose. W. I. M.

Æschynanthuses.—We have few better stove-flowering plants for basket culture than the several species of Æschynanthus to be found in gardens. In a moist tropical temperature they soon grow into pretty specimens, and if the shoots are allowed to hang downwards they are, when in flower, much more effective than if trained up sticks. In pockets against fernery walls, or in that kind of rustic stove furniture made of cork and tree trunks, they are quite at home, looking neat and pretty even when not in flower. They want peat and Sphagnum, as they are mostly epiphytal under natural conditions, and they must be kept well watered all the year round. The best kinds are Æ. fulgens, with lanceolate succulent leaves and terminal clusters of bright scarlet flowers 2 inches long; Æ. Lobbianus, which has small ovate leaves, and purple cup-like calyx holding the upright scarlet and yellow corolla tube; Æ. pulcher, like the last, but with a green instead of purple calyx; Æ. speciosus and Æ. grandiflorus, which are stiffer in habit than the others, and may be grown as upright pot plants; they bear large clusters of brilliant scarlet and yellow flowers. All of them bloom during the greater part of the summer, and the flowers remain fresh about a fortnight. In a high temperature these plants are very easily kept in health. They are worth growing amongst tropical East Indian Orchids.

MASSING HARDY BULBS.

A SHELVING, shaded bank thickly covered with winter Aconites in January is a sight ever to be remembered. Snowdrops and common trumpet Daffodils are only seen to advantage in large bold clusters against a background of trees and shrubs. A large mass of the blue-flowered Squill (S. sibirica) in March makes a deep impression, though inferior in effect to that of the acres of Bluebells which I have seen in woods in Norfolk and elsewhere in June. Large clumps of white Lilies (L. candidum) springing out of a base of greenery against a background of large-leaved shrubs (Rhododendrons, for instance) never fail to attract attention. The Alstrœmerias when left undisturbed for years and allowed space for development form an interesting group that can scarcely become too large. Grandeur and importance are imparted by gathering things into masses. The Wood Anemone, one of the prettiest of British shade-loving plants, is always interesting, but plant a partially shaded bank with it and the effect is very striking. Lily of the Valley and the hardy Cyclamens, however beautiful they may be in isolated clusters in the border or on the rockery, are more effective when gathered into groups in sheltered recesses. The season for bulb planting is at hand, and those who intend to plant should purchase their bulbs and thoroughly prepare the site for them. Leaf-mould is always an excellent dressing to work into the soil where bulbs are to be planted. Daffodils of the common types if planted thinly will annually form new bulbs, and soon become a mass. The same thing happens in the case of Snowdrops and other things which I have named. Common Bluebells will be at home in partially shaded shrubberies. They should be planted in the open spots, not in dense shade. They will transplant very well any time before their growth gets above ground. I have moved quantities of them when even further advanced, but the best and the natural time to move all bulbs is when they are at rest. E. HOBDAY.

EARLY FLOWERING PAMPAS GRASS.

IF an early flowering strain of this highly ornamental Grass could really be obtained, it would prove a most valuable acquisition. The one great fault of the normal type is its lateness, and this season it is so much later than usual, that thousands of spikes will probably never get out of their sheaths till frost is down upon them. Something has been done to forward the flowering of Pampas Grass of limited size by storing the plants in pots in cold pits or frames, starting them freely into growth before planting out towards the middle or end of May. But then such plants seldom throw up more than from one to five spikes; whereas to have this plant in perfection, huge specimens with from fifty to a hundred plumes, such as the early plant noted at Kew (p. 261), are desiderated. By fostering the plants in pots in their earlier stages, and choosing warm, cosy nooks and corners for their permanent quarters, the flowering may be hastened by several weeks. But, unfortunately, a late season like the present has a tendency to keep all the flowers back to the middle or end of October or later, and, as already stated, to destroy them in a half developed state. Has anyone succeeded in forwarding the season of blooming by raising the plants at different times? Should, however, the precocious plant at Kew ripen seeds, it may give us the early strain so much needed, and develop to the full the rich ornamental effects of the Pampas Grass. Other points are also well worthy of the attention of improvers of this fine plant, such, for instance, as length, size, and whiteness of plume. Of course, in regard to the latter, very much depends on the time of cutting and after-treatment. Yet, apart from this, there are great diversities in the build, colour, and size of the spikes. A very fine variegated strain once not uncommon seems also to have been nearly lost. So far as my experience goes, this has never been reproduced from seeds; it had to be propagated by division, and has seldom been reproduced as a chance sport. HORTUS.

NOTES OF THE WEEK.

Anomatheca grandiflora.—This is a newly introduced species of a genus hitherto known in gardens only by the small, though pretty flowered, kind named A. cruenta, which grows and flowers freely in a warm sunny border out of doors, and is easily raised from seeds. The new kind is not unlike the common Tritonia aurea in habit, the leaves being 18 inches long and the spike about the same length, whilst the flowers are arranged in a cyme which springs from a large bract; each flower is composed of a narrow tube 1½ inches long, a spreading limb of six segments, three of which are narrow and 1 inch long, the others being nearly half an inch wide, narrowed above and below, and a little longer than the others. Colour bright scarlet, with a crimson blotch on two of the larger segments. This distinct and pretty plant is now in flower at Kew. It was raised from seeds obtained from Delagoa Bay, in South Africa.

Epidendrum Mathewsi.—This is a small and modest-looking little species of a large and very variable genus, the members of which are not, as a rule, of much value for garden purposes, though many are of interest, owing to some peculiarity of structure or delicious fragrance in their flowers. The above kind is a small edition of E. Medusæ, generally known as Nanodes, and remarkable for the size and leathery substance of its dark brown flowers, the lip of which bears a fringe of hair-like filaments. The habit of E. Mathewsi and the arrangement of its succulent foliage, as well as the form of its flowers, are just those of the Nanodes, except that the lip is without fringe, and the whole plant is about half as large in all its parts. It may now be seen in flower at Kew, where it is grown in a warm house, and fastened on to a soft piece of Fern stem. Unless we are mistaken, this curious little Orchid is in several other Orchid collections in the neighbourhood of London.

Sternbergia sicula and lutea.—Some little time ago M. Dammann asserted in THE GARDEN that Sternbergia sicula is by far the best of its kind. It seemed to me difficult to follow him then, because Sternbergia sicula did not come up to the mark. I had the bulbs from him, and I thought the encomium too great for them. But since then, as you probably know, the names have been revised, and this, one of the most glorious of autumn flowers, bears out everything that was said about it. I send with this a blossom of Sternbergia sicula which I had from M. Dammann, and it is unmistakably better than S. lutea in more respects than one. You should see a good clump of it at twelve o'clock when every petal is thrown back to the sun in an abandoned sort of way, and you could not fail to be pleased with it. Sternbergia lutea must be dethroned at once, and give way before its more imposing rival. Why is it, I wonder, that S. lutea has had possession of the field for so long? There is no such very great difference of price between the two as to indicate that Sternbergia sicula is difficult to get hold of in the proper places. What Vallota purpurea is for dazzling scarlet in the autumn, Sternbergia sicula is for yellow of the most clear and bright description that can be imagined.—H. EWBANK.

*** The flower of S. sicula sent is twice the size of that of the typical S. lutea.—ED.

Phalænopsis Lowi.—The finest example we have ever seen of this beautiful little Moth Orchid is now in flower at Kew, an unusually healthy specimen, with large, leathery, dark green leaves and long branching spikes of bloom, more like what one finds in P. Schilleriana than in this small kind. Possibly

the Kew plant is a superior variety to that generally met with, for we learn that it holds its foliage from year to year, and has produced large branching flower-spikes every year since it was first imported from Moulmein. Altogether, there are at present fifty-three flowers and buds borne by five individual plants, one bearing a spike 3 feet long, with three branches each 1 foot long, and there are fifteen flowers on this one spike. Four flowers on each branch or small spike is the average. The leaves are 5 inches long, and there are two or three leaves on each plant. A photograph of this specimen was taken by us last year, which we intend publishing shortly. The conduct of this species at Kew seems to prove either that there is an evergreen as well as a deciduous form of it, or that it has got the character of casting the whole of its foliage annually, from having been compelled to do so by the conditions of its natural habitat, while under more favourable conditions it is as evergreen as the other kinds.

COOMBE WARREN.

A highly elaborate style of gardening is represented in the beautiful garden surrounding Mr. Currie's Surrey residence at Coombe Wood. Art and Nature are here intermingled in such a way as to produce not only a pleasing, but a most charming home landscape, such as it would be difficult to match, even among the multitude of beautiful gardens to be found in the neighbourhood of London. The happy blending of formal objects, such as statuary, with Nature's uncultured growth must indeed be a most difficult art, or success in that direction would not be so rare. To do it successfully the designer must feel what he is doing; he must know how much formality to introduce, and, above all, how little. At Coombe Warren there is just enough formality immediately surrounding the house to enhance the beautiful scene beyond where the true natural style of garden landscape merges imperceptibly in the natural wood, where great trees, the growth of centuries, rise from a carpet of Fern and Bramble never molested by scythe or broom. It is this gradation of styles, this association of highly-polished Art with wild Nature, that makes the garden at Coombe Warren so enjoyable to all who can appreciate such arrangements.

For illustrating we have chosen a portion of the connecting link—the lawn between the formal garden and the wild garden. There is no need for us to say that this glade is beautiful; that is shown by the illustration, but it is even more charming when seen from the house, for then the Ha-ha which somewhat mars the upward view is not seen. Here the gently undulating slope, with its great Oaks and Elms and Chestnuts sweeping the turf, and with here and there a choice exotic, such as the deciduous Cypress or a Silver Fir, reminds us that we are still in the garden. From all sides of the house except the north one sees these delightful glades and vistas with the lawns kept faultlessly smooth, and upon the west side there is a broad expanse of lawn upon which are planted the rudiments of a pinetum. There are three or four groups of Conifers on this lawn which anyone who understands artistic tree grouping cannot but admire. The trees are chiefly common kinds, such as Douglas Fir, Austrian Pine, and Spruce, with a few of the rarer species of Abies; they are not huddled together in the usual way, but planted sufficiently far apart to allow each elbow room. The different rates of growth of the various trees have produced a beautiful skyline; in short, the groups look as if they had sprung from Nature's sowing. This is really the best way of grouping ornamental Conifers or other trees, for they not only produce a better effect than when scattered, but they thrive so much better on account of the shelter which they afford each other. These thriving and admirably planted groups form a contrast to the wretched isolated specimens of Conifers one often sees on lawns, which seem to have no connection with other trees or anything else. On the same lawn as the Conifer groups are there is a Heathery on a dry sloping bank, capitally adapted for sun-loving Heaths. There seems to be every variety of hardy Heath in the collection, and when in flower they have a beautiful effect.

The Conifer-planted lawn is connected with the adjoining terrace garden by a covered pathway, arched over with clipped Lime trees, which afford a delightful shady walk in summer. The foliage on the shoots of these Limes is still green—so different from that of unpruned Limes in the open. The subdued light of this shaded walk serves to intensify the brilliancy of the mosaic-work garden to which it leads. This garden is a small quadrangle, severely formal in design, the beds being in a geometrical pattern, and the whole enclosed by a stone balustrading. This little garden is quite separate from the rest of the terrace garden, and, while not obtrusive, can be seen when looked for. It terminates the broad-gravelled terrace, and is the best spot that could be chosen for it, as it is not in violent contrast to the more natural-looking part of the grounds. The brightness of the "carpet" beds at this season, when flower-beds are looking shabby, quite lights up the whole place. The mosaic garden is enclosed on one side by a high retaining wall, every part of which is densely clothed with a growth of Ivy-leaved Pelargoniums of a bright cherry-rose colour. These are blooming profusely at the present time, and have been doing so ever since June. They are planted yearly at the end of May, and they soon cover the wall and make what must be regarded as one of the most beautiful displays about the place.

The terrace garden, of noble breadth, is adorned with a profusion of pyramidal plants in tubs—Pelargoniums, Heliotropes, and beautiful-leaved shrubs, such as Golden Euonymuses, Bays, Eurya latifolia, Ivies, and the like, some of which are over 11 feet high. These pyramids may be said to be the peculiar feature of Coombe Warren, and certainly the prodigious Pelargoniums and Heliotropes and Fuchsias are the glory of it throughout the summer, for in few other gardens can they be found grown and flowered to such perfection. You meet them at every turn in the parts that are avowedly formal, but there they stop, and do not obtrude themselves in the natural parts. The Pelargoniums are mostly single-flowered Ivy-leaved kinds, of a bright carmine colour. One plant we measured was over 8 feet high and nearly 6 feet through. The Heliotropes are equally remarkable, and the shrubs, particularly the Golden Euonymuses, are at this season pyramids of gold.

The mansion is a modern building, irregular in outline, much attenuated in consequence of its having been added to. The style of house suits the surrounding scenery admirably, for it nestles among the trees very snugly, and this homely effect is enhanced by the creepers with which every wall is covered. Indeed, the creeper-clad walls of the house are one of the most charming features of the place, particularly at the oldest part of the house, where the Wistaria and other ramblers festoon the gables in a beautiful way. On the lawn side of the house may be seen a great variety of climbers, the most prominent being Magnolia grandiflora, white Jasmine, Ceanothus dentatus, Berberis stenophylla and B. fascicularis (the latter extremely fine), Cotoneaster microphylla, various kinds of Clematis, and Ivies in profusion. Climbing, creeping, and rambling plants are evidently great favourites with Mr. Currie, for there is not a wall, statue or pedestal against which he has not planted some kind of plant, and the delicate tracery which these make against the stone pedestals renders the statuary strikingly effective.

The opposite of the house to the lawn is treated in an entirely different manner from the front, the space being occupied by enclosed gardens containing bright effects from masses of coloured foliaged plants, while the surrounding walls are clothed with the favourite Pelargoniums and Heliotropes. In this part there is also a walled-in fruit garden, with the sunny walls at the present time covered with Peaches and other wall fruits, while the centre is occupied by pyramid-trained hardy fruits, Apples, Pears, Plums, and the like, which yield abundant crops. The whole of this portion of the place is treated in a most elaborate way, the paths, the dividing palings, gates, &c., being highly ornamental, yet in strictly good taste. There is a large number of houses for fruit and plant culture, though as the place is used mostly as a summer resort, the open-air garden has evidently received the most studied care of its owner. W. Goldring.

Anagallis cærulea.—I met with flowers of this lovely Pimpernel, together with carnea, the ordinary A. arvensis, growing side by side in the same field, the three colours, blue, pink, and red, blending and contrasting happily in their several hues. A. cærulea was the smallest of the three, and at first sight it seemed to be specifically distinct, but a closer examination with the lens failed to prove its distinctness. Dr. Arnold Bromfield states that he saw, in a garden in the Isle of Wight, the cultivated Anagallis bearing flowers of a bright blue on the same stem with the flesh-coloured variety. He records, moreover, that Professor Henslow established the question of identity beyond all controversy by cultivating the plants from seed. This is all the more likely, as the Pimpernel is primulaceous in its grouping. I am aware that it has been described by Persoon as a distinct species, as also by others who have followed him in later years. Even Babington says of it that it is "probably distinct," but practical acquaintance does not bear out his suggestion. Gaudin, in his "Flora Helvetica," vol. ii., p. 67, says that the seeds of arvensis are fatal to small birds, which eat those of the blue variety with impunity. It may be so, or he may have had an eye to the Continental A. Bonelli, a lover of chalk—mountain limestone. I would remark, in conclusion, that identity between arvensis and carnea was more apparent than between arvensis and cærulea as they grew together. The leaves were smaller and narrower in cærulea and the stems less procumbent; the flowers also were decidedly smaller. The purple eye at the base of the corolla was conspicuous alike in carnea and cærulea, and enhanced the beauty of the colours of each.—Peter Inchbald, F.L.S., *Fulwith Grange, near Harrogate.*

The provincial show of the National Rose Society will, we are informed, be held in 1887 at Edinburgh, in connection with the summer exhibition of the Royal Caledonian Horticultural Society.

Bouquet-holders (*G. L., Portugal*).—Holders for buttonhole bouquets may be obtained of any of the horticultural sundriesmen in London. (See p. vii. of last week's Garden.)

Heliotrope (*H. R.*).—Appears to be a first-rate dark sort, but we cannot say how far it is different from other sorts. —Ed.

Anæctochili. — These plants are seldom seen in a thriving condition, but we noticed lately some exceptionally healthy potfuls in the Phalænopsis house in the nurseries of Messrs. Veitch at Chelsea; they were not covered over by bell-glasses, or treated in any way different from the rest of the plants in the house.

New Figs in Smyrna.—During the last days of August the first dried Figs of this season were brought from the country districts into Smyrna for storage, packing, and exportation. The locomotive and the wagons carrying the fruit were, as in former years, decorated with flags and garlands of flowers. Thousands of persons were waiting at the railway station to greet the first arrival of Smyrna's principal staple. The casks and boxes containing the Figs were transferred to richly caparisoned camels adorned with flowers and ribands, and so carried to the bazaar, escorted by a great crowd.

Indoor Garden.

AMARYLLISES AT REST.

This is, or at least ought to be, the resting period in the case of Amaryllises, and I would recommend growers of them not to be too hasty in repotting and starting them into growth. While at rest, we give established flowering bulbs no water until February; as the leaves decay they are removed. Thrips are destroyed by tobacco fumigation, and when the plants are in good health they are not much troubled with red spider. We now leave all ventilators open night and day, and will do so until very cold weather sets in. Bright sunshiny days and warm nights have materially aided the ripening of the bulbs, which are this year large in size and very solid. Young plants raised from seed sown as soon as ripe in July should now be grown on freely, as should also young plants raised from seeds sown last year. The youngest plants do not lose any of their leaves, but continue to make growth all winter; consequently they must not be allowed to become so dry at the roots as old plants. Seedling plants are pricked out when ten days old, a dozen of them being put into a 5-inch pot. They will grow on freely if the pots are plunged in a gentle bottom heat and a hothouse temperature is kept up. In November and December they require but little water, and about the middle of January they should be shaken out of their pots, replacing them in others of the same size, but this time putting only three plants in a pot. Thus arranged, they will grow for another season without removal. Next year they should be repotted in January, one bulb being placed in a 5-inch pot. Established plants, both of named varieties and seedlings, ought all to be repotted between the middle and the end of January. As to compost, some difference of opinion exists. One grower with whom I was acquainted used heavy loam, to which was added a little manure. He had a notion that they succeeded best in it. They certainly grew and flowered well in it, but by the end of the season the roots used to be dead. I use two parts good turfy loam, one part peat, a fair proportion of sand, and one barrowload of manure to six of the loam and peat. Some, I know, say, "Why give minute instructions as to mixing up potting soils? These are mere trifles; one compost is as good as another," &c. The character of a compost is certainly not so important as old cultivators led people to believe, and therefore I do not think it necessary to mix its component parts up with precision; but we must not forget that perfection is generally attained by paying attention to minute details. We grow our flowering bulbs in pots from 4½ inches in diameter to 8½ inches, only a few of the larger sizes being used for very large bulbs. When repotted, the whole collection should be plunged in a tan bed, but it should not get any water until it is seen that the plants have started into growth. Giving water to the roots before they are in a state to avail themselves of it would cause some of the bulbs to rot. Nor is a high temperature at first desirable, as this causes them to rush into flower before the leaves appear, a circumstance which is not desirable. Even under the best of management many of the bulbs will produce flowers before leaves are developed, but without foliage Amaryllises are not nearly so effective as with it.

Amaryllis bulbs do best in bottom heat during the growing season, but very good results can be obtained without it. I have flowered them well in a vinery, and the bulbs have matured their growth both under the shade of Vines and Peach trees. The bloom is prolonged if the plants are removed when in flower to a greenhouse. Last spring was unfavourable to the perfect development of Amaryllis flowers. The weather, owing to lack of sunshine, was all against them, and near London the fogs, which were prevalent, further checked the expansion of the petals. Both the summer and autumn have, however, been favourable for the plants, which have done better than usual, a circumstance which promises well for next season's bloom.

New varieties have been quite as numerous this year as usual, and the result is that we have now an endless variety both of form and colour. Those with broad petals and such as produce six flowers on a scape are thought most of, and now that such breadth of petal and perfection in form have been attained, improvement makes slower progress than it used to do, and seeds are also more difficult to obtain. I tried this year to hybridise several of our seedlings with the best formed flowers raised by others, and though all of them seemed to take well at first and the pods swelled freely, yet before any seeds ripened every one of the stems died off, although ordinary varieties bore seeds well. The best amongst new forms are Colonel Burnaby, vermilion-red, the petals of which are 4 inches in width and well formed; Basilisk, light red, a very large variety with petals 4 inches in width—this has a pale green centre; John Heal, one of the largest and best of the lighter coloured flowers; Madonna, also very beautiful, creamy white with crimson flakes; Clarinda, likewise very fine in form; Lady of the Lake, almost white, unsurpassed as regards size, good in form and nearly white. Perfection is one of the more recently raised varieties and a stride in advance of anything produced last year. I am unacquainted with the parentage of these varieties, but Hippeastrum Leopoldi and H. pardinum were the species from which the pollen was taken which has effected such a revolution amongst Amaryllises. H. pardinum has no tube, nor has H. Leopoldi much tube; therefore by crossing forms with long tubes with these two kinds, the flowers have been altered in formation. I like the broad-petalled varieties best, but there are some who like flowers with long tubes and narrow petals. Hippeastrum vittatum, a coloured plate of which is given in the *Botanical Magazine* so long ago as 1791, though long-tubed and narrow-petalled, is unquestionably handsome, and from it several improved

Lawn view at Coombe Warren, Surrey. Engraved from a photograph taken last autumn for The Garden.

varieties have been produced, one of the best of which is one named superbum. H. solandriflorum is, however, the best type of the long-tubed varieties. Its flowers, which are 8½ inches long, are sulphur coloured inside and greenish yellow outside. The variety H. solandriflorum conspicuum has flowers 10½ inches long, and the flowers are faintly striped outside with red. Dean Herbert raised many interesting cross-breds in this section of Amaryllids, but they seem to have been lost. In "Amaryllidaceæ" (p. 142) Herbert describes no fewer than thirty-one distinct crosses, those of H. reticulatum and H. solandriflorum being the best. Herbert adopted a system of naming which answered admirably in the case of mules. Thus a hybrid between Johnsoni and solandriflorum was named H. solandriflorum Johnsoni. H. solandriflorumstylosum, raised at Spofforth and named by Sweet, had pale orange-coloured flowers, the largest seen in the genus, though the flowers of stylosum are small. The crosses from H. reticulatum were numerous at that time, as Sweet also raised some at Colville's nursery.

J. Douglas.

TREATMENT OF SHRUBS FOR FORCING.

Many shrubs intended for forcing are kept in pots, but some are lifted from the open ground for this purpose. Where this latter system is practised, the plants should be lifted in the autumn before the fall of the leaf, in order that they may establish themselves to some extent before winter sets in, as the blooms borne by plants treated in this way last longer in perfection than those that are potted just previous to being taken into the forcing house. The majority of the shrubs usually grown for forcing consists of Deutzias, Lilacs, Rhododendrons, and Azaleas; but this by no means exhausts the list, as great numbers of others are available for the purpose. A selection of shrubs for forcing should include the following: Deutzia gracilis.—This is so well known, that nothing need be said about its beauty when in flower, and it is, besides, one of the easiest shrubs to force; it can be had in bloom without difficulty soon after Christmas. It should be grown in an open, sunny spot, in order that its wood may get thoroughly well ripened; indeed, this rule applies to all shrubs grown for forcing. Lilacs, again, are used largely for forcing, the best for small bushes being the Persian, of which there is a white as well as a pink kind. The common Lilac is better fitted for larger bushes, and as such it makes a goodly show in the conservatory, and, besides, it is very valuable for use in a cut state. The double-flowered Peaches, blooming as they do so early in the season under natural conditions, soon open their blossoms when subjected to artificial heat, a remark which also applies to the double-blossomed Cherries, all the forms of which are valuable for forcing. A gem in the shape of small bushes is Cerasus or Prunus sinensis, a little, much-branched, rather upright-habited shrub, the slender twigs of which are closely packed with double rosette-like blooms. In one variety they are pure white, and in another tinged with pink. Azalea mollis is now largely grown for forcing, and very beautiful it is when in bloom. It will flower well either grown in pots or lifted from the open ground, for the delicate hair-like roots form a dense mass; therefore they can be lifted at almost any season without injury. The various Ghent Azaleas afford a pleasing variety, and the pretty little evergreen Azalea amœna makes a goodly show. Rhododendrons, too, must not be passed over, and among others of this class may be mentioned Andromeda floribunda, a compact-habited shrub, with dark green Myrtle-like leaves and spikes of pure white bell-shaped blooms, like those of Lily of the Valley. The Japanese Andromeda or Pieris japonica is a recent addition to this class of shrubs, and differs from the preceding in the greater length of the flower-spikes, and in their being pendulous instead of nearly erect. The bright crimson tints of the young leaves are also another distinctive feature of this species. The Kalmias flower well under glass, but they cannot be had in bloom so early as some of the other shrubs mentioned. Another subject to which the same remarks may be applied is Zenobia speciosa, the best form of which for growing under glass is the variety pulverulenta. The different varieties of the common Hawthorn may be readily forced, and if grown in the shape of small standards are very useful for grouping purposes. Forsythia viridissima flowers naturally very early in the season, yet when sheltered under glass its blooming period is hastened, and besides the flowers are not disfigured by bad weather, as is sometimes the case when grown out of doors. Spiræa Thunbergi is a little shrub with slender arching shoots and delicate green lanceolate leaves. The flowers, which individually resemble those of the Hawthorn, but are smaller, are borne in such numbers that the shoots are quite wreathed with them. It is a very easy plant to force into bloom, but the flowers do not remain long in perfection. Staphylea colchica has had a good deal of attention directed towards it within the last few years as a subject for early forcing, and very pretty and distinct it is when treated in this way. The flowers, which are white when grown under glass, are borne in large compact clusters. Magnolia stellata, or Halleana, a small growing white-flowered kind, blooms naturally in the spring before the expansion of the foliage, and can be readily forced even earlier into bloom, a remark which applies to the more vigorous conspicua and Soulangeana, but as a rule they are too large for glass shelter. The Guelder Rose cannot be had in bloom so early as many shrubs, but it is very amenable to forcing, and the large clusters of pure white blooms render it a prominent feature at any time. In the case of plants that are intended for forcing they should be grown in a well-exposed spot.

H. P.

Fruit Garden.

DRY VINE AND PEACH ROOTS.

The annual amount of growth and the quantity and character of the foliage that it is natural for a plant to make determine the quantity of water that it requires. Slow-growing plants that produce few leaves, and these hard in texture, and that consequently throw off little moisture by evaporation, naturally need much less water than those which each year form quantities of big sappy shoots with leaves of a like character, such as Vines and Peaches. Yet it is more than doubtful if the majority of cultivators reflect on the vast difference there is in the quantity of water which these fruits need as compared with slow-growing things, or, still further, consider the widely different conditions under which the fruits in question exist in parts of the kingdom where the rainfall is heavy compared with that which they experience where it is light. These remarks apply to Vines and Peaches that have their roots all or part in outside borders; respecting such one thing is clear: if they do not get too much water in the wetter districts, to a certainty they must be short of it in the drier ones so far as the rainfall is concerned. This being so, it follows that the difference needs to be made up by watering. In Lancashire and Westmoreland, where the rainfall is heavy, Black Hamburgh Grapes wanting in colour are much less frequently met with than where the annual rainfall is less, a circumstance that can only be accounted for by concluding that the roots in the drier districts do not get enough in the shape of rain, and that the deficiency is not made up by watering. Much of the disposition which the roots of Vines so often show to go down too deep is the result of insufficient surface water. In striking down in search of moisture they are only following the law of self-preservation, which, if we only look for it, is as apparent in plants as it is in animals. Where the natural soil is such as will answer for Vines, and the roots get out of the prepared border, stretching away far and wide into what is often a vegetable garden, where they have an unrestricted space from which to draw moisture, although at times the whole may be drier than they like, still they are able to make shift better than when the roots are confined within a limited border, or where there is nothing outside it suitable for them. Under the former condition Vines are frequently able for years to produce fairly good crops, but if allowed to carry anything like the weight of fruit that they should do, a breakdown is the result; the crop either fails to colour properly or shanks, and oftener than not both. So far as inside Vine borders are concerned, there is little doubt that there are many which, though they appear fairly moist on the top and for some distance down, are much too dry below for healthy root action; and when once they get into that state they remain so owing to the difficulty there is in again getting the soil wet enough. In proof of this it is only necessary to notice the immense quantity of water that it takes to moisten a body of soil even in the open air when once it has got dry. Take, for instance, the old trees in the drier parts of the country; in the case of the greater portion of these the soil underneath the bole and for some distance round remains from one end of the year to the other dust-dry, and it has most likely been in that condition for a generation. This anyone may see who has an opportunity of noticing the state of trees that are grubbed up or who examines such as happen to get blown over, Elms especially. I have examined numbers of these in the southern counties that have been blown over after the winter rains have fallen, and all but invariably found the soil as dry as it could be. This would scarcely appear to be possible when one notices the quantity of water that runs down the trunk during heavy rain when the leaves are off. A case in point came under my notice lately that shows how easily it may happen for a Vine border that looks wet enough on the top to be so dry below as to render it impossible for the Vines to succeed. In a span-roofed house standing north and south, filled with Lady Downes Vines planted inside on each side of the house in borders divided in the middle, the crop suffered severely from scalding on one side, whilst that on the other was quite free. The cause of this difference seemed unaccountable, as it was the Vines on the western side that were affected, while those on the eastern side, the most likely to have been caught by the sun with moisture on them, escaped. The borders were examined, when that in which the roots of the Vines that had suffered were growing was found to be as dry as a board, except about a foot from the surface, whilst the opposite border where the crop was right was sufficiently wet. This threw light on the subject at once, for it is not easy to come to any other conclusion than that to the over-dry state of the roots the scalding was due, although this kind of mischief has usually been attributed to other causes. The case in question, I may say, did not happen in a place where there was any scarcity of water or any want of experience, as the individual in charge of the Vines was an old and successful hand at Grape growing. The mischief was no doubt brought about by the border being kept dry in winter with the object of having the atmosphere dry, so as to preserve the fruit from moulding, and not taking the precaution to see that it was thoroughly moistened to the bottom before the Vines were again started. In this way inside borders in houses where the Grapes are kept hanging far into winter are much more likely to get into the condition just alluded to than where the crop is cleared earlier. As already stated, when once a border has reached this unhealthy state of dryness it takes more water to moisten it effectually than those who have not looked closely into such matters are aware of, especially when the soil is of a strong holding character such as Vines like, as although water enough may be applied to moisten the whole if it settled down equally, still, this is just the reverse of what occurs, as it finds its way in odd places down to the drainage, often leaving the greater part a little below the top almost as dry as ever. In either vineries or Peach houses, where there is any possibility of the borders being dry below, there is only one safe course to pursue, that is, to examine them down to the bottom. From the frequent cases that I have seen where Vines and Peaches in inside borders were not doing satisfactorily, and where on examination the cause was found to be drought underneath, though apparently moist enough

above, I am convinced that drought is a much more common occurrence than is often supposed.

As regards keeping inside borders in vineries where late Grapes are hanging so dry, as is often done, I am satisfied that it is frequently carried so far as to injure the roots, and it is only part of the means to effect the preservation of the fruit, for, when damp foggy weather comes, the saturated air gets into the house, and unless fire-heat is used to correct its effects, it will bring about decay, even if the borders were dried until there was not a particle of moisture in them. Respecting outside Vine and Peach borders in the drier parts of the country, although the winter rains moisten the soil sufficiently to admit of the roots moving freely for a time in spring, it often happens that they run short of water later on, when the crop is taxing their energies most, and when little or nothing is done to supply the want. So far as Vines are concerned, it used to be the fashion to attribute shanking, and other ills from which they suffer, to the roots being too wet, but I venture to assert that for one case where evil comes from this cause, there are twenty where it happens through drought. Where borders are sufficiently drained, it is not an easy matter to give either Vines or Peaches too much water while they are growing.

T. B.

Watering fruit trees.—There can be no doubt that fruit trees suffer from drought far more than is generally supposed, and especially wall trees on sloping borders. The amount of rain it takes to wet soil to a depth sufficient to benefit root-feeders is surprising, and when a tree is heavily cropped, if it cannot find soluble food, either the crop or the tree must fail. I have at the present time some Pear trees heavily cropped, and since the fruit began to swell they have had a few gallons of water or some kind of liquid nearly every day; the result is that the fruit has swelled up to such a large size that the branches have had to be upheld by stakes, yet the foliage is healthy and the buds for next year's crop looking full and plump. I feel sure that if fruit trees received more attention in the way of root-moisture there would be fewer failures than we now experience. When grubbing up wall trees, I have been frequently surprised to find the soil under them dust-dry in winter, even when the surface has been saturated with heavy rain; and the same thing occurs under heavy-topped orchard trees. Unless more water than that supplied by the annual rainfall is given, there can be no doubt that many of the roots are rendered to a great extent useless through the soil surrounding them being too dry to afford them food.—J. G. H.

Late Peaches.—Three years back I planted two south walls with the following late Peaches, viz.: Princess of Wales, Late Admirable, and Walburton Admirable. The two former varieties have borne two good crops, but the latter, although studded with good healthy blossoms, has only borne one Peach. All have been treated in the same manner, viz., protected in spring with a slight covering of Bracken. Speaking of early Peaches, Mr. Douglas tells us if Peaches do not bear they should be made to do so, and this, I should presume, is by fertilising the blossoms of non-setters. In the case in question all set their fruit well, but Walburton Admirable does not swell its fruits after setting; they grow to the size of marbles and then wither and die. I am aware that the parent of this variety is Noblesse, one of our best Peaches, but a ticklish subject to deal with, and I should suppose that Walburton Admirable is similar in character. I know the seedling tree well and have seen fairly good crops of Peaches on it. It was raised by a friend of mine, who, I believe, is still amongst us, viz., Mr. Morton, then gardener at Walburton, near Arundel. I shall feel greatly obliged for a hint from any of your correspondents as to the best way by which this Peach may be induced to mature its fruit. —R. Gilbert, *Burghley.*

Peaches on open walls.—The whole secret as regards securing a crop of Peaches lies in successfully protecting the blossoms in spring. I have seen many trees quite destitute of fruit year after year. Great attention was given to thinning and training the shoots in summer, but they were never covered up with any special care when in bloom, the result being finely formed trees, but no fruit. Few fruit trees bloom more freely than Peaches. In fact, they hardly ever fail to produce abundance of bloom, and, therefore, many cannot understand why they produce no fruit. The failure to do so in the majority of cases arises entirely from deficient protection. I know where there are many good Peach crops this season, but every one of them was secured by covering the trees with nets and canvas until the fruit was formed; whereas fruitless trees are those which were unprotected. When once formed, the fruit is sure to swell well and prove satisfactory. I do not approve of thick coverings, which exclude light, but a double thickness of ordinary garden netting will always break the wind and protect the blossom. Open-air Peaches have been exceedingly good this season. They have been ripening freely since the middle of July, or thereabouts, and quantities of them are ripe now, but very late varieties, I fear, especially the Salwey, will never ripen. This variety bears freely here, but its fruits have not ripened for two seasons, and I do not think they will mature now. It is a mistake to plant this variety in the open air, unless there be some special means of assisting it to ripen its fruit. Fortunately, we have only one tree of it in the open air, and were I planting late Peaches out of doors again, it would be excluded.—J. Muir, *Margam.*

THE COLOUR OF GRAPES.

"Chef" says (p. 216) "if Grapes are ripe, colour is sure to be found in conjunction with high flavour and other good qualities, for it must be borne in mind that black Grapes get black before they are fully ripe." This sentence is by no means so clear as the valuable practical instructions that follow, for though colour usually precedes ripeness, it does not always accompany it, and in the case of black Grapes it frequently happens that they lose colour in the completion of maturity. A writer of "Chef's" obvious experience must surely have seen black Grapes, especially Hamburghs, lose colour at or after the finish. All this is rather opposed to the sweeping assertion that if Grapes are ripe, colour is sure to be found in conjunction with high flavour, &c., and this is perhaps less true in the case of white Grapes than black; colour has, in fact, less to do with flavour than is generally supposed. It may seem rank heresy to add that it holds an exaggerated importance in the estimation of most gardeners. This is easily accounted for, as colour, bloom, and finish are looked upon as the highest proofs of skill in Grape growing—and perhaps they are—though a good all-round crop and perfect flavour should be held of still more importance in fruit grown to be eaten. But little importance is attached to the colour of Melons, Apples, Pears, Plums, or even Peaches or Nectarines, provided the quality is good and the supply equal or rather in excess of the demand. But Grapes with little or with unpopular colours, such as green, red, or purple instead of black or golden, are generally decried or tabooed. This may be horticulturally orthodox, but it does not seem profoundly wise; and at the risk of raising a very tempest of horticultural wrath I venture to assert that I have eaten so-called red Hamburghs that were far more luscious than jet-black ones, and green Muscats more richly vinous than golden ones. I have also known epicures in Grape-eating who preferred the Grizzly Frontignan to all the jet-black Grapes grown, and chose green Muscats to golden, as the latter were far too fleshy for them.

As even "Chef" recommends the full exposure of Muscats to direct sunshine to lay on their amber brightness, it might be an interesting investigation to endeavour to find out how much Grape juice was absorbed by the sun and lost to the Grape in the process of its conversion from green to golden. Moreover, in investigating the correlation of colour to quality, it would be useful to determine how far the colour of Grapes depends on mere tension, thickness, or thinness of skin and other mere mechanical conditions. It might surprise a good many to find how largely these, playing as it were hide and seek on the outer surface of the berries with external sunbeams, were responsible for their colouring. In a word, is not colour more a mechanical than a chemical phenomenon? and if so, it can have little or any essential relation to quality. Further, is there, can there be any reason in the nature of things why a black Grape should be more luscious than a red one, a golden than a green? If so, Plums, Peaches, Cherries, Apples, and Pears seem all labouring under a mistake, or working out the problem of quality under different principles and laws from Grapes. Still, I am by no means wishful to decry colour. Either from prejudice, popularity, or from running in the beaten track, we are all attracted, not to say fascinated, by it. But it is a serious practical error to make it the be-all and end-all in Grape growing, and for this reason, that the blackest and yellowest of Grapes are by no means always the best. To graft such exquisitely flavoured varieties as the Muscat Hamburgh and Mrs. Pince on such turnipy-flavoured stocks as the Alicante and Lady Downes, merely to make them blacker, while the foreign stocks lower or rob them of their exquisite vinous luscionsness, is a cultural freak of folly far too expensive to be commended. These two Grapes on their own roots are equal or superior in flavour to the Muscat of Alexandria; some even prefer them to this prince of Grapes for flavour. Is the making of them black at the expense of their piquant Muscat flavour, the only quality that gives them value, to be commended or approved? We have Grapes black as jet enough and to spare without spoiling our all too sparse collection of Muscat-flavoured ones in the attempt to make them equally black and almost equally flavourless. In some places there are local or cultural reasons sufficiently potent to render it needful to work both these Grapes on other stocks. In plain terms, they will not otherwise grow, thrive, nor finish their crops without shanking. But, as I understand "Chef," he grafts for colour alone and sacrifices quality, which is surely a great mistake. In venturing thus to designate the practice of such a clever authority, my object is not to disparage "Chef" or his views. I freely admit they are almost universally prevalent among our best Grape growers. Still, whatever is, is not of necessity and in consequence of its existence always right. On the contrary, wrong-doing and wrong-thinking often seem endowed with a vitality at least equal to right, and I venture to think that the exaggerated importance attributed to certain colours in or on Grapes by my brethren of the knife and spade is pregnant with practical evils of great importance. For example, it has led to the discarding of not a few of the most luscious Grapes and the flooding of our gardens and markets with dense coloured varieties with the bloom of sour Sloes and flavour to match.

Hortus.

Hautbois Strawberries.—It is to be regretted that a Strawberry of such peculiar flavour as the Hautbois should be neglected in favour of finer-looking fruit. The genuine Hautbois is, no doubt, still to be found in old gardens, and would repay any attention bestowed upon it. The neglect into which the Hautbois has fallen is doubtless due, in a great measure, to the fact that size has more weight than it formerly had. Fruit is grown now almost as much for fine appearance as for quality; but I have no doubt the time will come when the Hautbois will again come into favour, and, probably, improved both in point of size and productiveness. This may reasonably be anticipated, as, in both points, Rivers' Royal Hautbois is far superior to the old Hautbois that used to be grown thirty years ago. With the exception of the two Alpines, the Hautbois Strawberry is less particular as to soil than most of the English and Continental Strawberries, now so generally grown. Of course, as a rule, the best result will be obtained on the best soil, but I have seen fine crops of Hautbois grown on land too light to be profitably occupied with other kinds. Light land, if it is well manured

and made thoroughly firm before planting, will do very well for the Hautbois, but mulching and watering in dry seasons must not be neglected. A very good way of growing them is to plant them in beds, say three rows in a 4-foot bed, and the plants about a foot apart in the rows, with alleys 2 feet wide between the beds. This will give room for gathering the fruit, and also allow space for the production of strong runners for making new plantations. It is not advisable to allow the beds to continue in the same place longer than three years. Early in August is the best time to plant; although, when the beds cannot be properly made then, the runners may be planted 3 inches or 4 inches apart in nursery beds, lifted with balls, and planted out finally the following March. I should recommend this course in preference to planting in ground ill-prepared or not properly consolidated. Planting in very rich soil or highly-manured land, especially if recently trenched and not allowed time to settle and become firm, will, by inducing over-luxuriance, often produce "blindness" in the flowers, or, in some cases, prevent flower-buds being formed at all, the whole efforts of the plants being confined to the production of foliage only. This, however, is usually the result of some error in management.—H.

NOTES ON PEACHES AND NECTARINES.

On all sides we hear that the season of 1886 has been one of the best known for Peaches and Nectarines both under glass and on open walls, much of this fruitfulness being due to the thorough ripening of the wood in the former case, while that in the open, though not generally fully ripened, was yet sufficiently so to both withstand frosts and also to furnish blooms in abundance. As is usually the case, some sorts stand out pre-eminently good, while second-rate varieties have also been better than I have known them to be before. As far as we are concerned, we have no very inferior sorts, but in spite of that we shall have to replace two or more trees that have partially failed with more healthy ones brought forward for that purpose. This failure is entirely due to the treatment which the trees received at the nurseries when in a young state, the severe cutting back twice repeated resulting in the premature decay of some of the principal branches. The wounds apparently heal over, and a strong well-formed tree is the result, but the mischief is only partially staved off, and the cultivator is disconcerted at seeing his fine trees collapsing slowly, but surely, and all owing, I believe, to the dead wood inclosed by the bark. Those who have trees, some of the branches of which either prematurely cast their fruits, or do not swell them to nearly the size of those on the remainder of the tree, will find, if they examine the lower portion of such limbs, that they are contracting rather than swelling healthily, and in all probability one-half of the bark and wood is already dead, the remainder following in due course; a much disfigured tree is the consequence. Two comparatively young and fine trees of Royal George Peach, one in a heated and the other in an unheated house, both failed this season to ripen their fruit properly on at least one-third of the wood, and in both instances the stems are dying near where they were last pruned to in the nursery. They were bought as trained trees, and at the same time we had several maidens; the latter are now perfectly sound and very profitable, and are producing some of the best fruit in this neighbourhood. No more trained trees, fortunately, have since been purchased, nor would I have them as a gift. Very little time, if any, is gained by planting trained trees, and to all intents and purposes maidens are the best. Now is the time to obtain them, and if there are no spaces on the walls requiring to be covered, there may soon be some, and it is always the wisest course to have young trees in preparation for any vacancy that may occur. These transplanted when in full leaf, or as soon as the wood is well matured, become established in their new quarters the same season, and are fit to bear fruit next year in quantity according to their size and vigour. This is old advice, but it will bear repetition. Then, again, it is sometimes advisable to replace an old and inferior tree by a newer variety, or one that is better suited to the position or the needs of the owner. I have taken particular notice of the various sorts of Peaches and Nectarines this season, and am in a position to discuss their merits.

Selections for culture under glass.—The small early English raised Peaches do not gain favour; in fact, they are fast being replaced by the larger American sorts, of which, perhaps, the earliest is Early Alexander. This is a good cropper, rich in colour and good in quality. It is about a week or ten days earlier than Hale's Early, but of the two the latter is much the finer, and is altogether a more desirable sort. We had it very good, it was still better at Longleat, and at Ashton Court it was finer than I have ever seen it, and that, too, early in the season, when Peaches were worth at least 30s. per dozen. It should be grown in quantity by those who supply the markets, as it is a good cropper and invariably sells well, owing to its handsome shape, size, and rich colour. The quality, too, is not to be despised, especially if eaten before the fruits have been long gathered. Waterloo I have had no experience with, but intend to give it a good trial. It is said to be earlier than Hale's Early, and from what I saw of it at Yeovil I should say it is one of the finest of all the early sorts. The constitution is good, it crops freely, and the fruits are very highly coloured and good in quality. As a show variety it will be hard to beat. A Bec, again, did remarkably well with us, and forms an admirable succession to Hale's Early. The fruit is large, handsome, and good in quality, though if gathered or packed when fully ripe it does not travel so well as could be wished. Early Grosse Mignonne is not wanted, as we prefer Bellegarde in the early house for affording a succession to A Bec; indeed, a tree of this valuable and most handsome variety ought to be grown in every house. Alexandra Noblesse is a great improvement on the old Noblesse; the tree possesses a stronger constitution, producing a heavy crop of fine fruit of a pale yellow colour, but very luscious—none more so, in fact. Where a high-class Peach is required, Alexandra Noblesse should be grown. Grosse Mignonne grows strongly with us, and never fails to bloom abundantly, but it is generally the most difficult to set. This, again, is not often highly coloured, but it is a most delicious sort, and is here preferred to any other. Royal George is not so extensively cultivated as at one time, owing to its liability to mildew, but where it can be managed it is yet one of the best second earlies we have. Crimson Galande appears to have been largely planted of late, and I have seen several very handsome dishes at local shows. We only have it in a cool house, where it is the first to ripen. It is a vigorous grower, sets freely, and matures a heavy crop of fine fruit, those getting most light being of a very dark crimson colour. The quality is fairly good, and I would also strongly recommend this second early sort to market growers. Barrington is our favourite late sort, and it is also well adapted for affording a good succession in any of the forcing houses. This well-known and very popular Peach is usually of excellent quality, and if gathered before it is very ripe will keep and travel better than any other variety I am acquainted with. Dr. Hogg and Dymond are now cultivated in several gardens in this locality, the former being esteemed as a good second early variety, while the Dymond is rather late and is very handsome, rendering it a favourite with exhibitors. I have had no experience with either of them.

Nectarines, though plentiful enough, have not been so good as usual. It is difficult to account for this, unless the dull, sunless weather experienced early in the summer injuriously affected them. I find it advisable to cease syringing Nectarines in dull weather, as too much moisture, especially when it lodges on the fruits, is apt to injure their smooth delicate skins, and scarred fruits find but little favour. Lord Napier appears to improve with age, as each season we and other cultivators have it both larger and richer in colour than previously. It is a thoroughly useful sort, and ought to have a place in every Peach house in the country. We now have a tree of it in all three houses, and in every case the fruit appears to ripen most opportunely. The most highly coloured fruits of it I have seen this season were exhibited at Trowbridge, where they resembled very highly coloured Victorias. Humboldt, also a comparatively new sort, proves to be an acquisition, and may well be planted to afford a succession to Lord Napier. It grows strongly, is remarkably prolific, whilst the fruits are of good size, colour, and quality. I can strongly recommend it. Impératrice succeeds remarkably well at Hill House, Langport, and is much liked for forcing. It resembles Violette Hâtive in appearance, but is superior to it in every respect. It keeps remarkably well. Downton is still grown by us, but each season it is reduced in size in order to give more room to better sorts. It is a showy, free-bearing kind, and just suits the markets. Elruge everybody is acquainted with, but that is no reason why so many should still cultivate it. Stanwick Elruge is as easily grown and is quite as prolific; the fruits colour beautifully, and are decidedly superior in point of colour to the Elruge; therefore, should replace it. Pitmaston Orange is a good successional sort; but Pine-apple is more highly coloured and quite as good in quality, and ought to have preference. The latter is one of the richest flavoured varieties in cultivation, and the fruits keep and travel well. At one time Victoria did not do well with us, but since we have discovered the cause and applied the remedy, a great improvement has taken place, and it is now the most profitable sort we have. It must be classed as a late variety, but we have it in both early and successional houses, and the fire-heat appears to improve it in every way. Our strongest tree perfected large beautifully coloured fruits, about 5 inches apart each way, all over the trellis, and it appears none the worse for this severe trial. In order to colour it properly, the fruit must be well exposed to the full sunshine. This variety also keeps well, and the quality is decidedly good.

Peaches on open walls for the second year in succession have been and are still exceptionally good. I am informed by my employer that they have not been so good here, as far as he can recollect, for about twenty years. Our trees are by no means handsome, but they answer their purpose, and that with me is the primary consideration. This success is pretty general—at least, wherever the trees receive fair treatment, and in all probability this will lead to a revival of more general outdoor culture. By means of our houses and open wall we shall have been enabled to supply the table with abundance of the most luscious of all fruits from the middle of May till well into October. Hale's Early is simply invaluable for open-wall culture, and as evidence of its popularity I may mention that at the Yeovil and Sherborne shows the classes for open-air Peaches were as well filled as those for indoor fruits, and in nearly every instance Hale's Early was shown and in fine condition. This was about the middle of August, at which time it was also plentiful with us. Those especially who derive their sole supplies from the open walls ought to plant Hale's Early. In succession to this we had a good crop on the trees of Acton Scott, and although the fruits of this good old sort are small, they are much appreciated on account of their rich colour and high flavour. Bellegarde has done splendidly in the open. We have two trees of it, and we commenced gathering from them late in August, and there are still many ripening at the present time, September 13. One tree, occupying a wall space 15 feet by 12 feet, has perfected seventeen dozen handsome fruits, the bulk of them weighing 8 ozs.—a good useful size. Barrington also does well on the open walls and the fruits promise to ripen well this season. The latest with us is Sea Eagle, and this gives promise

of being a serviceable variety. The fruits are large and are colouring well, but as this is the first time it has fruited here I cannot speak of its flavour. Nectarines have so often failed to ripen satisfactorily, that we have discontinued their culture in the open, and I believe there are few gardens where they pay for the trouble taken with them. Hunt's Tawny is one of the best for open-air culture that I am acquainted with.

Somerset. W. I. M.

Early and late Plums.—Plums have been a heavy crop in many parts this year; therefore our markets have been glutted and the Plum trade unprofitable. It will be found, however, that it is only midseason kinds that have been unremunerative, for both early and late sorts sold well; therefore anyone who has got a crop of even the commonest Plums, such as the Bullaces, that will hang until the bulk of the crop is over, will readily dispose of them at higher prices than those obtainable a short time back for the finest samples. The following is a brief list of sorts that would supply fruit that nearly always sell well; viz., Early Orleans, one of the most popular of all Plums, and good for any purpose; Blue Prolific, a valuable early Plum, very dark blue with bloom like that of a Damson; Rivers' Early Prolific, fruit medium sized, purple, tree good as a bush; Pond's Seedling, a very large fruit which hangs until the bulk of the Plum crop is over, tree a strong grower; Grand Duke, a very dark blue Plum that hangs well into October, one of the best new late sorts; Cox's Emperor, a large red Plum which hangs well on the tree. The above ought to be grown by all who want to prolong the Plum season either for private use or for market.—J. G., *Hants.*

Peaches by the million.—From Kent County, Maryland, U.S., which is the greatest Peach-producing territory of its size, it is reported that, while this has been a bad year for Peaches generally, there has been an extraordinary yield in Maryland. The estimated output of the Maryland peninsula section is 3,000,000 baskets. Of this amount, which does not appear to be exaggerated, Kent County alone will furnish 1,500,000 baskets; while the contribution of Still Pond Neck alone is 450,000 baskets. Within a tract six miles long and three miles wide, forming Still Pond Neck, fourteen crops of over 10,000 baskets each were gathered, while on all sides of them can be found men who will market from 1000 to 5000 baskets of excellent fruit. The inquiry naturally follows, what is there in Kent County that guarantees such remarkable crops of a fruit that fails in almost every climate and section? To this question the only answer received by a *Philadelphia Times* commissioner was: "The climate is not so mild, for the thermometer went below zero here last winter, but the orchards facing the Chesapeake Bay did not suffer from frost. We believe that the high bluffs and deep water protect the tracts near the bay from the severe frosts of the winter and the late frosts in the spring, and thus make this a favoured section for Peach raising. Experience has taught us this, and it is a good teacher in the fruit business. The soil is a sandy loam, with a clay bottom, which is also favourable for successful Peach-raising. But the secret of our great crops has been that, in addition to soil and location, we have thoroughgoing fruit-growers, who have made the Peach a study and have cultivated it with the same care and industry as the thoughtful and thrifty farmer looks after his Wheat or Corn. Our orchards are fertilised and tilled as a model gardener attends to his most delicate plants, and we are handsomely remunerated for the expense and trouble at the end of the season. This year the crop is extraordinarily large, the prices high, and we shall be rewarded accordingly. But it always pays to raise Peaches in this section. We seldom fail to get an average crop and a fair price."

Trees and Shrubs.

THE TREE LUPINE.

(LUPINUS ARBOREUS.)

This most useful plant is a good deal neglected in gardens, perhaps because of its short-lived character. It may be said to have a life of three years; one year in which to grow to flowering size, and two years when it may be enjoyed in its prime, as one of the finest bush-like plants that can be placed among large rockwork or on rough banks. It should not be staked up, but allowed to spread about in arching branches, when it takes forms that are highly picturesque and rather peculiar to itself. One such branch, perhaps the eighth part of the whole plant, is shown in the engraving. The yellow kind is by far the best,

The tree Lupine (Lupinus arboreus). Engraved from a photograph for The Garden.

the others being of dull pale purple colours. It is easily propagated by seed or cuttings. The scent is delicious, of a sweeter quality than that of the perennial garden Lupines, rather more like that of some of the annual kinds. It grows plentifully on the Algerian coast, about 200 feet above the sea, where bushes of it growing out of the rocky soil, seen from above against a background of blue water of that wonderful quality of colour that a southern sea assumes close to the shore, form a picture that can never be forgotten.

Escallonia montevidensis.—In the milder parts of England this is a handsome flowering shrub, and one that will keep in bloom till autumn is well advanced; but, except in the south and west, it is liable to be injured in winter—indeed, against all the Escallonias this charge can be brought. The Monte Video Escallonia is a free, vigorous-growing shrub, that pushes up long flexible shoots from its base, after the manner of some of the Spiræas. On the points of these shoots the flowers are borne in good-sized clusters. The blooms are white, and remind one to some extent of those of the Hawthorn. This Escallonia will survive most winters against a wall; but its habit of growth scarcely fits it for this treatment, some of the others being better adapted for this purpose, and notably E. macrantha, a kind with red Fuchsia-like blooms and deep green glossy leaves. E. macrantha is a summer-flowering kind, but it often keeps in bloom till autumn sets in; while another pretty little species is earlier still in flower. I allude to E. Phillipiana, a sort with slender arching shoots, studded a good part of their length with small white blossoms. This was only introduced within the last few years, but it is quickly becoming popular. Another kind still in flower is E. rubra, the individual blooms of which are smaller than those of E. macrantha; but the plant is more hardy, and the flowering season spreads over a longer period.—H. P.

Propagating the Wellingtonia.—Cuttings of the Wellingtonia will strike root more readily than those of many coniferous trees if put in a frame and treated as cuttings of this class usually are. The end of the summer or early in autumn is a good time for the cuttings to be taken, as the young growth is then sufficiently firm to resist decay, and not so hard as to arrest the formation of roots. One point relative to the propagation of the Wellingtonia by means of cuttings is, that unless very unpromising shoots are taken they form good symmetrical plants, and in no way retain their branch-like character as some Conifers do. Of course, if the weak unripened shoots from the interior of the plants are taken they will seldom grow into a good specimen, but such a result could only be anticipated. The best cuttings of this, and, in fact, most Conifers, are good clean shoots from the outside of the plant not too much surcharged with sap. Shoots that have grown entirely in the shade are more liable to decay than those grown in sunshine, these latter being altogether of a firmer texture. It matters little whether the cuttings are put in pots or dibbled into a bed of soil provided they are sheltered by a close frame. The advantage of using pots is, the readiness with which they can be removed or shifted in any way, but if dibbled into a bed of soil there is not so much attention required in the matter of watering. In any case good drainage must be provided, and the soil made very firm before inserting the cuttings, which in their turn must be securely fixed.—W.

Pyrus Maulei.—Among ornamental shrubs this should occupy a more prominent position than it does; its bright golden fruits, prettily flushed with red on the sunny side, are just now most attractive. They somewhat resemble small Apples, and are borne with such freedom that even slender twigs are densely packed with them. In spring, too, this Pyrus is equally showy by reason of its orange-red blossoms. A succession of blooms is also often kept up for a considerable time; indeed, I have had it in flower continuously for three months. It is a plant of the easiest possible culture, doing well under the same treatment as its near ally, the Japanese Quince, and, like that, it may be either trained to a wall, or grown as a bush in the open ground. One thing to bear in mind, when employing Maule's Pyrus for wall covering, is that it will not attain the height of the older and better-known kind, so that it must only be used for spots where low growing plants are desired. The propagation of Pyrus Maulei is a simple matter; seeds are readily ripened, and suckers, which push up in profusion from the base of the plant, can be detached either with a few roots, or in such a condition that they strike quickly when inserted as cuttings in the open ground.—Alpha.

The Bhotan Pine (Pinus excelsa).—This noble Pine was introduced into this country from Northern India about the year 1823, and has proved to be quite hardy, or nearly so. I have never had it killed by frost, but when planted on flat boggy ground, subject to late spring frosts. I have had it frost-bitten even after it had attained a height of 20 feet. When

planted on good soil it is of rapid growth, and often adds to its height from 20 inches to 30 inches in one season. Its habit of growth is strictly conical; the branches are long and spreading, and produced in regular whorls, clothed with soft silvery-looking leaves from 5 inches to 6 inches in length. The wood of young trees is of a close, compact texture, but rather soft and white in colour, and as the trees advance in size and years, there can be no doubt that the quality of the timber will improve in like proportion, and from what I have seen of it I have every reason to believe that it will yet rank as a first-class timber tree. As an ornamental tree it is singularly well adapted for planting as a standard in a park where the grounds are extensive and not in the least cramped for space. In such places its long graceful drooping side branches have room to extend, and it has few equals, more especially when associated with water scenery, as from its neat habit of growth and peculiar colour it imparts a charm to the landscape that cannot be excelled by any other tree with which I am acquainted.—J. B. W.

ORNAMENTAL TREES IN GROUPS.

Now that so much is being done in the embellishment of parks and pleasure grounds by the use of hardy trees instead of such as are tender, attention should be directed to a few of the most striking among the variegated and ornamental-leaved section, with which, by judicious grouping, fine and durable effects may be produced. If for park or woodland scenery, nothing can be more effective in certain situations than the Copper Beech and Abele or white Poplar, the contrast of the rich dark leaf of the one with the light silvery grey of the other being most striking when seen with the wind acting on them, and a full play of light and sun on the foliage. Then, again, there are other deciduous trees that colour off exceedingly rich and warm-looking in the autumn, giving tints of a most lovely hue, which, although fleeting, make the landscape while they last a picture such as gladdens an artist's eye to behold. Among the most noteworthy of these may be mentioned the Tulip Tree, which is not half so much grown as it should be, and yet where the soil suits it, it is one of the best of ornamental trees, the leaves being large and singularly cut; these, too, in favourable seasons die off in such a manner as to attract the notice of even the most casual observer. Another tree of noble aspect, and having very fine foliage, is the Ailantus glandulosa, the only drawback to which is that its wood is somewhat brittle, and the branches are therefore liable to snap off; but if planted in favourable situations, where it can have shelter, it generally escapes that disfigurement. As a companion plant to this latter, to grow under or around it to form a group, the Sumach answers well, on account of its being of a somewhat similar character. For using in the same way with the Plane, Liriodendron, or Acer, the Liquidambar comes in well, but with most of the Acers this should be used in the background, that it may there show up above them. Another very ornamental tree seldom seen is the Salisburia adiantifolia, or Maiden-hair tree, which, as its specific name implies, has leaves that resemble those of the Maiden-hair Fern. The Salisburia makes a most interesting and beautiful object on a lawn, a position for which it is well adapted, and where it shows itself to advantage.

The purple Birch.—The comparatively new purple-leaved Birch may be classed amongst, and in the first rank of, gay autumn-coloured trees. A fine specimen growing here is just now clad in foliage varying from bright chestnut to vermilion. This Birch is a very free and fast grower; indeed, my experience of it is that it seems to over-grow its strength. The stem and branches become so long and slender, that it can rarely withstand rough winds without suffering breakages. I intend in future when planting this particular tree to be sparing with rich soil, so as to check its over-luxuriant growth. It is a real acquisition as a landscape tree, and can hardly be too extensively grown.—B. G.

JUNIPERUS RIGIDA.

This is a very pretty and distinct Juniper especially suited for planting as a single specimen in gardens where space is limited, as it is of rather slow growth, and even if likely to get too large it can be kept within bounds by a judicious use of the knife without in any way destroying its beauty. It forms a low tree, the habit of which is broadly pyramidal, but it is in no way formal in appearance, as the branches vary a good deal in length, and thus, as it were, break up the outline of the specimen. The branches are slender and rather upright in growth, but the branchlets and the whole of the young shoots are pendulous, thus imparting a graceful character to the tree. The leaves, from whence the name of rigida is derived, are about half an inch long, very narrow, stiff, and terminated by so sharp a point as to need careful handling, otherwise they will prick severely. The young foliage is of a pale green colour, but becomes darker when mature, and in winter is usually slightly browned. It is a native of Japan, and is quite hardy in this country. The soil most suited for it is a good but rather light open loam, so situated that it does not get roasted up during the summer, but such conditions are by no means indispensable to its well-doing. Like most of the Junipers, this species is not difficult to increase by means of cuttings, the present being a very good time for the purpose. They should be about 4 inches or 5 inches long, formed of the current season's growth, inserted firmly in well-drained pots of sandy soil, and kept in a close frame till rooted. T.

Another word for the Liquidambar styraciflua.—Mr. Leach has done well to call attention to the great beauty of this tree, which is so seldom grown and yet deserves a place in every garden. A group of it against the Silver Ash-leaved Maple would be a sight to go many miles to see. The Liquidambar is a brittle tree easily destroyed by wind, and should therefore be grown in partially sheltered places fully exposed to the sun on the southern or western sides. Unless thus freely exposed to the light the leaves will be coloured less brilliantly. We have no tree, on the whole, to come up to the grandeur of the Liquidambar, the leaves of which are also striking in form as well as possessed of the most brilliant shades of colour.—D. T. F.

How to flower Pomegranates.—There are plenty of large plants of Pomegranates in the country, especially in the more southern counties, but in every instance that has come under my notice the owners would have been only too glad to learn what would induce them to flower freely. I have known large bushes, as well as trees, loosely trained against sunny walls produce a few flowers annually, but only enough to cause those who saw them to wish they could be made to flower more freely. Pomegranate blooms are very uncommon in form and very bright in colour. At Mells Rectory, near Frome, many rarities are cultivated successfully, and among these may be included the Pomegranate. It is trained thinly against a south wall and kept closely spurred back, and this would appear to be the only method by which it can be induced to flower freely. It is only the strongest lateral growths that are shortened back, much as we would those of Pears or Plums; the short leafy spurs, which vary from 3 inches to 5 inches in length, are not interfered with, and it is these which the following season produce the blooms. It can be told a long time in advance which spurs will bloom, from the fact that these assume a much darker green than the others, and plenty of them may now be seen all over the tree, as well as the last of this season's blooms. One year's neglect in the matter of freely shortening the longer growths invariably results in the loss of the principal portion of bloom. It thus appears that nearly the whole of the tree's energies has to be directed into the formation and development of flowering spurs. A few fruits generally set on the tree under notice, but they do not ripen.—W. I.

AUTUMN WORK AMONG TREES.

Many are apt to plant thickly in the neighbourhood of their houses, in order to produce early shelter. This is often a mistake, as I have frequently observed that trees, both for avenue and plantation purposes, when not too thickly planted, but judiciously topped and branch-pruned when young, so as to secure a proper shape, stand the wind better than trees which have been allowed to go on unpruned till they have acquired a large size. This particularly applies to the Norway Maple, Plane, and Elm. If ornamental trees are to stand amongst evergreen shrubs, their stems ought to be pruned; but if to stand singly on Grass, the natural outline of such trees should be carefully preserved. When the site of a new mansion is first determined on, the distant landscape effects to be obtained from it are often a source of much discussion. When finally settled the building goes on, and the ground is laid out with trees, at the time in all probability small. The planting and choice of the trees are generally conducted without much reference to vistas or views to be afterwards obtained; on the contrary, they are left to be thinned out as may be needed.

If openings were originally left and filled up, such openings can be restored by pruning and thinning the branches, and these can be annually gone over and dressed; but where a dense, close mass has been allowed to grow up, the removal of certain trees will be absolutely necessary. In some cases stem-pruning may be safely performed so as to allow vistas to be opened up below the upper spreading branches. It may happen, too, that a distant tree may interfere with the carrying out of such views, and in such a case it may be removed; but should the removal happen to introduce any unpleasant object, the top only need be taken off and the remaining portion rounded over so as to give a clothed appearance to the landscape.

Forming vistas or views is, perhaps, one of the most interesting works with which a landscape gardener has to deal, and it is amusing to observe the amount of zeal shown by some proprietors when one or two vistas have been successfully opened up. When once infected with picture-making of this kind they become constantly on the outlook for subjects on which to experiment, and when this is the case, neither shrub, tree, nor branch will stand in their way, notwithstanding the doubtful feeling which was exhibited when the first branch came down. After the *débris* attending the removals, and the requisite dressing given to the trees and shrubs have received attention, such places become the chief resort of visitors. When mansions stand within wooded grounds a mile or so from the sea, the judicious formation of vistas and views is absolutely necessary. When arranging vistas, which are to be opened through plantations, it is desirable to have such openings made along carriage drives or roads; but instead of a narrow cut, they should be made of ample width. Should a good tree happen to stand in the foreground, branch-pruning the stem may be resorted to, so as to have the views below the upper branches; a few evergreen shrubs may be planted on each side, and the surface of the ground between the drive and the fence should be grass. All such finishings, together with numerous others, will readily suggest themselves to the operator while such works are in progress.

Poplars in the neighbourhood of houses are often positively dangerous, their large limbs being frequently blown down; and if it should be found necessary to remove them, great difficulty often attends the operation. The branches in such cases must be lowered down piecemeal by ropes, in order to prevent them injuring buildings, fences, or neighbouring ornamental trees. Lombardy Poplars are often employed extensively in small places, owing to their occupying but little space in comparison with

other trees, but when they become 8 feet or 10 feet high, they are apt to become bare at the bottom and leafy towards the top. Where this is the case, it becomes necessary to reduce the height of each intermediate tree to about 6 feet, giving each cut specimen a good surface-dressing at the same time. The pollarded trees soon become furnished below, while the unpollarded ones fill up above. After the specimens that were cut down begin to grow freely, those uncut in a few years may be treated in the same way. By this successful way of cutting the tops off Lombardy Poplars they assume an irregular outline in the landscape, which is infinitely better than all being of an uniform height. Large branches of Poplars, say from 10 feet to 12 feet in length, and 18 inches or so in circumference, may be inserted in the ground as cuttings, and it matters but little which end is inserted. I have seen some put in upside down, and grow as well as if they had been inserted in the right way. Numerous shoots will always be produced from the stems; the under ones should be removed and the upper ones shortened. If this shortening be carried out every three or four years, they will ultimately make good trees for shelter, and will often be more pleasing in appearance than unpruned trees, the branches of which extend in all directions. G.

The Golden Yew.—Those who have any doubt about the wonderful effects in the landscape produced by variegated plants should see what is done by means of the variegated Yew (Taxus baccata aurea) at Elvaston, where it is extensively and most successfully used to light up and relieve the darker evergreen masses with which it is associated. At midsummer it is remarkably fine, and especially if it be a wet season. —G.

Thujopsis borealis.—For avenues, few Conifers can exceed in beauty Thujopsis borealis. It is a plant of free growth, perfect in symmetry, graceful in habit, excellent in colour, thoroughly hardy, and very cheap. Yet how rarely do we meet with it. Another plant almost equally good, though of a different habit of growth, is Thuja Lobbi, which being more conical in habit, might suit some tastes better than the Thujopsis.—W. H.

The Wild Cherry (Cerasus vulgaris).—Before the planting season is past, I should like to direct attention to this tree, as it is so beautiful in autumn, being then one of the brightest of timber trees. Some specimens of it here are very conspicuous and beautiful in the landscape; it is a fine pictorial tree for parks and pleasure grounds, yet how scarce it is, generally, in parks, and how seldom planted in situations which are so well suited for such a charming tree to occupy prominent sites for displaying its sheet of white blossom in spring and brilliant autumn foliage to advantage.—B. G.

Fuchsias at Culford Hall.—"E. H. W.'s" remarks on Fuchsias in the open air at Hackness Hall, Scarborough, remind me of a very fine row that fringes the base of the retaining wall of the glass houses by the side of the main walk across these fine gardens. They were planted by Mr. Grieve many years ago, and still grow vigorously and bloom profusely. The variety is Madame or Marie Corneilisson, a so-called white Fuchsia admirably adapted for the purpose. It must not be supposed, however, from this example and others on walls in this county that might be given, that Fuchsias are generally hardy in Suffolk. Even Riccartoni, gracilis, and virgata will not stand in open beds without protection; and it will be a surprise to many to find this white-corolla'd variety so hardy at the base of a wall.—Hortus.

Pinus contorta.—This is one of the most distinct and beautiful of the medium-sized Pines, and particularly suitable for planting in limited areas. The foliage is short, of a bright green colour, and arranged thickly on the branches. It belongs to a section of the genus, having its leaves in pairs, which includes nearly the whole of the European as well as some American and Japanese kinds. The specific name is derived from the peculiarly contorted branches, which twist in such a manner that the diameter of their spread is less than that of most other kinds. When from 15 feet to 20 feet high, it forms a dense tree of narrow pyramidal habit and of a very effective shade of green. This tree is a native of the western part of North America, and appears to be perfectly hardy in England. It bears cones freely, even in a small state, which are about the size of those of the Scotch Fir.—W. T.

Gorse hedges.—In the neighbourhood of Ockham, in Surrey, there is a great deal of unenclosed land covered with Gorse, or Furze as it is more commonly called, and Heath. The cottage gardens which border the common land are mostly large, and are enclosed with thick Furze hedges. These are neatly kept, being clipped in regularly, and are so dense and strong as to be completely cattle and chicken-proof. This is the only locality in which I have seen the Gorse used as a hedge plant, but my impression is that it is second to none for that purpose. It is perfectly hardy and always green, and becomes so thick at the base that I doubt if even a rat could pass through it. The gardens which these hedges enclose belong to old-fashioned brick-and-timber erections, several hundred years old, and at the time they were built there was probably no other material available for forming a fence. A ditch seems to have been dug, the soil therefrom forming a mound on which the Gorse was set. Whether seed was sown or young plants used I cannot say, and I doubt if the oldest inhabitant could impart any information on the subject. The soil in this particular locality is very light and sandy, and it is possible that the Furze might not last out in heavy land. It is evident, however, that on warm dry soils, hedges of Furze are a success, and they can undoubtedly be formed in a cheaper way than by the use of any other material.—J. C., *Byfleet*.

NOTES.

The common Asparagus.—"What sort of Asparagus is that leaning out of that Yucca?" asked a friend who has a better knowledge of plants generally than most gardeners have even in these enlightened days. "Common Asparagus," I replied, but it took a little time to convince him, so lovely did its sprays appear, as fresh and feathery they were seen in contrast with the hard Yucca leaves. Now that a crusade has been begun in favour of fruit trees in pleasure grounds, one may the more boldly venture to proclaim the infinite beauty of common things, and especially of that possessed by this feathery native of our own seashore. A lady who is noted for a well-planted garden came to me two years ago. "Oh! I do not wish to trouble you much," she said, "but you know the bed under my window at the shooting lodge; we are only there in September, and I want a really nice arrangement to be at its best when we are there." "I will consider and write to you," I replied, being busy, but I thought what would have been the reply of any *cordon bleu* if she had asked for a new arrangement in the *menu* all at once. What I wrote was this: "In the centre of your bed put one big clump of Tritoma Saundersi, around it a belt 2 feet wide of common Asparagus, a band 3 feet wide of white Japan Anemone, and a broad edging of Viola Mrs. Clarke (Flag of Truce)." Nothing more was said; I was not pestered with thanks, but this year I was asked to see the bed itself, and the sight of it repaid me. All who disbelieve this history must pay a crown, as the Brothers Grimm used to say.

Time and place.—In gardening, more than in most other pursuits, everything hinges on operations being done in the nick of time, since it not unfrequently happens that one must wait a year if any needful operation be forgotten at the right moment. There is no royal road, no general rule, for nearly every set of plants have their own peculiarities, and the safest guides in gardening are observation and experience. Now and then we hear of elections, or selections, being made of the best fruits, vegetables, or flowers, but after all so much depends on soil, aspect, and elevation, and the vagaries of climate generally, that what is the best variety to cultivate in one locality may be the very worst in another. In a word, the variations in soils and in climate are as numerous as are those in the plants themselves; hence local knowledge of a simple practical kind is a *sine qua non* in all horticultural operations. Quibbler says there is nothing new in this, and that it has often been said before, and I cordially agree with him, but the matter is so important that one may be excused for saying it over again.

Tiger Iris.—A gorgeous blossom of scarlet and gold of only one day's duration, but a well established clump, is so floriferous, that flowers succeed flowers for weeks together. There are three or four varieties. Tigridia Pavonia, or grandiflora, the Tigris flos of the early South American travellers of two or three centuries ago; then there is the buff, or orange-yellow T. conchiflora; and last of all, and as some think the loveliest, T. alba, a milk-white blossom, blotched in the centre with purplish red. Beautiful as it is, it is unfortunately the least robust of the whole group; its flower-scapes, indeed, are so limp, that some support becomes actually essential. We find all the Tiger flowers perfectly hardy if planted in deep sandy soil at the foot of a south wall. Like the lovely Belladonna Lilies, these Mexican corms are grateful for the little extra warmth afforded by the walls of heated plant houses, and in very cold and wet localities such choice positions should be reserved for such beautiful half-hardy things. The Tigridias are by no means ill-favoured substitutes for the Cape Disa when the latter cannot be grown.

Magnolia grandiflora.—Again it is fruity autumn time, and the bees and the butterflies are happy honey-hunting on the rosy heads of the Sedum. The Wistaria is changing from green to gold; Sunflowers and Torch Lilies glow here and there amongst the dark Holly trees, and the music of the redbreast is mingled with the first rustle of falling leaves. But just as the chilly nights, thick with white mist and illumined by the harvest moon, are beginning, the old Magnolias bear their great ivory-white blossoms, nestlingcosily among their great glossy leaves. The buds are like the milk-white eggs of a swan, and the open bowl-like blossoms with their soft thick segments exhale a fragrance fit for the gods as one breathes it in the open air. A big bowl of its flowers and leaves forms an exquisite picture, but their fragrance is quite overpowering in a small room unless placed near an open window, and even then some find the spicy odour too overpowering. But, after all, the buds and blossoms are never seen to better advantage than as Nature arranges them among their own foliage in the open air, and on still, warm, sunny days their presence is satisfying, their fragrance being exquisite.

Giant Polygonums.—Wherever there is room for them on the sheltered portions of the lawn these great Japanese Knotweeds deserve a place, and a good depth of rich, moist soil. Polygonum sachalinense is by far the most robust and stately, while P. Sieboldi is more elegant in habit—smaller in leafage, it is true, but this apparent drawback is more than compensated for by the profusion of its white Spiræa-like flowers. On all good herbaceous borders these plants are a dreadful nuisance, as they creep about for many yards and soon reduce anything like order into a very wilderness of rank growth; but as planted on the Grass in isolated clumps or groups there

is no trouble, as the constant use of either scythe or mowing machine keeps them within respectable bounds, and the plants possess when thus restricted a much more shapely and well-kempt appearance. Once well planted they give no further trouble, but if watered with manure water, or top-dressed now and then, there is a proportionate increase of luxuriant health and vigour in leaf and stem alike. Veronica.

Orchids.

SLENDER-STEMMED EPIDENDRUMS.

Amongst the slender-stemmed or paniculate Epidendrums, though not general favourites, are many pretty kinds that might well occupy a foremost place amongst cool Orchids. Cool treatment was not so well understood as it is now when these Epidendrums were first introduced; they were therefore subjected to a temperature quite unsuitable for them, and the result was they did not thrive; they also had the character of being tall and ungainly in appearance, and therefore, to some extent, they have slipped out of cultivation. The late Mr. Skinner laboured hard and long to bring this class of Epidendrums into favour; his success was, however, but limited. It cannot be denied that they are somewhat difficult to establish when first imported, but so also are many other Orchids (especially those with thick fleshy roots) upon which much trouble and pains are expended. In commencing the culture of slender-stemmed Epidendrums carefully avoid that great stumbling block, high temperature; all of them revel in a cool, moist atmosphere—some in a very cool one, and in this lies the whole secret of success. In houses of low elevation they might be grown as rafter plants, and treated in that way when in flower they would be very effective. The pots for their reception must be thoroughly well drained, and the best material in which to pot them is good rough fibrous peat and living Sphagnum Moss, intermixed with some nodules of charcoal. They enjoy an abundant supply of water all the year round, but, of course, less will suffice during winter than in summer. The plants in this section of the genus have no pseudo-bulbs, but tall Reed-like stems, furnished with two-ranked (distichous) leaves, and terminated by large panicles of flowers, which retain their beauty for a very long period.

The following list contains all the best species at present in cultivation, viz.:—

E. paniculatum.—This attains a height of about 5 feet or more. Its stems are furnished with narrowly lanceolate leaves, which are slightly recurved, pointed, and deep green. The panicle, which is upwards of a foot in length, is much branched, and bears between 200 and 300 flowers, which are deliciously fragrant. The sepals and petals and long slender tubular ovary are of a beautiful deep rosy lilac. The lip is spreading, lilac-mauve, and bears two small yellow lines on the disc. The flowers are produced during March and April. It appears to be widely distributed, having been collected in Peru, Bolivia, and New Grenada at elevations of from 7000 feet to 8000 feet.

E. Catillus.—The Reed-like stems of this species bear oblong-acute leaves, sheathing at the base, and dark green. The panicle, which is unbranched, bears from thirty to fifty flowers. The sepals, petals, and long tubular ovary are bright cinnabar-red, while the front lobe of lip, which is dentate, is white. The flowers appear in April and May. It is found at considerable elevations in New Grenada.

E. myrianthum.—The leaves of this species are long and narrowly lanceolate, acute, recurved, and bright green. The panicle, which is large and much branched, bears several hundred rich magenta-coloured flowers, the lip being tinged with yellow. The flowers are produced in spring and early in the summer. It comes from the mountain regions of Guatemala.

E. rhizophorum.—This attains a height of from 9 feet to 10 feet, and its stem is furnished with oblong-lanceolate, sheathing, pale green leaves. The panicles, which are unbranched, bear numerous large, orange-scarlet flowers, the centre of the lip of which is orange-yellow. It blooms in spring and summer, and lasts a very long time in perfection. It comes from the mountain regions of Mexico and Guatemala.

E. syringothyrsis.—The stems of this bear numerous broad, elliptic-lanceolate leaves, which are leathery in texture, and dark green above, but paler below. The panicle, which is unbranched, bears half a hundred or more flowers, the sepals and petals and also the long tubular ovary are rich deep purplish lilac. The lip is stained on the disc with yellow. It blooms in early spring, and comes from the mountain regions of Bolivia, where it is found at elevations of from 7000 feet to 8000 feet.

E. cnemidophorum.—A somewhat slow-growing, but extremely handsome species, the stems of which are clothed with leaves about 9 inches long, sheathing at the base, and deep green. The panicle is nodding and many-flowered. The sepals and petals are white at the back (as are also the long pedicels); in front they are pale yellow, broadly mottled, and streaked with reddish brown. The lip is creamy white, suffused with rosy lilac. It blooms in winter and spring, and comes from the mountains of Guatemala, where it is found at elevations of from 7000 feet.

E. ibaguense.—The slender stems of this species are often branched and clothed with broad, oblong, sessile, bright green leaves. The panicle is many-flowered, and the flowers wholly rich, deep orange-scarlet. It blooms during spring and early summer. It comes from the mountain regions of Ibague and New Grenada, where it is found at elevations of from 4000 feet.

E. Wallisi.—The stems of this kind are both stout and tall, and conspicuously spotted with brown. They are furnished with large leathery leaves, and bear lateral as well as terminal clusters of fragrant flowers. The sepals and petals are yellow freckled with carmine. The lip is white, variously streaked and lined with purple. Its flowers are produced late in autumn and winter. It comes from New Grenada.

E. evectum.—The stems of this, which are tall and slender, bear distichous leaves some 6 inches long, notched at the points, and clasping the stems at their base. They are leathery in texture, and deep green. The flowers, which are borne upon pale red footstalks, are rich magenta, shaded with purple. It comes from New Grenada.

E. Friderici Guilielmi.—This is a very tall and robust plant, the stems of which are clothed with broad, leathery leaves nearly a foot in length. The flowers, which are borne in dense racemes, are deep crimson, with the exception of the base of the lip and the tip of the column, which are white, whilst the long footstalks are purple. It blooms in spring and early in summer. It comes from Northern Peru, at an elevation of from 7000 feet to 8000 feet. W. H. G.

Moss litter for Orchids.—Mr. Buchan inquires (p. 262) if anyone has had experience of the growth of Orchids in Moss litter. When this article was first imported I tried it, and found it soured and fell to powder or else became slimy, and the darker the colour the quicker it decayed; but, seeing the large amount of moisture which it held in suspense, I made a number of experiments with it, and found that, by treating fresh Sphagnum Moss with sulphate of ammonia, borax, &c., and pressing it afterwards into a solid block, it retained the moisture and kept good for two years. While travelling in Germany and Bavaria shortly after I had made these experiments, I found Sphagnum growing most luxuriantly with several inches of green growth. I therefore determined to get a quantity chemically treated as above and pressed into blocks, as I have found it excellent for the growth of Odontoglossums, Cattleyas, &c., and more particularly for Sophronitis, which I had hitherto found difficult to grow, and for your inspection I send herewith a pan on which the plants were placed in December, 1884. I shall be glad if you will carefully examine and report on the specimen sent—now nearly two years in the pan. I have been for years trying to find a material in which to grow Orchids, good peat becoming every day more difficult to obtain.—Marcus H. Voss, *Streatham*.

*** Nothing could surpass in vigorous growth the specimen of Sophronitis grandiflora sent by Mr. Voss. The plant is in a pan, measures 6 inches across, and is crowded with bulbs, the roots forming quite a network amongst the potting material, which has the appearance of being sweet and durable.—Ed.

Garden Flora.

PLATE 563.

THUNBERGIAS.

(with a plate of T. laurifolia.*)

Of the thirty known species of Thunbergia we have about a dozen kinds in cultivation as garden plants, some of them being characterised by a strong, vigorous, scandent habit, whilst others are shrubby and more or less compact, all of them being easily managed and flowered except one, viz., T. coccinea. The genus is now made to include Hexacentris and Meyenia, but we have omitted the latter here, because, for garden purposes, Meyenia is distinct enough to be kept separate from Thunbergia. All the species cultivated in gardens, and of which descriptions are here given, are happiest when treated liberally in respect of watering and soil, though some, to induce them to flower freely, should be kept rather dry and well aired after they have made good growth. The free-growing kinds should be planted out, and their shoots trained against pillars or made to grow in festoons along the roof of the stove. For details as to cultivation, our readers cannot do better than consult the articles on Thunbergias and Hexacentris in Baines' "Greenhouse and Stove Plants," previously published in The Garden, Vol. XXIV., p. 314.

T. affinis.—This is a recent introduction from East Africa, having been sent home by the German collector Hildebrandt. A plant of it has been flowering all summer in the Palm house at Kew, as already noted in The Garden. It is a slender-stemmed scandent shrub, with thin, smooth Privet-like foliage, which is almost stalkless; the flowers are exactly similar to those of Meyenia erecta in shape and colour, but larger than these usually are. The neat habit, freedom of growth, and beautiful deep blue of its large flowers should secure for this species a favoured position among stove climbers. It may be grown in much smaller space than is necessary for the larger kinds, such as T. laurifolia.

T. alata.—Although usually treated as an annual, this plant is really a perennial. It is one of the prettiest of quick-growing climbing plants for the greenhouse or cool stove, and it seems to thrive either in shade or in full sunlight. We have seen it used as a screen-plant for covering bare stems of old plants in stoves, and we have grown it in baskets in the conservatory with very pretty effect. It is a twiner with hastate leaves and winged stalks, and bears in abundance its axillary flowers, which are 1 inch long and wide, with a flat, spreading limb. There is considerable variety of colour in the flowers—white, buff, pale yellow, orange with purplish eye-like centres, or uniformly orange or white. A variegated-leaved form, known as Doddsi, is also in cultivation. Not only in this country, but also in all tropical countries where gardening is practised, this pretty little climber is a universal favourite. It is a native of Africa, but is now naturalised in India and elsewhere. T. aurantiaca is a form of this

* Drawn in the Royal Gardens, Kew, September 10, 1885.

species, whilst T. fragrans is often confounded with it. The latter, however, has not a winged petiole, and bears pure white fragrant flowers. It is not as useful a garden plant as T. alata, although spoken of by Indian botanists as the most charming of plants.

T. chrysops.—A very beautiful Meyenia-like plant with a scandent habit, hastate, toothed foliage, and large axillary, deep blue flowers; it was figured under this name in several magazines about forty years ago; but we do not know of its existence in English collections of to-day. It was found in Sierra Leone by Whitfield, a collector employed by the late Earl of Derby, to whose enthusiastic love of horticulture we are indebted for some fine African plants. The flowers in T. chrysops are larger than in Meyenia, and they have a very brilliant effect, owing to the golden yellow eye being surrounded by a deep indigo-blue, changing to violet towards the margin of the lobes. It is a stove plant which, if lost to English horticulture, is worth re introducing.

T. coccinea (Hexacentris).—This is very remarkable in the form of its flowers; it is also usually disappointing as a garden plant, because of its rarely flowering satisfactorily. It is a rampant grower, covering a very large area if allowed to grow unchecked, and developing hundreds of racemes in autumn, the flower-buds on which, however, usually fall long before they are fit to open. The stems are four-angled, and the leaves vary in form from hastate to cordate, and are variously toothed or lobed. The racemes are axillary or on the ends of short branches, and they hang down sometimes to a length of 3 feet, the flowers being arranged in pairs set at intervals of about 2 inches apart. Each flower is on a stalk 2 inches long, and has its tubular part hidden by two large brown bracts, which fold round the flower and give it an urn-like appearance; the corolla lobes are short, reflexed, bright scarlet, yellow in the throat, and these colours, with the chocolate-brown of the bracts, produce a brilliant effect. We have seen this plant in flower several times, but the art of growing it so as to make it mature flowers annually is apparently not yet discovered. It is said to be a very common inhabitant of the tropical jungles of India. Possibly the absence of sunlight and warmth in early winter when this species tries to flower is the cause of its usually failing with us.

T. grandiflora.—This is a large, quick-growing climber, with long, smooth-barked shoots bearing hastate leaves 5 inches long, deeply toothed or lobed, and rough almost as sand-paper on both surfaces. The flowers are on short, stout racemes developed in the leaf axils, strong shoots bearing as many as twelve flowers on each raceme of not more than 3 inches in length. The size of the flowers justifies the name of this species, as they measure 3 inches in length and width, the tube being short and wide, and the limb divided into five large spreading lobes; colour pale blue, becoming almost white in the throat, where there are usually a few deeper coloured streaks. Flowering season from midsummer till winter. When grown in a large house where plenty of space can be spared for its shoots to extend and festoon, this plant becomes a magnificent sight during its flowering period. The shoots should be allowed to hang downwards if the plant be trained against the glass, so that the flowers may be seen to the best advantage. As a pot plant this species makes but an indifferent display; it must be treated liberally and grown into a large size before its grand characters are fully developed. It is a native of India and China, the form cultivated in gardens here being that found in Bengal, and introduced in 1823.

T. Hawtayneana.—A climbing shrub from Nepaul, and a very handsome stove-flowering plant. The leaves are oval, smooth, dark green, and sessile, and the flowers, which spring from the axils of the leaves, have a yellow tube 1½ inches long, and a five-lobed spreading limb of a deep blue-purple colour. It is very free-flowering and belongs to the same group as the Meyenias, from which, however, it is quite distinct in having round instead of angular stems. We have not seen this plant for several years. Is it in cultivation now?

T. laurifolia.—This beautiful stove climber is known in gardens under the name of T. Harrisi as well as that here adopted, the two names having originally been given to two slightly different forms of what is now known to be a somewhat

Thunbergia laurifolia as a small pot plant.

variable plant. The form shown in our plate is what has been known as T. Harrisi, and is the better of the two, being brighter coloured and bearing larger racemes than that to which the name of laurifolia was once limited. It is a strong grower with long cord-like shoots, ovate, Laurel-like leaves, the margins slightly toothed or waved, and the surface smooth and shining. The flowers are borne on a short raceme springing from the leaf-axils, as many as two dozen flowers being crowded on a raceme not more than 4 inches long. The size, form, and beautiful colour of the flowers are shown in the plate, which represents only a small cluster of flowers, a full-sized one being too large for our space. A large specimen of this plant may be seen now in flower at Kew, where it is trained against the roof of the Palm house, and festooned from one wire to another, the flowers hanging in profusion from all parts of the plant. Treated liberally and allowed to grow its own way against a large pillar, or as at Kew, this species makes as grand a show as the Allamandas do. It is a native of India, and was introduced in 1857.

T. mysorensis (Hexacentris).—One of the most gorgeous of stove climbers, and one of the very easiest to manage and flower. It has long scandent shoots, which hang down or form festoons if permitted, and bear elliptical or hastate leaves with toothed margins and short stalks. The flowers are borne on long pendent racemes, which terminate the short branches, and which are sometimes 2 feet or more in length; each flower has a rather long stalk with an upward curve, so that the flower itself is nearly erect. In shape the corolla suggests that of a large Snapdragon or Mimulus, the upper lobe forming a sort of hood and the two lateral ones standing out wing-like; while the bottom one points downwards like a lip. These lobes are yellow with broad margins of scarlet, the colour of the tube below being purplish. As each flower is 2 inches across and of good substance, the effect of the numerous long racemes borne by a large plant of this species is extremely fine. It is so very free-flowering, too, and thrives under such simple treatment, that no stove need be without its beautiful flowers for many months in the year. Planted out, it soon forms a large plant, and will certainly flower; whilst in pots it may be grown into handsome specimens. To induce it to bloom a drier atmosphere and plenty of air are all that is required. It is a native of Mysore and the Neilgherries, and was introduced about 1855. There is a yellow-flowered form of it which is named lutea.

T. natalensis.—A distinct shrubby plant, with ovate, sessile leaves, the veins in which are very prominent, and axillary flowers which are slightly drooping, and are composed of a tube 2 inches long, almost hidden by the two large green calyx-like bracts, and a large spreading five-lobed limb which is coloured pale purple. The flowers appear in July, and although not more than two flowers are open at one time on each branch, they make a nice display on specimens grown in pots, and made to branch freely by frequent stopping early in the year. It has been in cultivation since 1858, thriving in a warm greenhouse where the atmosphere is continually moist. B.

WORK DONE IN WEEK ENDING SEPT. 21.

September 15 to 21.

Brilliant sunshine by day and cold, nearly freezing, by night are phrases descriptive of the weather that has prevailed all the week. The cold nights have made us somewhat apprehensive as to the safety of tender bedding plants, for though all our cuttings of the same are taken, we do not yet wish to see the end of the old plants; hence protection with light tiffany sheeting and thick netting has been put over the most important beds to preserve them from frost, as the probability is that if we get safely over the first cold nights we shall have a second little summer, when the beauty of the flower garden will be very welcome as a sort of floral set-off to the autumnal tints of the trees that are now showing in every direction. Till frost has really cut down the plants we continue our work of keeping every bed and plant in perfect order by picking off seed-pods, bad flowers, and leaves, and take just as much pains to keep edgings and groundwork as neat and trim as we do in the early part of the season. Of course, when a sharp frost does come the collapse is sudden and complete. Well, and what then? Why, there is an end of gaiety; and winter dress is put on forthwith, shrubs and other hardy plants take the place of such plants as must be moved, but all that will winter without injury

remain as before. The present must surely have been a favourable season for Lilies of all kinds. The auratums have been, and still are, most magnificent, and the double-flowered Tiger Lily is equally good. Our bulbs of both are constantly left in the ground and winter well, and shoot forth each year more strongly than the previous one. The soil is an open sandy loam resting on gravel, and therefore warmer and drier than most soils, and this, no doubt, prevents injury accruing to the bulbs in winter. It is questionable whether the auratum Lily would winter in a soil of a tenacious nature, even though it were well drained, and therefore a trial on a limited scale only should be made till this has been ascertained. Tied up spikes of Gladiolus, which are still flowering profusely; and so are Phloxes, which also have been freed of bad flowers. Asters (Michaelmas Daisies) are nearly in full beauty, and the tall varieties have been securely staked. The short crops of both Apples and Pears make us most anxious to harvest them in good condition, that the supply of each may hold out, and on most days we gather a few Pears—Marie Louise, Beurré Thouin, Comte de Lamy, Beurré de Capiaumont, Doyenné Gris, and Gansel's Bergamot have been gathered during the week, and about as many varieties of Apples; only the latest varieties, such as Ribston Pippin, Northern Greening, Court Pendu Plat, and Deux Ans, now remain to be gathered. Peaches and Nectarines ripen more slowly than usual, and are certainly of finer quality, and the colour of all is perfection, thanks to the unusual amount of sunshine that has lately prevailed. We water both these and Apricots as often as the non-neglect of other duties will admit of; this is necessary, as our rainfall up to this date is several inches below the average. Kitchen garden work has been earthing up Broccoli and hoeing between rows of winter Spinach and August-sown Onions, Lettuce, and Cabbage, and the completion of Potato digging and housing. Planting of Cabbages, &c., is deferred till rain comes. Work in and about the houses has mainly been propagation of flower garden plants, but all cuttings are now in, except those that it is desirable to put in later, such as Calceolarias, Leucophytons, and Gnaphaliums, which all do best in cold frames, where they remain till needed for planting out in the beds in spring. The second crop of Figs being about finished, the house is now kept cooler—no fire-heat, and ventilation will be gradually increased till it is safe to leave the house wide open night and day; the border—an inside one—will not be allowed to get dry, but, as a matter of course, the supply of water will be considerably reduced and syringing quite discontinued. Put inside our first lot of Chrysanthemums—the latest varieties only; the remainder are so forward, that they will be left out as long as it is safe to leave them without danger of injury by frost; meantime, every available place is being got ready for them, as also are stakes for tying them into position in the houses. A greater amount of fire-heat is now given to Melons, Cucumbers, and Tomatoes by night, 70° to 75° being the present average temperature, and a similar warmth is afforded to Pines in all stages of growth. Did final pruning to early Peaches; mulched the freshly top-dressed border, which is now available for standing plants on all the winter. HANTS.

HARDY FRUITS.

Apples.

This season a partial crop must be carefully watched and gathered as soon as the stalks of the fruit yield to the usual upward pressure. Although the season is generally considered late, we find but little, if any, difference in the period of ripening; indeed, many of the early varieties are forwarder than they have been for several years; moreover, the fruit is bright, clean, and exceptionally fine. We have during the past week gathered Worcester Pearmain and Echlinville, two of our most handsome and useful early autumn Apples, Lord Suffield, Lady Henniker, Stirling Castle, Keswick Codlin, and Devonshire Quarrenden, both from pyramids, bushes, and upright cordons, and the trees are now ready for root-lifting or top-dressing and watering. The crops from the above-named trees having required much thinning, we do not think it necessary to disturb the roots, as the growth is not too strong and the set of flower-buds is profuse; but close examination reveals the fact that the subsoil under many of them inclines to the dry side; hence the secret of early maturity. Having a good supply of water, basins will be formed round the boles of the trees, and after well washing the foliage the hose will be laid on until the lower roots are properly moistened. Mulching will then complete their requirements for the season. Late kinds are colouring fast, and no doubt, from the same cause, show a tendency to early maturity; but, unlike the fruit in the home and southern counties, the Apples are clean and free from grub.

Apricots.

These, as a rule, do not receive the care and attention they deserve and require after the fruit is gathered. Natives of a warmer clime, many people think they cannot have too much dry sunheat to ripen up the fruit-buds and wood; neither can they if the roots are freely supplied with water. This important element is not, however, always administered through the latter part of August and September. The lower stratum of deeply-drained south borders becomes dry, and the trees resent this treatment by shedding their buds and perhaps losing a few branches in the spring. Better late than never. Those who have neglected the roots should not lose a day in making an effort to restore the soil to a growing state by pointing up the hard-trodden surface of the wall path, mulching and watering heavily. An inch or two of rain or an occasional dash with the hose cannot reach the deeply placed roots, as those near the surface carry it off, and the rapidly perspiring leaves lack that fulness so essential to the forming and feeding of the buds. Once properly moistened and mulched to prevent the borders from again becoming dry, autumn watering must not be continued to an extent that will force fresh green growth that will never ripen; but this is an extreme which few people fall into, especially when well drained trees are growing against sheltered south walls. Apples and Pears in the open quarters may have too much wet in the autumn, but the roots of Peaches and Apricots, which commence swelling their buds soon after Christmas, must be kept progressing, and the proper time to commence cultivating next year's crop is immediately after the last of the fruit is gathered. Old trees which have become barren or gross through the roots descending into a dry or unsuitable subsoil may now be taken in hand with every chance of their speedy restoration to a fruitful condition. Careful lifting and replanting in fresh maiden loam, now so well understood, is the proper remedy, as it not only cuts off the supply of damaging food, but raises the main roots to a horizontal position within the influence of heat, water, and air. In course of time the spurs of old Apricots get very long and unsightly, when the flowers and fruit, if they produce any, lose the influence of heat absorbed and reflected by the wall. Close examination generally shows a number of buds clustering near the main stems, which one year's management will convert into close spurs. To these, then, all old spurs should be pruned as soon as the roots have thoroughly taken to the new compost, and where they are not visible all the old spurs, with the exception of one at the extremity of each branch, may be cut off, when latent buds will soon push into growth.

Peaches.

Of these the flush of midseason kinds will now be over, and many of the trees will be ready for pruning. Light, warmth, and air being such important factors, the earliest available opportunity should be devoted to the removal of all past-bearing shoots which have finished their work, and the trees before and afterwards must be well hosed to divest them of spider. When pruning is finished and the trees are clean, all summer mulching may be taken away to let warmth into the borders, but top-dressing laid on in the winter or early spring and now full of fibres will be best left until the time arrives for the annual root-pruning. The end of September and the month of October is the best time for this work, and so completely does this operation form the keystone of success, that I cannot forbear again directing attention to it. So many think root-lifting means a year's loss of fruit, but this is not the case, as I never allow the roots of a single tree to escape the annual shortening, and they always bear full crops. Indeed, so grateful are they for the usual supply of fresh loam and lime rubble, that I always secure the best wood and fruit when the work is most efficiently performed. Last October I had occasion to move a large tree of Dymond three times; the fruit, a full crop, is equal to the best on the wall, and the wood is perfect. Further, by way of experiment, a number of large trees which I had been testing in pots were shaken out and the roots washed free of every particle of soil preparatory to planting them against walls. Strong roots we could not uncoil were shortened, the others were spread out in pure calcareous loam, and most of them are now swelling off large Peaches. If by oversight, certainly not under good management, the roots of any of the trees have become dry the borders should be well watered before root-lifting is attempted. Then, during fine, dry weather, say early in October, the work may be taken in hand as the soil can be handled and worked without becoming pasty, and flooding with water will be found the best rammer.

Figs

must be kept thin of wood and closely nailed in to the walls to insure its being properly ripened. Mulching having done its work, crops, as a rule, being extremely light, it may be removed to let the sun into the borders. We are still gathering a few fine Figs from Brown Turkey, Brunswick, and a variety sent out under the name of Williams' Prolific, but, in my opinion, neither more nor less than Brunswick. Where Figs have failed, or so soon as the crop is over, all root-pruning must be taken in hand and completed. This process, while the leaves are yet on the trees, will hasten the ripening of the wood and check the swelling of the embryo Figs, which cannot be too small to pass safely through the winter. If not already done, all intermediate fruits larger than Hazel Nuts must at once be rubbed off, as they cannot possibly hang to ripen. Figs submit to very severe root-pruning and become gross, pithy, and unfruitful in nearly every garden where it is neglected. They like light, not over-rich, calcareous compost, and do best when the roots are confined to a small area. Unlike stone fruit trees, they may be kept dry through the winter, but water and surface-dressing must be supplied *ad lib.* when spring growth can no longer be retarded.

Strawberries.

The terrific thunderstorms by which the hot, dry weather was broken up have told upon our Strawberry beds in a way we did not wish or bargain for. What the outcome will be, a mild or severe winter alone can determine. The plants, in accordance with good practice, were trimmed as soon as the crop was cleared, and a heavy top-dressing of old Peach border loam put them right, as we thought, for the winter, but growth of foliage has set in with all the spring vigour Strawberries are capable of putting forth, and should the weather continue mild, I am afraid many of the crowns will throw up flower-scapes. A check now may prevent flowering, but it is to be feared this unwelcome precocity may tell unfavourably in the spring. It may be that Dame Nature is only laughing at our autumn Strawberry fruiters, and showing them how she can produce second crops without subjecting the plants to pot culture or sharp attacks of red spider. Although detrimental to old beds, this autumn growth may favour newly formed plantations, as the plants are now making good crowns

and throwing out strong wires, a sure sign that the roots are at work below the surface. These beds we generally about this time top-dress with old Mushroom manure, but under existing conditions the plants will be firmed with the foot and the manure will be withheld for the present, as the crowns are more in need of the hardening effect of exposure than the roots of nutriment. When August-planted beds are well established, all runners should be removed as they appear, and the Dutch hoe in careful hands on fine days will keep them clear of weeds and benefit the plants by letting in sun and air. If the late discussion on Strawberries has induced amateurs to invest in new sorts which may be weak or still in small pots, they may with advantage defer permanent planting until the spring. The plants must not, however, be kept standing about in these cramping and starving nutshells, as such treatment will greatly decrease their number before the winter is over, and those which escape will be weak and poor. Neither must they be pampered, for Strawberries worth growing resent coddling, but rejoice in full exposure to the elements. The proper course, then, is an early clearance from glass and shade, and temporary planting in a well-prepared nursery bed in an elevated airy part of the garden. The plants need not be placed more than 6 inches apart, but they should be divested of sour soil and firmly planted in a good layer of fresh heavy compost.

Bush Fruits.

Currants and Gooseberries, like all other fruit trees, seem inclined to ripen their wood and foliage early. It is as yet rather too early to commence pruning, although it is a good plan to get this work forward before we are overtaken by cold weather; but it is not a day too soon to commence planting. The ground just now is warm and in excellent condition, and young trees, especially those of home growth, can be transplanted in full leaf without their feeling the moving. A good start with trees which are not to be disturbed for some years being more than half the battle, the ground should be well trenched to a uniform depth, and enriched with rotten manure if poor, with burnt earth and old lime rubble if cold and heavy. Then on a dry day it must be levelled and made quite firm—two important operations which must precede workman-like planting. When bush trees are to be planted in lines near the margins of walks it is a good plan to throw out a trench 3 feet wide and 2 feet deep and put in a thick layer of trimmings, clippings, and other cumbersome refuse to form a tolerably rich foundation. Upon this the best of the soil recently taken out must be placed and made firm in consecutive layers until the bed is 6 inches above the surrounding level. When worked into proper form a line should be strained along the centre, and neat, but stout, durable sticks or stakes placed equidistant with a rod and driven down to the solid subsoil to indicate the stations, one tie to keep the trees upright and steady being all that is needed; these sticks should be cut off to one uniform height, a few inches above the level of the collar of bush trees, and 2 feet or more for pyramids and standards. When planted and mulched, a good watering will settle the soil home about the roots. This will prove to be the finest border in the garden for crops of winter Lettuce.

The Orchard.

The gathering of fruit this year in many orchards will be light, and for this reason the few trees bearing full or partial crops of Apples and Pears must receive extra care and timely attention. I have just stated that the fruit in gardens, owing to the dryness of the subsoil, is ripening earlier than usual, and find the crops in Grass orchards are equally forward. Fruit generally, even on old trees, is clean and fine, but it lacks colour, and, judging from the tendency to dropping and the ready way in which Apples part from the lowest branches, it is questionable if much will be gained by allowing this settled weather to pass before hand-picking is commenced in earnest. Midseason and late sorts should be allowed to hang until the kernels have changed colour and begin to shrink in their cells, but a sharp outlook must be kept on the weather, and all hands set to work on the eve of a change, as one sharp storm would nearly clear many of the trees. Assuming that the fruit room has been prepared for the reception of the fruit, the different varieties should be carefully put away, the thinner the better, as they are gathered, the latest most out of the way, the earliest where thay will be most in sight. Newly gathered Apples perspire freely, no matter how dry they may be when stored; hence the importance of keeping the fruit room dry, cool, and abundantly ventilated throughout the autumn. When the sweating process which glazes and fits them for keeping is over, each shelf should be examined for faulty fruits which are not sound, and gradually the ventilation may be reduced on the approach of cold, wet, or severe weather. W. Coleman.

Eastnor Castle, Ledbury.

Kitchen Garden.

Earthing up Celery.

More depends, I am disposed to maintain, upon the way in which this operation is performed than upon whether it is done piecemeal or all at one time. On light, well-drained soils it may be necessary to water the rows repeatedly up to the time when the plants are nearly full grown, and earthing them up, in that case, would have to be delayed, but on heavy lands, as in our case, about three good soakings, if the month of August is hot and dry, are all that are needed; at least, that is our experience, and we have as good Celery as most people. With us slugs are remarkably troublesome, and it is difficult to keep them in check, the Celery rows being their favourite winter quarters. We have tried several plans of preserving the plants from them with varying success. For two seasons we completely surrounded the stems with fine coal ashes, but this, though effective enough, does not improve the fertility of the soil for after crops; on the contrary, there is too much of it in one place, and we are not using it this season. At Longleat burnt clay is substituted for the ashes, and this, besides keeping the slugs off, preserves the Celery, and also improves naturally stiff soil. When any such material is employed, moulding up is done principally on the second occasion, and before severe frosts are anticipated. As we have no burnt clay and do not intend using any kind of ashes, our earthing up will be done in the ordinary manner—that is, at about three times, plenty of soot and lime being freely dusted about the stems each time for the benefit of the slugs. It might, too, be a saving of labour to mould up completely at one time, but I still prefer the good old plan of doing it piecemeal, always supposing that the operation is rationally carried out. Both "R. T." (p. 220) and "Hortus" (p. 281) appear to have overlooked the fact that Celery is naturally of a spreading habit, and unless something is done to check that tendency when the time arrives to earth up "all at once," the leaves cannot be induced to properly enclose the heart—the only part eaten, and what we have to study is how best to develop and preserve it. The cook may be prevailed upon to use some of the outer stalks for soups, but, as a rule, all Celery that reaches the pantry is very roughly used indeed, and very little—I may say nothing—is gained by growing large "sticks." Nor does any real advantage attend the practice of placing two rows of plants in one narrow trench, as the same number of plants may be grown in a single row with much less trouble. When these are growing strongly they should be moulded up. After being properly cleared of suckers and the small lower leaves, they should either be lightly tied up just above where the soil will reach, so as to allow the soil to be worked in amongst them expeditiously, or if a boy is available, he can be made to hold the stems together while the soil is being carefully and lightly disposed about them. For the first moulding 3 inches or 4 inches of soil will be ample; moisture is thus retained and the leaves are kept nearly erect. At the next moulding, if any protecting material is worked in, two boards will be necessary, and the plants should also be again loosely tied up, so that the stalks shall cover the heart all round. The boards being placed in position on each side of the rows, the next proceeding is to mould up against them from the ridges, while inside the ashes or burnt clay should be carefully placed, and the boards can then be withdrawn and be ready for another length. This would not be the final moulding; later on the earth should be banked up around in such a manner as to throw off superfluous rain and complete the blanching. At no time should the soil be heavily banked above the fast developing hearts, nor should it be tightly pressed about the stems, as some are fond of doing, for this causes bulging and splitting at the base; nor ought many of the leaves to be enclosed, as it is not these that require blanching, and the more healthy the foliage above the soil the better and larger will the heart be. The idea that piecemeal blanching varies the amount of crispness is fanciful, and will not have much weight with experienced cultivators. The longer Celery is allowed to remain exposed to full light and air the stronger the flavour becomes, and I very much doubt if after-blanching will entirely remove this objectionable taste. W. I.

Autumn Giant Cauliflower.—The extent to which this variety is now cultivated for market would hardly be credited without actually seeing the enormous breadths of it that are planted in the neighbourhood of large towns. Even when other vegetables are plentiful and cheap this Cauliflower finds a ready sale, owing to its heads being beautifully white and compact. They are now being sent into Portsmouth and other large south coast towns by wagon-loads, nearly every head being fit to set up in a prize collection of vegetables. The secret of success in the case of this Cauliflower is good rich soil, early planting, and plenty of room. It succeeds in open fields where sun and wind play freely around it, and in periods of drought plenty of sewage is applied to the land. The latter, too, is mostly dressed the preceding winter with town refuse, and great care is taken to have soil for it on which no other kind of Brassica crop had been grown for some time. The seed is sown by our market-growers very early in cold frames, and as soon as the weather is favourable and the plants large enough to handle, they are planted out 1 yard apart, which allows for the free use of a horse hoe between the rows. And at this time of year they entirely cover the ground with massive dark green leaves, betokening good cultivation. Another valuable characteristic belonging to the Autumn Giant is the length of time during which it is in season; by having successional batches a continuous supply can be secured from August until severe frost sets in.—J. G., *Hants.*

Thinning Asparagus.—The plants in my young Asparagus bed (two years old) are in bunches of some six or eight stems, and the bunches about 1 foot apart in the bed. May these be left in bunches, or ought they to be thinned to single stems? and if so, will simply pulling up the superfluous stems be sufficient, and can that be done without injury to the root?—H. S. M.

*** Well-grown Asparagus, two years from the seed, will produce several shoots from each crown. Why thin or destroy them when each shoot is forming and feeding a bud at its base? Better tie the young growths to sticks to prevent wind-waving, as future growth depends upon their preservation until they die down naturally, when their work will be done. These remarks apply to plants which were planted singly two years ago, but it is more than probable they do not meet your case, as we suspect your Asparagus was improperly sown—*i.e.*, a number of seeds were allowed to fall together, and thinning when 2 inches high was neglected. If so, and a

number of young plants are now clustered in bunches 1 foot apart, a different course must be pursued, as thinning is a simple impossibility. Leave the bed alone until the buds begin to move in April, then, the bunches being so terribly close together, lift every alternate row, divide the plants, carefully preserving the buds, and with the best make a new plantation. If early cutting is imperative, the other rows may remain; but they will never do much good, as the roots will strangle each other. When Asparagus seeds are sown where the plants are to remain, the seeds should be dropped, singly, say, 6 inches apart in the rows and 3 feet from row to row; the plants will then have fair room for development. Assuming that every seed grows, they will be much too close, but being 6 inches from each other, every alternate plant when twelve months old may be carefully lifted with a hand-fork and transferred to fresh ground, properly prepared through the winter.—W. Coleman, *Eastnor Castle, Ledbury.*

PEAS AND PEA CULTURE.

Little that is new can be said about Peas, and yet it is of importance to know how to keep up a supply of good green Peas from May to November. In order to do this a considerable amount of attention and forethought is necessary. Some, doubtless, fancy that Peas will grow anywhere and under all conditions, but that is a mistake. In order to have palatable green Peas during the period named there is no doubt that a rich deep loam is of the utmost importance. Without this they cannot resist the summer droughts. In our light soil, over a subsoil of dry gravel, there is no difficulty in obtaining good early Peas without taking any extra pains with them, except to prepare a piece of ground in a warm position. Our kitchen garden difficulties in light soil begin with the hot dry weather which sets in either in June or July. The only possible way to keep up a supply during July and later is to prepare the ground by trenching it the previous autumn or winter. Some good manure should be worked into it to a considerable depth. If placed near the surface, it leaves the soil too open to produce successional crops of good Peas. The nature of shallow light soil is (even if well manured) to rush in a good crop quickly, and it is soon over. Great quantities of Peas are grown in this neighbourhood for the London market. No sticks are used for their support, and during the Pea-picking season a surplus population of a peculiar character settles in our midst to aid in getting the crop ready for market. They pick the Peas at so much per bushel. The first gathering takes the cream of the crop, and seldom is more than two gatherings made, after which the ground is ploughed and planted with Coleworts, sprouting Broccoli, or any similar crop. Watering, or any special preparation of the ground, is out of the question. In good seasons the market for the earliest Peas is sure to be overstocked, and, as a rule, the later Peas pay much better. The crop may not be so large, and more is paid for gathering it; but during some part of August Peas were sold at seven shillings and sixpence per bushel. The ground, after later crops have been removed, may be planted with spring Cabbages.

In private gardens sticks are used to support Peas, and I would here like to urge the importance of leaving sufficient space between the rows. For tall varieties a space of 5 feet or 6 feet apart gives the best results. Some may fancy this too much, but they are wrong. As soon as dry weather sets in keep the hoe at work between the rows; there is no need to hoe deeply, but it will keep the ground from cracking and will destroy all weeds. It is quite necessary in some cases to water well at the roots. My plan for this is to draw drills on each side of the rows, and fill them up three or four times with water, or until the ground is well soaked. Level the ground, and spread a layer of light manure or short litter over the surface. We can obtain manure from stables in which peat-litter is used. This is light and answers admirably. Mildew and thrips are very troublesome in our garden. All late Pea crops have been much injured by it this year. It makes its appearance during dry weather. If it can be prevented at all, that can only be done by watering and mulching, aided by deep culture. Every successful cultivator knows the value of well-worked and deeply-trenched soil for vegetables. Its obvious advantages are well set forth in "The Manse Garden," a useful little book. In it (p. 104) the author says: "The great advantage of a deep soil is its aptitude for equalising the supplies of moisture. There subsists no sympathy between the surface and a hard subsoil. If the former is drenched with rain, the latter refuses to have anything to do with it, and if the former is parched, the latter will yield up none of its moisture; again, if the subsoil be pure gravel, it readily takes in the superabundant waters, but it soon squanders them, and then has nothing to give back to the surface during its greatest thirst. But when you acquire a sufficient depth of soil you have a large quantity of homogeneous matter sympathetic throughout, and all nearly alike wet, or alike dry; consequently not so liable to suffer injury by a too long continuance of rain or drought. This improvement, then, as it renders the elements of Nature more subservient to the purposes of vegetation, is permanent, and cannot wear out or lose its effect, while that of manuring, at whatever expense, must certainly do." It must not be inferred, however, that repeated trenching is unnecessary. It ought to be done, says the book just quoted, once in eight or ten years. We do it once in three or four years, and consider this system of trenching and manuring absolutely essential to the successful culture of late Pea crops.

What are the best varieties to cultivate is a question of as much importance as the method of culture. The varieties that have been introduced during the last few years, as far as mere names are concerned, have been plentiful enough, but in some cases they are not sufficiently distinct for garden purposes. We do not require a new Pea, which we have to purchase at a high price, unless it is sufficiently distinct and better in quality than others already in cultivation. Mr. Laxton has done good work in raising new varieties of Peas by cross-breeding, and has added many good and distinct varieties to our gardens. Mr. Culverwell and Mr. Eckford have also achieved some successful results in this direction. But what with new and old varieties we seem to be overwhelmed with numbers. I have been curious enough to count the number of varieties contained in the retail catalogue of one of our London houses, and find sixty-nine described. We grow in our garden six varieties, and would rather reduce this number than add to it. We, however, try one or two new kinds every year, and if after a fair trial they are likely to be superior to any we already have they are retained. For many years we grew as early varieties William the First and Alpha, the first a variety with round blue Peas, and the other a blue wrinkled marrow. We still grow them, but with the addition of Selected Extra Early. This variety is not so prolific as William the First, but is quite a week or two earlier. Dr. McLean is the best second early; it is a wrinkled marrow, and very prolific. It neither produces very large pods nor very large Peas, and as we do not require them, that is no loss. The pods are medium-sized; so are the Peas; and if there is a better variety for use in a first-class establishment I would like to know its name. Veitch's Perfection, or selections of it, we also grow, and this is too well known to need any comment. It is a grand marrow Pea, but larger than Dr. McLean. Of tall-growing sorts with large Peas and pods we have grown Telephone for several seasons, and this year Prodigy, said to be a cross between Culverwell's Giant Marrow and Stratagem. I could not discern any of the Stratagem parentage in it, nor did it differ materially from Telephone, grown side by side with it. We put it down as an improved form of Telephone. It had a first-class certificate from the Royal Horticultural Society, so it is doubtless distinct. Sturdy we have grown since it was sent out, and have been rather favourably impressed with it. It is a very late Pea—I believe one of Mr. Laxton's hybrids. Those named will give satisfaction in any garden.

J. Douglas.

LATE PLANTED POTATOES.

Having a quantity of good sets of Beauty of Hebron, Early Rose, and other popular Potatoes on hand, and not having ground vacant for them, they were spread out thinly on a hard border out of doors until crops could be cleared to make room for them. A good many of them were planted on June 1; they were fine sets, well furnished with sturdy shoots, and in planting we took care not to rub these off. We made good wide trenches with a spade and laid them in rows, carefully returning the soil, and in a very few days they were up and grew so vigorously, that little difference could be discerned between them and others planted in March and April. Most of them were lifted by August 1, or two months from the date of planting, and a capital even crop they proved to be. I do not say that such late planting should, as a rule, be followed, but I mention the fact to show that a really good crop can be produced thus late in the season. As regards earthing or moulding up the rows of Potatoes, I may state that we grow a good many of ours solely for seed, and they are not moulded up at all; nevertheless, I have not been able to detect any difference between the crop when moulded up and that grown on the flat. There is, however, one advantage belonging to earthing up, viz., in a season like the present, when copious rains are frequent, the ridges help to keep the tubers dry, as the rain runs down into the hollows between the rows and soaks away without wetting the tubers. Disease up to a late period this year has been absent, but the heavy rainfall which we have lately had has made it spread rapidly among late kinds, even after the earlies were all safely harvested. Nevertheless, I do not think the loss will be enough to greatly affect the crop. Magnum Bonum is still largely grown as a field Potato, and although it cannot be said to be disease proof, its strong constitution does not appear affected by it like that of many of the garden varieties of Potato. J. G. H.

Bone fertilisers.—There are two modes of preparing bones to apply to land as fertilisers. One is to grind them to meal and powder, and use them without further chemical change; the other is to change the phosphate to superphosphate with sulphuric acid. The last-mentioned mode requires some skill and experience and is attended with some difficulty by those not familiar with the process, as well as additional expense. "The following," says the *Country Gentleman*, "is perhaps the best way of converting refuse bones into manure: First break them into as small pieces as may be convenient; the smaller, the sooner the process will be completed. The bones should be worked down with ashes, and with liquid and solid manure. The ashes should be good, such as are obtained from hard wood grown on uplands, and which have not been so long exposed to the air as to lose their strength; or, if they have been long exposed, a small portion of fresh lime should be added. The operation may be performed in barrels or in large boxes of any convenient size. The bottom is first covered with a few inches of the ashes, then a thicker layer of bones, and so on till the box or barrel is full. The ashes should be moistened, but not quite enough to cause water to drain away from them. They should be kept wet by additions of liquid manure, or with soapsuds or hot water if nothing better is at hand. The time required for the completion of the process and the working down of the bones depends much on the freshness and strength of the ashes, and on the concentrated character of the liquid manure. The mass is rendered dry and friable by thorough intermixture with dry powdered loam or road dust. Hard or large bones, which do not work down easily, may be put with the ashes in a large boiler or kettle, lye or liquid manure being added, and the whole boiled till the bones are softened. The easiest way, however, by which to soften bones when they can be had ground or broken very small is to place them in alternate layers with strong fermenting manure, and leave them till fermentation ceases, adding enough

lye, liquid manure, or hot water to keep the mass well moistened while the process is going on. Manure thus manufactured will possess much strength.

Flower Garden.

FRENCH POPPIES.

(PAPAVER RHŒAS.)

The common red Poppy of cornfields has developed under cultivation into the widely varied colourings of the valuable annual that we know as the French Poppy. A small packet of seed will give a wide range of colouring from white to deepest blood-red, of which the best are the many shades of pink, rose, and scarlet. They are for the most part double, but there will be many single flowers of great beauty, such as the rosy pink with the white blotch at the base of each petal. French Poppies are best autumn sown, but once established in a garden they may be trusted to sow themselves, and to re-appear yearly in their many beautiful forms.

Narcissus viridiflorus.—I have just succeeded in flowering this species from bulbs I collected in the neighbourhood of Gibraltar in the autumn of 1883. I have been in doubt whether, like some other autumn-flowering bulbous plants, it has a double period of growth, an autumn growth of the flowering scape and a separate vernal growth of the leaves, but am now satisfied that there is but one growing period in which flowering scapes or leaves, or both together, are thrown up in the autumn, the leaves continuing to grow late into the spring; then with the hot weather comes the long period of rest from April or May to September. My bulbs potted in 1885 continued to produce a free growth of leaves up to the end of last May. I then dried them off and repotted them about the beginning of August, standing them for about a month under the conservatory stage and then removed them to a slightly heated pit, in which leaves are being rapidly produced with the flowering scape. I can detect no difference of character or structure between the leaf and the scape; indeed, it would seem that the Rush-like growths—call them leaves or scapes—are identical in their nature, the stronger growths only producing flowers. I believe the difficulty attending the flowering in cultivation of many autumn-flowering bulbous plants, *e.g.*, Narcissus viridiflorus, N. serotinus, N. elegans, &c., is that they are kept growing when they ought to be at rest, and that we often reverse and mix up their natural periods of growth and rest in cultivation.—George Maw, F.L.S., *Benthall, Kenley, Surrey.*

Clematis coccinea.—Those who have condemned this Clematis as being destitute of decorative value have surely only seen inferior varieties of it, or have grown it where its colour could not be properly developed. It is one of the brightest of climbers, but, like all that have small blooms, it requires time, suitable position and good food to enable it to attain large dimensions. The fragrant Flammula is nothing as a small specimen, but loaded with thousands of blooms it is a thing of beauty. The same remark applies to C. coccinea, which should get a fair chance; it should have a position where it can have plenty of air and sunshine with a liberal supply of nourishment. I have no doubt that when the blooms can be counted by the thousand instead of by the dozen, this Clematis will receive the acknowledgment of its merits to which it is entitled. I find that many have grown this Clematis under glass, but why I cannot conceive; it comes from a climate the rigour of which exceeds our own, and is therefore not thankful for the nursing that it has been favoured with. The free, open air is the place for it, and in the sunshine and breeze it is happier than in the confined precincts of a glass house. It would certainly never have occurred to me to grow it indoors, and those who have done so need not feel surprise that it has disappointed them.—J. C. B.

SINGLE DAHLIAS.

The autumnal exhibitions of 1886 have demonstrated pretty clearly that the single Dahlia must now be reckoned among the so-called florists' flowers. The champions of the double varieties, that have irreverently been described as "lumpy and inelegant," may sniff, and those who cannot recognise refinement outside a flower-pot or a cold frame may be scandalised at so rude an intrusion; but the admission must be made. A few years back, when a few single-flowered varieties were re-introduced, they were for a time regarded by many florists with some amusement, or at best with a slight amount of curiosity, as an odd relic of an early state of floricultural barbarism. The raising of seedlings which flowered the same season was found to be so easy, that several people advocated growing single Dahlias as annuals; and, owing to the great variability of the plant, numerous varieties were soon obtained with flowers of all sorts of shades, shapes, and sizes. Selection and rejection, however, quickly brought up the quality of the flowers, and in the course of two or three years pretty good varieties in each of the leading colours were secured. A mode of exhibiting them in the cut state, so as to make an effective display and at the same time to allow of each flower being individually criticised, was devised by the celebrated Slough firm, and has since been generally adopted; and from being at first exhibited in an apologetic sort of way "not for competition," these single Dahlias in continually improved varieties and with ever-increasing popularity are now found in classes specially devoted to them, the subjects of the keenest contest among all the leading growers. The extension of the competition lately has, of course, greatly augmented the difficulty of judging these classes, and there does not appear to have been any definite statement of the lines upon which judgment should proceed, or of what constitutes a first-rate single Dahlia. The good points of all other florists' flowers are pretty clearly defined, and it seems eminently desirable that the awarding of prizes should not be merely and entirely dependent upon such a very variable quantity as the taste of the judges. In attempting, therefore, to point out the good qualities of the single Dahlia, it may be premised that in the case of many single flowers mere size is not nearly so much a criterion as it is in the case of double flowers. In the latter, whether they be Roses, Dahlias, Zinnias, or what not, there is only one circular outline to consider, and as long as form and colour are maintained there is theoretically no limit to the size of the flower, and practically the larger the better. But in the case of single composite flowers there is a second circular outline, that of the central disc, whose proportion to the outer circle of ray-florets is of great importance to the effective beauty of the flower. The diameter of the disc of an immense number of Compositæ is from one-third to one-fifth of the diameter of the entire inflorescence, that is to say, the length of the outer ray-floret commonly varies from once to twice the diameter of the disc, and while many may be noted in which the disc is far greater in proportion to the ray-florets than this, species that illustrate the converse will hardly be found. Now in Dahlia species the length of the ray-floret is found to be about twice the diameter of the disc, and as the disc of the bulk of single Dahlias is three-quarters of an inch wide, the total diameter of the flower should never exceed 4 inches, in order that the natural proportions of the parts of the flower may be maintained. When single Dahlias about 5 inches across, with a disc of not more than five-eighths of an inch, are seen in gardens, as is unfortunately too often the case, the eye is offended, perhaps unconsciously, by the unnatural proportions of the disc to the ray-floret. In addition to this natural limitation of the diameter of these flowers, the desirability of their being of moderate size is especially observable when they are used as cut flowers, although this may seem a matter of taste—always the unsafest of guides. But it is in the cut state that single Dahlias are most used, and then over-large loose flowers are found to be very impracticable, as they seldom have substance enough to support their length and weight of petal.

Varieties of the Field Poppy (Papaver Rhæas). Engraved from a photograph for The Garden.

Submitting, then, that single Dahlia blooms should not exceed 4 inches in diameter, the next point to establish is perfection of form. The flower should approach as nearly as possible to a perfect circle composed of eight ray-florets, which for convenience may be referred to as petals, and which surround the compact golden central disc. While flowers more or less star-shaped, or having pointed petals, may be desirable for some special colouring or to give

variety, the handsomest flowers undoubtedly are those which have broad rounded petals lying perfectly flat (*i.e.*, at right angles to the stem) or slightly recurved. In any case the petals must overlap from the points of insertion to at least half their length, so that there be no interstices towards the centre of the flower between the petals, which, moreover, must be of good substance (not flimsy), and not in the least cupped or quilled.

For exhibition, single Dahlias are generally arranged in bunches of ten blooms each, with buds and foliage, the latter, of course, has to be added, as Dahlias do not grow foliage on the flower-stems in the decorative way that Roses do. It has been suggested that it might be well to allow the use of other kinds of foliage, as that of the Dahlia is often coarse for use in the cut state and quickly fades; and Asparagus has been found to be enduring as well as very effective for the purpose, but there is always something objectionable in the exhibition of any flowers with foreign foliage. In drawing up schedules, care should be taken to state in the classes for single Dahlias the exact number of blooms to be shown, as when some loose term, such as merely "twelve bunches," is used, the difficulty of judging is greatly increased, and the collective effect of the exhibits greatly impaired by the setting up of bunches of all sizes from three blooms each to twenty.

The flowers should always be cut before the disc is fully developed, as they will then travel without shattering or being disfigured by the shedding of the pollen over the petals. Blooms should be selected that match well in colour and size; fancy flowers especially should be similarly marked, and, if edged, each petal should be clearly margined with the lighter colour. There are now a good many striped and edged varieties, though some of them are not very perfectly formed flowers; but if framers of schedules could see their way to making a separate class for these popular fancy flowers, just as with the double Dahlias (the show and fancy flowers are always separated), no doubt the defect would soon be remedied. At present some of them have pointed or flimsy petals, and are hardly good enough to include amongst the best selfs; yet they are very attractive, and it would be a pity that they should not be seen, when probably a little encouragement would cause raisers to take the pains with them that would ensure improved form in a very short time; for it is well known that at first the double fancy Dahlias were inferior to the show varieties, but the former, through having been separately provided for and encouraged, have now been brought to a state of perfection equal to that of the latter.

In raising seedlings, just as much attention should be paid to the habit of the plant as to the flower. Sometimes among seedling single Dahlias a distinct flower is obtained on a plant with foliage like a Cabbage, or with a habit of growth to which an ordinary lamp-post might be favourably compared with regard to grace and elegance; but in such a case the raiser should not rest until he obtains a similar flower on a plant likely to be of real value in the decoration of the garden. There are many single Dahlias with coarse foliage and rough hairy stems that give the plant a most unrefined appearance, for which there is no excuse, as it is most easy to raise varieties with dark green compact leaves and bright smooth flower-stems. There is a well-known fancy at the present time which, beyond the fact that its flowers are distinct and pleasing in colour, has no claim to consideration as an ornamental garden plant; its flowers are over-large and very rough, and its leaves, which have a wretched half-developed appearance, are, with the flower-stems, of a uniform dyspeptic yellowish green colour. This sort of plant is of no help to the reputation of the single Dahlia, and had much better not be sent out; it is not enough that the flowers be distinct; they must also be of good form and substance, and produced upon plants of sturdy branching habit that have stiff, moderate-sized, deep green leaves and straight wiry flower-stems that are all the better if dark-coloured.

Another point vitally essential in single Dahlias, either as cut flowers or in garden decoration, is, that the flower-stems be stiff enough to maintain the blooms in an upright position either in the vase or on the plant. Weak-necked and pendulous flowers should be studiously guarded against. For instance, beautiful as is the individual blossom of White Queen, it is a most impracticable flower for vases, because without a wire it cannot hold its head up, and, for the same reason, it never makes half the display in the garden that from the size and purity of its flowers might be reasonably expected.

If care be taken to eliminate flowers with this weakness, and there are grown only varieties that are of good habit with elegant foliage, and that have moderate sized flowers of good form and substance, there is little likelihood of the single Dahlia being again allowed to drop out of cultivation. Managers of shows will continue to encourage the singles, as they constitute the most brilliantly decorative part of the cut-flower section at the autumn exhibitions, far eclipsing in their blaze of colour the general effect produced by the doubles, and when the competition in the amateur classes has been brought up to the high level of that witnessed among the nurserymen, framers of schedules who wish to provide an effective *coup d'œil* at their exhibitions will not readily let the singles die. The florists who had evolved from their inner consciousness the globular exhibition double Dahlia seemed inclined at first to regard the revival of the single flower as a mere passing whim of fashion; but there are not wanting indications that the awakened taste of recent years is inclined to look upon the "pure rotundity" as an artistic failure. Certainly for cut flowers the double show Dahlias are singularly ill-adapted, except it be for harvest decorations, when a nail can be driven through them and they can then conveniently be fastened up wherever wanted. Nor in the garden are they as decorative as might have been expected, owing to the coy way in which so many of them hang their heads; and they cannot be said to add much to the picturesqueness of the scene when they refuse to present themselves to view otherwise than upside down. Their cultivators do not seem to multiply, for the difficulty of maintaining the National Dahlia Show appears annually to increase, and but for the attraction of the singles and pompons the exhibition would probably hardly attract the general public.

In fact, the pursuit of form having resulted in the achievement of the most utter formality, a return has been made to the *sancta simplicitas* of the natural flower, which cannot be surpassed for the internal decoration of our houses, in order that if double varieties are to be had for the garden, an entirely fresh start may be made on a new line, to ensure flowers whose duplicity shall be carefully watched, so as to guard against the serious warping of that uprightness of character which should at least enable them boldly to hold their heads up, and, *coûte qui coûte*, look one full in the face. T. W. G.

Crinum giganteum.—I think that the correspondent who describes this handsome South African bulb (p. 260) of your last issue, and says it is not well named, cannot have seen the true C. giganteum, but rather its smaller variety, known as coucinnum, described by me in your current volume (p. 140). The real C. giganteum, as figured on plate 2505 of the 86th volume of the *Botanical Magazine*, is most accurately named, and is a stately plant, with very large flowers, borne on tall footstalks about 3 feet in height.—W. E. Gumbleton.

Persian Ranunculuses.—As the bulb season is now upon us, I should like to put in a plea for these most beautiful flowers, which have, alas! shared too much the neglect to which florists' flowers were exposed during the bedding-out mania. I am aware that they are somewhat capricious, that sometimes—as during the past season—drought is injurious to their well-being, and that great care has to be exercised in taking them up and drying them; but withal, as no flowers can be well cultivated without some trouble, I would try to persuade lovers of their gardens to plant a bed of them, and see whether when these beautifully-formed and variously-coloured flowers—ranging through almost all colours except blue, and having some colours which it is difficult to find in other flowers—are developed, they will not say that their trouble has been amply rewarded. The neglect under which they fell and the death of the only two nurserymen in the kingdom who really cultivated and improved them—Mr. George Lightbody, of Falkirk, and Mr. Tyso, of Wallingford—made it exceedingly difficult to obtain them, but some of the Dutch nurserymen, notably M. A. Roozen, of Haarlem, have given their attention to them and preserved them, and it is now possible to obtain really good and beautiful varieties. They are reasonable, too, in price; a small bed might be first tried, and if success attended the effort, it might be increased. With regard to sorts, probably the best plan would be to leave it in the grower's hands, and if a mixture be made of the Persian and Scotch, the latter of which are mostly edged flowers, a great treat may be looked for. I had such a lot from Haarlem, and they were a great delight.—Delta.

French Pompon Zinnias.—Your estimate (p. 270) of the value of these flowers is correct; they are invaluable for any garden in which annuals are grown. My belief, however, is that the double Zinnia is distinct from Z. elegans, and a native of India. The seed is distinct, and any single flowers that it may produce are distinguishable at once by the experienced eye from those of the usual single Z. elegans. Some thirty years ago I had seed of the double Zinnia sent to me from India, and I neglected to grow it, having no great opinion of it; but on testing it, in 1858, I found it to produce most beautiful flowers, equal to those of any small Dahlia both in form and colour. The same year, while travelling in the south of France, I found that a retired French officer had brought from Pondicherry a similar strain, but his flowers were flat, while mine were pyramidal, there being thus two varieties belonging to the same strain. In 1859 both these varieties were put into commerce, one by a French the other by an English house. For the intermingling that subsequently has occurred, of course, I cannot account. When the late M. F. A. Haage, of Erfurt, showed me the first plants that he had grown from seed received from Mexico of the sort called Zinnia Haageana, we both agreed that it was doubtful if it was a Zinnia at all. I am still of opinion that it is more of a Tagetes than a Zinnia, and that it should be called T. mexicana. For Zinnias, rich soil and free drainage are needed.—S. A.

SHORT NOTES.—FLOWER.

Chrysanthemums (*W. F.*).—Pretty; but not in a condition to enable us to speak with certainty as to their merits.

Seedling Dahlia (*J. Roberts*).—A pretty sort, different from any we have seen; the white ground flaked and striped with delicate pink is an unusual combination of colours. If good in habit, it will be an acquisition.

Crinum Powellii.—In connection with "Veronica's" note on this Crinum (p. 239), I may state that a bulb given me by a horticultural friend, planted last November in an open part of our wood garden at Oakwood, Wisley, and not having any protection, has lately bloomed beautifully.—George F. Wilson, *Heatherbank, Weybridge Heath.*

GOOD ANNUALS.

There is but little doubt that annuals, especially the hardy kinds, do not get all the attention they deserve. Under really good culture there are few things more showy than the best of them. Their comparatively fugacious nature is rather against their liberal employment, but this defect may be minimised by giving them what they need and allowing them plenty of space. I have found that no good results can accrue when the too common let-alone method of culture is adopted. Overcrowding, starvation, and drought are as fatal to them as to any other flowering plant. From the time they appear above the soil they need looking to. The common practice—and this is not bad in itself—is to sow thickly, but this safeguard against scarcity of material contains the germ of almost complete failure. Annuals grow away so quickly, that if they are not thinned out as soon as they get a couple of pairs of leaves they are sure to grow into one another, and be charged with an element of debility which declares itself later on in diminished robustness and lessened powers of endurance in a time of drought. Annuals do not want ground so rich as we give Cabbages, but they should have plenty of nourishment at command, and some of this should be down tolerably deep in the soil. Give a robust-growing annual, such as Godetia Lady Albemarle and Clarkia pulchella, a square foot or more of space with plenty of food, and you will get specimens 2½ feet high bearing hundreds of good blooms and clothed down to the soil with handsome leafage. However much an annual may run to leaf for a time, it will be sure to finish up well if it has room to extend, but cramped and with the roots in the enjoyment of an abundance of food the plants become choked. I have had Godetias with stems 3 feet high and as thick as a fishing-rod; nothing could be handsomer, and they grew in ground which was very rich in nitrogenous matter. Some kinds require timely support, and those of branching habit, such as Clarkia and Collinsia, are best sustained by twiggy Birch inserted among the branches before they are much developed. "Delta" has given in a recent number of The Garden a list of good annuals which I desire to supplement with the following:—

Sunflowers.—I mention these first because they stand at the present time in the very foremost rank of popularity. In this respect they have probably attained their zenith, and I never remember to have seen so many Sunflowers grown as this year. Their showy flowers are to be seen in almost every garden, and if they are somewhat coarse and gaudy, they are wonderfully effective and cheerful-looking. The finest of this family, beyond doubt, is that called Sutton's Double, which seems to be a selection from the better-known globulus fistulosus, itself very handsome. Sutton's Double is, however, in all respects a fine flower, surpassing it in colour, habit, and form. The flowers are semi-spherical, bright yellow, with a suspicion of crimson; the florets are very thickly set and are beautifully quilled. The habit is dwarfer, more spreading, and leafier than fistulosus, forming a broad-topped mass of leaves, from which a dozen or more large blooms are thrown out in a somewhat pendulous manner. The most beautiful phase in the blooming of this Sunflower is that which immediately precedes perfect expansion. The inner florets form a disc, having at a slight distance off the appearance of a crimson ring—a charming, but harmonious contrast. In this Sunflower the exceptional beauty and fine form of the blooms almost obliterate coarseness, and make one regard it as a choice garden flower. Everyone who sees it for the first time yields it an ungrudging and involuntary meed of admiration. Oscar Wilde is an acquisition, and is another step towards refinement. The description with it was "dwarf and distinct in colour;" it is neither one nor the other, its merits lying in other characteristics, none the less charming, however. I sowed the seed near some Currant bushes, in ground which has known no manure for years, and which was dust-dry for a month or two. In spite thereof Oscar has proved to be of grenadier dimensions. The flowers are, however, quite under the usual single Sunflower standard, but in form they are a great improvement. This consists in a reduction of the disc with a corresponding increase of length of floret, so the blooms have a lighter and more graceful appearance. It also seems a perpetual flowerer, as plants which are ripening seeds are still forming buds. It may be fitly described as a perpetual blooming annual Sunflower, the continuous flowering nature of which would doubtless be accentuated by liberal culture. For harvest festival decoration it ought to be welcome. The novelty of the Sunflower season is the Miniature, much lauded by leading seedsmen. It is to fill a void by supplying from seed a small-flowered kind for cutting similar to the perennial kinds which do not ripen seeds with us. I am disappointed with it. The flowers are not so very small and they are ragged looking, but I will not pronounce positively on its merits, as my seeds were sown in winter, and the tardy blooming nature of the Sunflower points to the necessity of sowing in warmth. The appearance of this miniature Sunflower puzzles me; the foliage is woolly, the plants branch to the ground, and this, in conjunction with the reluctance to bloom till the approach of autumn, would almost indicate hybrid origin. There is no mistake about its floriferousness, and it would probably impress more were it covered from the base upwards with bloom. With me in poor soil it has attained a height of 8 feet, so that its Lilliputian nature is confined to the flowers.

Erysimum Perofskianum.—Here we have an old inhabitant and the earliest, brightest, and one of the best of hardy annuals. In colour it is unique, and sown in September and allowed to remain in peace, it forms a glowing mass of chrome-orange, which glows in an April sun and lights up a garden with beauty. If you want a dazzling effect and wish to forestall the glories of summer, scatter a handful of seeds early in the harvest-moon month at the foot of a sunny wall. You may sow them as near to it as you like, for this annual is of Wallflower nature, and delighteth in the companionship of bricks and mortar. I never saw it on a wall, but I have no doubt as to its ability to crown such a place with a golden garland.

Dwarf Marigolds.—The French call the common Marigold (Calendula), which covers the fields in Normandy as the Corn Marigold does in many parts of this country, Sans Souci (without care), because it bears itself so bravely through climatal changes such as banish the brightness from so many flowers. Through parching heat and battering rains the Marigold retains its joyous look; it expands its first flowers in a March sun and witnesses Sol's dying gleam at the close of the autumn. No matter how dry and poor the soil, the Marigold will flourish there, and year after year it comes without aid from the seed-sower, the younger generation of seedlings hybernating in sheltered spots with buds in embryo ready to open as soon as the sun comes round again to visit them. It is, perhaps, in those dismal periods of wet weather, all the more depressing because we know that summer at its best is but short, that Marigolds distinguish themselves. I have been in gardens of tolerably pretentious character which at such a time owed their brightness principally to Marigolds. And this brings me to mention a dwarf strain of French Marigold that I have grown lately, and the merits of which are great, especially from the bedding-out standpoint. For a long time I have not seen a garden flower that pleased me so much. When finely grown the plants form compact tufty masses so charged with flowers that they look all bloom. The whole of the plant does not exceed 6 inches high, although the flowers are well thrown up above the foliage. They are not quite what the florist requires as regards form and symmetry, but they have that which is more delightful, *i.e.*, richness and brightness of colour. For bordering small beds on the Grass or forming rows where ribbon bordering is in vogue, this Marigold can scarcely be surpassed. There is a vast difference in strains of French Marigolds, the inferior ones being weedy-looking, whilst in the flowers the colours run together and the form is bad. In the best strains these defects, which cause many to regard this worthy flower with something akin to contempt, are replaced by symmetry, richness of colour, distinctness of marking, whilst the height does not exceed 1 foot. It therefore behoves all who wish to grow Marigolds to secure a good strain.

White Clarkia pulchella.—This is rarer in cultivation than the typical rosy form, differing from it in colour only. It is a good white flower and useful for cutting, having lightness and elegance of form to recommend it. Sown in September, and again at intervals through April and May, it is found of great service where white flowers are needed.

Double Sanvitalia procumbens.—This is a gem among annuals, its exceptional worth being most distinguishable at the tail end of the season. It is so entirely free from the charge of fugaciousness, that the season scarcely seems long enough for it; and I have often wondered how long it remains in bloom in a natural state. It is one of the freshest-looking plants imaginable, forming a spreading mass of rather pale green foliage, thickly studded with glowing little black-eyed, golden, button-like blooms, which hold on to life and freshness through heat, drought, and battering rains in a most remarkable manner. A curious feature of this plant is the way in which it retains the elasticity of youth. Whilst extending in the usual manner, new growths continually push up from the woody portion of the stems near the collar, thus guaranteeing against exhaustion. The height of this annual does not exceed 6 inches, so that it is an admirable subject for forming the borders to beds. This is either hardy or half-hardy as one likes to treat it. The seeds may be sown in the open ground early in April, or they may be sown in a cold frame or in warmth. The latter way is preferable, as the seeds do not germinate readily unless they get the stimulating influence of warmth. Heat at sowing time also gives precocity of bloom, the difference in the time of flowering between plants raised quite cool and those brought on in warmth being quite a month.

Malope grandiflora.—This is a true Mallow in habit, and although somewhat coarse in this respect, the rich brilliancy of the blooms compensates for this defect. It is not a plant for small beds, but has a fine appearance massed in the mixed border. It bears drought well, and is suitable for poor porous soils.

Leptosiphons.—There could not be a greater contrast than that between these and the foregoing. They are the neatest-habited of all annuals, and they are as distinct as they are beautiful. Whoever sows them in spring will, however, be disappointed; they seem to need the firmer root-hold that autumn sowing gives them. Sown early in September, they form neat little tufty masses of Heath-like foliage, from which the flowers project on long filament-like tubes. I do not know which is the prettiest, the golden-hued aureus or the bright coloured roseus, but both are worthy of good attention. To do them justice they should be grown in good sized patches, and if in a somewhat elevated situation, their distinctness and beauty will be better appreciated.

Portulacas.—As they glow in the bright sunshine, what can exceed Portulacas in brilliancy and beauty? They cover the ground with a dense cushion of foliage but a few inches in height, and are seen at their best when forming a tolerably broad, straight edging, where their beauty and brightness fall directly under the eye. The seeds may be sown outdoors, but they are worthy of more care, and if strong plants are put out in May, they soon yield a good measure of effectiveness. I recommend Portulacas to those who have parching soils to deal with, as they mind drought less than most plants. They rejoice in the sunshine, of which they never get too much.

Dwarf Nasturtiums.—There are now a goodly number of these, the merits of which cannot be too strongly emphasised. They are a host in themselves, and those who have comparatively little room for wintering bedding plants will find them of great service, as they flower so continuously and freely through the summer and early autumn if frost is merciful at that time. Sown outside, they will do well enough, but they should not be committed to the soil before mid-April, as the seeds are apt to rot in the cold, damp ground, and the nipping easterly blast and rhimy frost is apt to play havoc with the tender foliage if they appear above ground ere flowering May is with us.

Cosmidium Burridgianum is not much grown, and can scarcely be classed among showy annuals. The flowers are much in the way of those of the Coreopsis, but there is more reddish brown than yellow in them. I think those who need cut flowers would find this annual useful, as the flowers are poised on long, very slender, but strong footstalks, which give it a graceful appearance. It has much-divided, dark-hued foliage, and grows 1½ feet high.

Whitlavia grandiflora.—Quite a charming plant, lowly of growth and distinct, the flowers having a marked resemblance to those of the Gloxinia. It is not brilliant, but bears looking into, and is really meritorious as affording variety.

Byfleet. J. Cornhill.

TREE ROOTS IN FLOWER BORDERS.

"H. R. C." may rest assured that if he plants a Yew hedge as a back row to his herbaceous border 8 feet wide, the Yews will appropriate the best of the border to themselves, and will grow too strongly by far and thrive too luxuriantly at the expense of his herbaceous plants. Various expedients might be adopted to check the Yew and protect the border from its encroachment, that is, if it is really worth while to post a Yew hedge there at all. It seems hardly worth while to plant Yews to reach a height of only 3 feet, as there are plenty of herbaceous plants to reach or exceed that height. Dahlias or Hollyhocks, for example, will form a temporary hedge or shelter much higher than 3 feet. But it seems a pity to have any hedge or back at all for such a border. The lawn in front and the gravel walk behind are both admirably adapted for access to the border for cultural purposes or enjoyment. They suggest the desirability of forming the herbaceous border highest in the middle, and making it face the lawn on one side and the gravel walk on the other. This arrangement would get rid of the necessity for any Yew or other hedge at the back, and afford a ready access to the border from the gravel walk in wet weather. If a hedge is merely wanted for shelter, why not put it on the opposite side of the gravel walk from the border? This would interpose the entire width of the walk between the roots of the Yew and those of the herbaceous plants in the border, and if the walk were 4 feet, 6 feet, or 8 feet wide, practically the herbaceous plants would be safe from the intrusion of the Yew roots. Or if the Yew must be planted at the back of the border, then a concrete or brick wall should be run down to a depth of 2 feet or 3 feet to shut out the roots from the flowering plants. To plant Yews at the back, as proposed, would be to invite failure from the roots of the Yews. The injury from slugs, &c., would not be great, as the Yew is so dry at the roots, and its dead leaves are too sharp and by no means genial for slugs, snails, grubs, or worms. But why plant Yews when a hedge of Roses, Clematis, or a rich mixture of Sweet Peas and Canary Creeper would be so much more beautiful, and injure but little or not at all the choice herbaceous plants in the border? D. T. F.

—— "H. R. C." had better keep the Yew hedge a long way from his herbaceous border, or the Yew roots will soon monopolise the soil, and then flowers need scarcely be looked for. I have such a border myself close to a Holly hedge, and the Hollies luxuriate at the expense of the herbaceous plants. I have frequently pointed out in The Garden the danger of tree roots penetrating borders; such a hedge, too, harbours slugs, snails, and other vermin; even shell snails are in this part a perfect pest; to try to keep plants in a border by the side of a hedge is labour lost. I find that the common white Lily in such positions gets so often defoliated as to soon kill the bulbs. How these shell snails find any plant to which they are partial it is surprising, and the way in which they clear off the leaves of any plant which they attack would hardly be credited in places where they are scarce. Blackbirds and thrushes are the best snail destroyers; the way in which they hunt them out and crack their shells against a stone, needs to be seen to be realised. My advice is, don't have the Yew hedge at all; some climbing Roses on a trellis would be far better.—J. G., *Hants.*

Verbena venosa.—"J. G." (p. 243) does well to call attention anew to this valuable plant, which is one of the most useful for cutting as well as for decoration of beds or borders. It is hardy on warm sites and light soils and thrives best in such, left undisturbed, for years. It seldom thrives on heavy, wet, or cold soils, however much it may be coaxed or petted. As to pegging down, it looks best left to its natural habit of spreading and blooming at a height of a foot or so. When used alone it should be planted pretty thickly, and, in addition to the mode of propagation and culture described by "J. G.," it is raised freely from seeds sown in heat in February, and fostered into nice healthy plants for putting out about the middle or end of May. But one of the most effective modes of utilising to the full the colour and habit of this choice species of Verbena, quite unlike all the others now, alas! becoming so rare, is to plant it alternately, or pincushion style, with Mangles' pink variegated Pelargonium, and thus enjoy the shot-silk bed first invented and eulogised by the late Donald Beaton at Shrubland Park, near Ipswich, and still, I believe, repeated annually in those fine gardens. The Verbena venosa used to grow and run almost like Couch Grass in the warm soil at Shrubland, and took such full possession of the shot-silk beds at one time as almost to starve the Pelargoniums out of the beautiful combination. —D. T. F.

Crocus karduchorum (Kotschy).—I have at last obtained corms of this species—which has heretofore been only known by a few dried specimens scattered through European herbaria—collected by Theo. Kotschy, on the 27th of September, 1859, on a mountainous ridge between Mükûs and Scherwan, in Kurdistan. The corms I have recently flowered were sent me last autumn by the Rev. A. H. Hubbard, American missionary of Sivas, Asia Minor, but whether they were obtained near Sivas, or from the locality far to the east where Kotschy discovered the species, I have not yet been able to ascertain. The figure in my "Monograph of the Genus Crocus" (plate 5), which was drawn from Kotschy's herbarium specimens, fairly represents the plant, except that in colour the fresh flowers are a little bluer in tint, and each segment veined with about nine fine purple lines, extending half way up the segment, which were not visible in the faded dry specimen. C. karduchorum somewhat resembles C. zonatus of Gay, but the flowers are smaller, and instead of the bright golden zone at the base of the inner surface of the segments above the throat, two small orange spots occur, similar to those in C. vallicola of Herbert. In Kotschy's specimens preserved in the Vienna Herbarium the leaves pertaining to the previous vernal growth were preserved up to the flowering time in September, two years' sets of leaves, one dormant within the sheathing leaves, being present at the flowering time. This occurs in only one other species, C. Scharojani, of Ruprecht. —George Maw, F.L.S., *Benthall, Kenley, Surrey.*

FERNS.

FERNS FOR BRACKETS.

The majority of the plants included in this enumeration are epiphytal, and have stout creeping rhizomes. They grow naturally upon the branches of trees or in the crevices of almost perpendicular rocks, where shade and moisture abound. They therefore thrive best and display their beauties to the greatest advantage when their treatment under cultivation resembles as much as possible that which Nature provides for them. Positions to suit them can easily be found in a house built expressly for Ferns. But where rockwork and other conveniences do not exist, the next best course is to place them in pockets constructed with cork or some good durable material, and hang them upon a wall, or plant them in large shallow pots, and place these upon elevated brackets at such heights as will enable them to display their proper character in the most effective manner. As plants placed in the positions here indicated may be looked upon in the light of permanent fixtures, and are therefore not likely to be subjected to frequent repotting, the drainage should be so arranged as to obviate the necessity for readjustment. The compost for these plants should consist of rough fibrous peat, some chopped Sphagnum Moss, good turfy loam, and some sharp sand. This should be well incorporated, but by no means reduced to fine mould. The follow

Platycerium Willinckii.

ing selection will be found to contain some of the finest and most distinct kinds for brackets :—

Platycerium grande.—This is one of the best Ferns to use in the manner here recommended. The sterile fronds, or shields as they are popularly called, are erect and permanent, the lower edges being round and smooth, whilst the upper edge is deeply divided or forked. These shields are some 2 feet or more in height and as much in breadth ; they overlap each other, and tightly clasp whatever they are planted upon. Therefore, in order to produce the best effect, a broad surface should be placed behind the plant when in a young state. The fertile fronds rise from about the centre of the shields and stand out at right angles, their ends being pendent ; they are about 2 feet in length, much branched, and bear a large patch of dark brown sori on the under side just where the frond first begins to fork. The whole plant is pale green, but is densely clothed with white stellate scales, which give it a peculiar hoary appearance, a feature common more or less to all the species. It requires stove heat in winter, but will thrive without fire heat in summer. It is found throughout the Malay Islands and various parts of Australia.

P. alcicorne.—The shields of the normal form of this species are somewhat small, erect, and usually die annually, but are persistent, the young shields overlapping them. The fertile fronds are from 1 foot to 2 feet long, much forked at the ends, bearing large patches of brown sori on the extremities of the lobes. Of late years several distinct forms of this species have been introduced to our gardens which differ from others in cultivation, mostly in being of greater size ; the most desirable amongst them are P. alcicorne majus and P. Hilli. P. alcicorne is a cool house plant, with a wide range of habitat, being found in Java, the Malay Islands, and in various parts of Australia.

P. stemmaria.—This is a warm house plant, and one which produces large, erect shields, from 1 foot to 2 feet in height. These die annually, becoming chestnut-brown, and are overlapped by the young green fronds in spring. The fertile fronds are about twice divided, the sori being borne in large patches on the under-sides of the extreme tips of the last forkings of the lobes. These fronds do not die annually, but are more persistent than the shields. This species rapidly forms a large mass, throwing out suckers or young plants from its roots. It appears to be confined to Western Africa, where it occurs plentifully.

P. biforme.—The shields of this species are not persistent, but the long, much-branched fertile fronds are. The large mass of sori is borne upon stalked, somewhat kidney-shaped lobes—a distinctive trait in this species. The long, drooping fronds, with their narrow segments, are similar to those of the next species; but the peculiar manner in which the fructification is borne renders it not only distinct from that plant, but also from any other belonging to the genus. It comes from Borneo, and is a warm house plant.

P. Willinckii.—This very handsome plant is of somewhat recent introduction, and very distinct in character. It produces young plants from the roots, and thus rapidly forms a large mass. The sterile fronds are overlapping and erect, and deeply lobed on the upper edge. The fertile fronds, which are mostly in threes, grow from 2 feet to 3 feet, and, as will be seen, are much forked and divided into ribbon-like lobes, on the under-sides of the extremities of which are arranged the sori. It comes from Java, and requires a warm house.

P. Wallichi.—This is a majestic Fern, but one of the rarest of its family. In general outline it resembles P. grande, but differs from it in being much larger in all its parts, and also in the greater and more deeply ramified character of its shields, which arch gracefully. It comes from Borneo, and requires a warm house.

Drynaria coronans.—This and the next species have characters peculiarly their own. Their stout, hairy, creeping stems usually grow in circles, and the fronds, when well developed, form a beautiful crown, which on a projecting ledge of rock or on a large bracket has a fine appearance. The fronds of this plant are deeply pinnatifid, erect, and rigid in texture, their colour being a peculiar blue-green. They grow from 3 feet to 4 feet in height and 18 inches broad. It comes from Malacca, and is a warm house plant.

D. morrillosa.—The creeping roots of this plant are very stout and densely covered with large, deep brown, chaffy scales. The fronds are erect, stiff, and rigid in outline, some 4 feet or more in height and 2 feet in width, the upper portion being deeply divided, the lower part obtusely lobed and bright green. Its peculiar habit renders it very effective. It comes from the Malay Archipelago.

D. quercifolia.—This is a smaller plant than either of the preceding. The fronds are erect and rigid, the fertile ones about, 2 feet long and deeply divided ; the sterile ones stand in front of the others, and somewhat resemble an Oak leaf in appearance. It is widely distributed throughout the islands of the Indian Archipelago.

D. musæfolia.—This has plain, simple, erect fronds about 2 feet high and between 2 inches and 3 inches wide. The great charm of this species lies in the variegation of its fronds, as seen when above the eyes with the light shining through them. Their colour is a peculiar whitish green, and the numerous netted veins are blackish green. It comes from the Indian Archipelago.

D. diversifolia.—This is a grand plant for draping the face of a rock. As its name implies, the fronds differ amongst themselves in character. The fertile ones are pinnate and pendulous, from 2 feet to 4 feet long and bright green, with little membranes on the upper side. The shield-like barren fronds are about 4 inches high, erect, rounded at the base, and deeply incised on the upper edges. It is a native of the East Indian Islands.

Aglaomorpha Meyeniana.—This when infertile has much the habit and appearance of Drynaria coronans, but when in its fruiting condition, the pinnules of the upper portion of the fronds are contracted into linear segments bearing dark brown sori. It is a native of Luzon.

Tænitis blechnoides.—A rare plant, with pinnate fronds, which reach a height of from 1 foot to 18 inches. The pinnæ are arranged in from three to five pairs, with a terminal one. These pinnæ are from 6 inches to 9 inches long, narrow, and taper to a sharp point. The colour is deep green, and the under side is ornamented with two rows of dark brown sori, running parallel with and near to the mid-rib. In the plant called T. intramarginalis, and which is, perhaps, only a variety of T. blechnoides, the continuous rows of sori are near the margins of the fronds instead of close to the mid-rib. It comes from the Philippine and Fiji Islands, and requires stove heat.

Dicranoglossum furcatum.—This should occupy the crevice of a rock, or should be placed in a pocket about level with the eye, as it is not a large growing kind, and if removed far from the line of vision, its distinctive character is lost. The fronds range from 6 inches to 1 foot in length, and are much forked or divided into long, narrow, bright green segments, which are contracted near the upper half, where they bear a continuous line of nearly marginal sori. It is a native of Trinidad and various West Indian Islands, and requires a warm house.

Antrophyum lanceolatum. — This has simple fronds, from 6 inches to 18 inches long and from a quarter of an inch to half an inch wide, tapering at both ends. They are deep green above, and ornamented beneath with netted sori. It comes from the West Indian Islands.

A. coriaceum.—This has fronds from 12 inches to 18 inches long and nearly 2 inches wide, tapering at each end. They are bright green on the upper side, their bright red netted lines of sori being very conspicuous. It comes from Ceylon and various Indian Islands.

A. Mannianum.—This is a distinct and handsome plant, but, unfortunately, rare in cultivation. Its footstalks, which are slender and some 6 inches in length, bear fronds somewhat rhomboid in shape, lengthened out into tail-like points. These are about 6 inches long and 4 inches wide in their broadest part. In colour they are bright olive-green, the underside being netted with red veins. It is a mountain plant, having been found in Fernando Po at an elevation of 3000 feet.

Ophioglossum pendulum.—Those who know this genus only by the common Adder's-tongue of our meadows (O. vulgatum) will be surprised to find that this plant makes fronds from 1 foot to 6 feet or more long and about 1 inch wide, and that these fronds decorate trees as with strips of green ribbon. In our Fern houses it thrives well in pockets, its pendent, ribbon-like drapery contrasting strikingly with the finely-divided fronds of other Ferns. It is widely distributed, being found in Ceylon, Madagascar, Australia, and other places.

Polybotrya osmundacea.—The Polybotryas are large-growing Ferns with stout, woody, creeping stems and broad, much-divided fronds, the barren and fertile forms of which are dissimilar. The former have much the appearance of those of a large Polystichum, whilst the fertile ones have the divisions all much contracted and wholly covered with sporangia, which give them the appearance of elegant plumes. P. acuminata and P. caudata are also handsome Ferns of somewhat similar aspect, all of which display their beauties to the greatest advantage when placed on brackets. All are natives of Tropical America.

Phymatodes.—This family comprises many kinds of noble port. Their large and broad fronds are divided nearly to the midrib, the large impressed sori forming raised protuberances on the upper surface, a circumstance which adds much to their beauty. A few of the best are P. peltidea, P. nigrescens, P. longipes, P. incurvata, P. leiorhiza, P. glauca, and P. longissima. All these are natives of the tropics of the eastern hemisphere. W. H. G.

Garden Destroyers.

NO WASPS.

One envies your correspondents up and down the country who record the scarcity of wasps. A writer from near Tunbridge Wells asserts that he has not seen a wasp for some months, nor heard of a nest. Happy mortal ! We have any number here, and they have just cleared out our Warrington Gooseberries, leaving the empty husks as a present to us for our trouble in growing and netting them. They are now, and have been for some time, busy devouring Plums, Peaches, Grapes, Pears, and all other sweet morsels they can find, not omitting the sugar-basin, which we have had to cover up when enjoying the cup that cheers, but does not inebriate, a precaution I never remember to have been needful till this year. Our bottles on the fruit walls have also been filled with wasps, hornets, and bluebottles much as usual, and up to this date we have destroyed fifty wasps' nests, and shall probably find ten or a dozen more. Since north-east winds have set in, fewer wasps have been visible, but possibly a few warm days will bring our old enemies back again, as they mostly linger in the garden so long as there is anything to devour, and then adjourn to the vineries unless these are securely barricaded with wasp-proof netting or bunting. Plentiful as wasps have been, however, they have been nothing to the pest of bluebottle flies, which reached the dimensions of a practical plague this year. They have literally swarmed in the garden and in our homes, and have helped themselves in the most raveneus manner to every sweet and savoury morsel within their reach. We have caught pecks of them in bottles baited with beer; and it is to be hoped that their reign over the fruit is almost over, as the north-east wind renders them sluggish. —D. T. F.

—— In spring an unusual number of queen wasps made their appearance ; in fact, I killed as many as half-a-dozen in one forcing-house in one day, and I anticipated an unusually prolific wasp season. Whether they all perished through the winter being prolonged so far into spring or not I cannot say, but there has not up to the present

time been a single wasp seen in this neighbourhood, so far as I can hear. I cannot furnish any accurate returns respecting scarce or plentiful wasp years, but I think if a record could be kept it would be found that in seasons when they have put in such a plentiful appearance in spring they have been correspondingly scarce in summer, and *vice versâ*. My own impression is that when we get unusually fine, spring-like weather very early in the year, the wasps awake from their slumbers, and get killed by a return of wintry weather.—James Groom, *Gosport*.

*** Mr. Gumbleton, who writes from Belgrove, Queenstown, Co. Cork, says, "We have had, I am happy to say, no wasps at all here this summer."—Ed.

Societies.

ROYAL HORTICULTURAL.

September 21.

A bright gathering of autumn flowers filled the conservatory at South Kensington on Tuesday last, most conspicuous amongst them being Dahlias, Roses, and Gladioli. A few interesting new plants were placed before the committee, who were also liberal in bestowing certificates on Dahlias.

First-class certificates were awarded to—

Cypripedium Sanderianum.—A remarkable new Lady's Slipper belonging to what may be termed the long-tailed section. It comes from the eastern tropics, and has affinity with C. lævigatum and Robelini, although it is quite different from any other hitherto introduced. The flowers are about the same size as those of C. lævigatum, of a reddish brown colour, mottled with lighter and darker tints, while the sepals in well-developed specimens measure over a foot in length. The specimen shown was from Messrs. Veitch, of Chelsea, but it bore but one flower; whereas the first specimen flowered in this country bore three, and dried specimens show even half-a-dozen on a spike.

Cespedesia discolor.—A noble-leaved plant, reminding one of a Theophrasta. It has long and broad foliage of thick texture, the young leaves having a beautiful bronzy tinge. It is presumably a tropical shrub of new introduction. Shown by Mr. W. Bull, Chelsea.

Selaginella tessellata.—An elegant species with broad fronds finely divided, and of a cheerful green. From Mr. W. Bull.

Rhododendron Rose Perfection and Queen of the Yellows.—Both seedling varieties of the Javanese race. The former has flowers of a delicate rose, those of the latter being of a bright yellow. The flowers of both are large and of fine form. Shown by the raisers, Messrs. J. Veitch and Sons.

Selaginella gracilis.—A beautiful new species with long spreading fronds of a bright green. From Messrs. Veitch.

Ulmus Piteursi pendula.—A graceful variety of weeping Elm, having large leaves so deeply toothed as to appear lobed. It is presumably a form of U. montana, and if quite hardy will prove a great acquisition. Shown by Messrs. Paul and Son, Cheshunt.

Crataegus Pyracantha Lelandi.—A variety of the Pyracantha Thorn remarkable for its extreme fruitfulness, even when in a small state. Some half-dozen specimens, shown by Messrs. Veitch, of Chelsea, were literally covered with bright orange-scarlet berries.

Dahlia Empress of India.—A so-called decorative variety with double flowers, in form resembling the Cactus Dahlia. The colour is a rich claret-purple streaked with red. It appears to be a double form of the well-known Paragon, and is one of the most beautiful and distinct that have been shown. Exhibited by Mr. R. H. Munday.

Dahlia The Quair.—A single variety with large flowers having broad florets elegantly reflexed and of a deep crimson. From Messrs. Paul, Cheshunt.

Dahlia Queen of the Belgians.—A show variety reminding one of another called Mrs. Gladstone, but while it possesses the large size and perfect form of that sort, it is of a deep tinge of pink. Shown by Messrs. Rawlings, Romford.

Dahlia Mrs. Foster.—A fine show variety of a salmon-pink colour; size and shape perfect. From Mr. C. Turner, Slough.

Dahlia Cochineal.—A double decorative variety, of a vivid crimson. Said to be of good habit and very floriferous. From Mr. T. S. Ware, Tottenham.

Dahlia Charming Bride.—A single variety with large flowers perfectly shaped, and of a charming pale pink colour. From Messrs. Cannell, Swanley.

Dahlia Valentine Humphries.—A fancy variety with large perfectly shaped flowers of a salmon-pink ground, streaked and striped with crimson. Shown by Mr. G. Humphries, Chippenham.

Dahlia Lady Marsham.—A single variety of a pleasing bright scarlet colour, flowers large, florets broad and of firm texture. From Messrs. Cannell.

Dahlias (Pompon) Gazelle, magenta tipped; Iolanthe, fawn and yellow; Don Juan, deep blush-pink. All first-rate sorts. Shown by Mr. C. Turner, Slough.

Davallia solida major.—A large and vigorous growing form of one of the well-known Hare's-foot Ferns. It has broad, deep green fronds of thick texture and massive in appearance. Shown by Mr. Bull.

Cyrtanthus hybridus roseus.—A variety of a beautiful hybrid bulb, raised between Vallota purpurea and Gastronema sanguineum. The colour is a deep rose, much darker than that of the original. Shown by Sir Trevor Lawrence, Burford Lodge, Dorking.

There was again a large display of hardy flowers, and to these chiefly the show owed its brightness. Mr. Ware had a large collection, consisting chiefly of Dahlias, among which the old sort called picta formosissima was conspicuous. It is not a florist's flower, but the combination of colours, yellow and bright scarlet, renders it very attractive. There was a great gathering also of the crimson Cochineal and Mrs. Hawkins, the latter reminding one of Marie Van Houtte Rose. The Iceland Poppies were also shown well by Mr. Ware, as they have been every week since June. Messrs. Paul, of Cheshunt, had also a large show of hardy flowers, Dahlias, and specimens of hardy ornamental trees—Senecio pulcher, Kniphofia corallina, Veronica subsessilis, and the golden Montbretia crocosmæflora aurea being the most prominent. Viola Wellsiana, the new early-flowering Violet, was shown by Messrs. Paul. It is almost as large as The Czar and deliciously scented. Messrs. W. Paul, of Waltham Cross, showed a large gathering of autumn Roses, numbering many sorts, the most noteworthy for freshness being Marie Van Houtte, W. A. Richardson, Etendard de Jeanne d'Arc, Sunset, Mad. Cusin, Boule de Neige, Catherine Mermet, and the new Mad. de Watteville. Messrs. Kelway, of Langport, again sent a large collection of Gladioli, not, however, so fine as at previous exhibitions, but very good spikes, considering the late date. Dahlias were plentifully shown by the leading growers about London; Messrs. Rawlings, of Romford, had a large display of new sorts, chiefly show kinds, as did also Messrs. Cannell, of Swanley, whose Cactus varieties were much admired. Messrs. Turner's bouquet varieties and the singles from Messrs. Paul and Ware made a brilliant show. Among miscellaneous plants were the following: Cattleya Gaskelliana Sunray, from Dr. Duke, Lewisham. It is remarkable for the streak of magenta colour in the sepals, like as in C. Trianæ Backhousiana. Mr. Measures, of Cambridge Lodge, Camberwell, showed a finely flowered plant of Grammatophyllum Ellisi, and a cultural commendation was awarded to his gardener (Mr. Simpkins). Mr. Bull showed some new plants, including Pancratium guianense, Palicourea jugosa, Maranta eminens, and Aristolochia elegans. Among Messrs. Veitch's new plants were Curcuma sumatrana and Trevisia palmata, a plant resembling an Aralia, with palmate leaves. Mr. Ford, Leonardslee, sent specimens of the blue Hydrangea; and Mr. Boyce, Highgate, sent a new early bright yellow Chrysanthemum named Golden Fleece.

Fruit.—Two large collections of Apples were shown, one from Messrs. Paul, of Cheshunt, the other from Messrs. Paul, Waltham Cross. Both represented a selection of the best sorts, but the size and colour this season seem inferior. Messrs. Lane, Berkhampstead, had a group of pot Vines, Black Hamburgh, Alicante, Foster's Seedling, and Gros Colmar, all laden with bunches quite up to the usual standard of excellence. Mr. Laxton, Bedford, sent specimens of the Dartmouth Crab Apple, a small pretty fruit, also samples of his huge Czar Runner Beans and Sandy Prize Onions. Mr. Roupell showed some excellent examples of Madresfield Court Grape and Fertility Pear in pots. Clapp's Favourite Pear from a pyramid tree on Quince was shown by Messrs. Veitch, and Mr. Burnett, Deepdene, showed the Tyson Pear and Raspberry Belle de Fontenay. Mr. Smith, Yalding, sent some fine fruits of Peach Prince of Wales, and Mr. Baines showed some heavily laden fruit branches of the Parsley-leaved Blackberry. Mr. Gilbert, Burghley, again showed a fruit of Her Ladyship Melon, green fleshed, which was considered of good flavour. Some very fine Navel Oranges came from New South Wales, which were highly commended.

New Zealand edible fungi.—In addition to the information given by "W. G. S." (p. 260) perhaps "T. V." may like to have the following references to Hirneola polytricha, which is shipped in large quantities to China as an article of food. An interesting account from Consul Griffin's report is printed in the *Journal of the Society of Arts*, Feb. 24, 1882, p. 399, which has been reprinted in the *Pharmaceutical Journal* for April 22, 1882, p. 866.—John R. Jackson, Curator, *Museums, Royal Gardens, Kew*.

Bouvardias in summer.—Though Bouvardias are generally regarded as winter flowering plants, and, as such, are greatly valued, they will, if grown for the purpose, bloom during the summer; indeed, if required, they can be had anywhere throughout the year. Where cut flowers are a good deal in demand, their chaste and delicate blooms are very welcome, even in the summer, as they can be used in the more select arrangements, such as button-holes, sprays, and similar purposes. As some old stock plants are generally left on hand, a good way to utilise them, if it is not intended to grow them on another season, is, after the frosts are over, to plant them out of doors, when they will soon establish themselves, and grow and flower throughout the summer. By this means it is possible to gather a handful of their beautiful flowers at any time—a boon that is justly appreciated by those who carry out this practice. They succeed best where the soil is fairly light, and not dried up during the summer. All the kinds are available for the purpose, but perhaps the most floriferous under this mode of treatment is the vivid coloured triphylla, of which I recently saw some fifty plants arranged in a bed; and, though no trouble was bestowed upon them beyond planting and keeping them clear of weeds, they were completely covered with bloom, and formed such a conspicuous feature as to suggest their use for bedding purposes.—Alpha.

Plague of earwigs.—It is the custom in some parts to gather together a number of the larger or pincer claws of crabs and lobsters, and, placing them on the tops of short sticks about 1 foot high, to plant them wherever these insects are the most troublesome. Every morning the gardener goes round with a pail of boiling water, into which the claws are plunged; and, the little plagues being thus disposed of, the claws are re-set for next day's slaughter.—J. C. W., in *Field*.

Names of plants.—*A. D.*—The Gloxinia flower is not an unusual monstrosity; Fern, Cystopteris bulbifera.—*H. D.*—Scarlet flower, Sophronitis grandiflora; Oncidium pulvinatum.—*J. M.*—The Passiflora flower resembles somewhat P. racemosa cærulea, but the foliage is very distinct.—*W. C. R. T.*—2, Cistus roseus; 3, Diplopappus chrysophyllus; 3, double-flowered Pomegranate.—*C. A. N.*—Sedum altissimum, Polystichum angulare truncatum.—*A. Hoires.*—1, specimen insufficient, send flowers; 2, Origanum Dictamnus.—*W. G.*—Yellow flower, Chrysanthemum segetum; white, Anthemis Cotula.—*E. C. C. D.*—1, Harpalium rigidum; 2, Helianthus giganteus.—*C. P.*—1, Clematis Flammula; 3, Pelargonium quercifolium. We cannot name Fuchsias.—*L. King.*—Pepper Bush, Clethra alnifolia.—*Dr. D.*—1, Scrophularia nodosa variegata; 2, Bocconia cordata; 3, Physostegia imbricata; 4, Solidago Virgaurea; 5, Polygonum cuspidatum.—*A. Wallace.*—Ornithogalum thyrsoides. No name of sender received before this week.

Names of fruits.—*H. W.* (*Roscrea*).—Plum apparently Goliath.—*W. J.*—1, not recognised; 2, Marie Louise; 3, Ashton Town; 4, Duchesse d'Angoulême; 5, Josephine de Malines.—*A. M. A.* (*Batley*).—1, Lord Derby; 2, appears to be Catillac, but is not developed; 2, Hoary Morning; 4, Echlinville.—*G. H.*—1, Pitmaston Duchess; 2, apparently Beurré Diel; 3, Marie Louise; 4, Duchesse d'Angoulême.

WOODS & FORESTS.

SOILS AND SITUATIONS FOR TREES.

The Larch.—The forester, unlike the gardener, is very apt to be influenced in tree planting, solely by his limited experience and the information he may possess regarding the natural habitats of and conditions under which the tree thrives in its native country. He has, as a rule, little else to go by; but it is different with the gardener, who, while he, as far as he can, imitates natural conditions and circumstances of situation, yet deviates very far from both in the culture of many garden plants and trees and succeeds wonderfully. An example of the disadvantage under which the forester labours in this respect may be found in the forestry report in the evidence of one of the most important witnesses, who attributed the Larch disease to our attempting to grow it anywhere but on dry precipitous slopes or hills as nearly resembling the slopes of the Alps as possible. No doubt there are right and wrong situations for this tree, but it has been abundantly shown in this country that the Larch will grow and thrive on very different soils and situations, and both in the valley and on the mountain-side. In its native habitats it is found growing both on plains and mountains, and I doubt if in this country the best Larch timber is not found on the lowlands. There are not any hills in Lincolnshire on which to grow Larch, but it grows there and produces fine timber. I am in the habit of seeing trainloads of Lincolnshire Larch of excellent quality which is delivered at the collieries near here, and which, I understand, is grown, if not in the fens, at least on the level lands adjoining. The parliamentary witness referred to above spoke of the mistakes made by foresters in planting Larch near river banks and in valleys; but the tallest and best Larch for their age we have felled here grew at the very bottom of a valley and at the base of a steep hill close to the river-side. The soil is loam lying on rock, and is pretty well drained by the river, which has worn a rather deep channel close to the spot, but when it overflowed its banks the water inundated the Larch for the time being. They were a tall and very fine lot of trees, running about 90 feet or 100 feet high, and were all sold as "big Larch" for a special purpose. Just on the other side of the river grows the best group of Scotch Fir on the estate under similar conditions. Only the other day a gentleman told me that his new forester had made him very uncomfortable by reporting that his young Larch plantations had all been planted on the wrong kind of soil or subsoil, and that they would fail in consequence, but he left in a better frame of mind on being told that probably his new manager argued from preconceived notions, and did not yet know that some of the best Larch in England grew in the same and the next parish on the very soils he had condemned. I imagine it is the clay bottom above the coal hereabout that has frightened the man from the north; but it is a perfectly good bottom for Larch, provided it is hard clay and dry. If I am not mistaken, the three famous Dunkeld Larches are growing on good deep loam in a flat situation in the park, as unlike the slope of the Alps as well could be. Now that the subject of forestry is awakening attention among landowners, we must beware of rule-of-thumb foresters and their crotchets.

The Ash.—A general impression exists among people that the Ash loves a damp if not a wet soil, but how such an impression ever originated puzzles those who know better. The Ash loves a good, deep, rich soil, provided it is neither too wet nor too dry, but in a wet soil or situation it thrives worst and soonest dies. It goes off in the heart in wet soils and is worthless when felled, the heartwood being often black or as rotten as touchwood. No tree stands exposure better. One of the largest and oldest Ash trees on the estate is now the sole tenant of a spot in the park called The One Tree Hill by our farm folk—the Ash being, I presume, the remnant of some former plantation. It is in good health, has a good soil to grow in, but the position is one of the driest, as the coal has been got from under it up to within a few feet of its roots, from which cause the pasture near it simply disappears in a dry time. It pays to plant Ash in a good soil up to an altitude of about 1000 feet above the sea. It will do well if planted pretty thickly even in a thin soil, but rapid growth and bulk is everything in an Ash tree, and it pays best to grow it under these conditions. One of the finest Ash countries in England is on the North-Eastern Railway, between Northallerton and Hawes, and it is also one of the best drained and cultivated districts in Yorkshire. The hedgerow Ash there is the largest, cleanest, and finest I have ever seen.

The Beech.—A correspondent of *Woods and Forests* wrote a year or two ago stating that the Beech could not stand exposure, and hence was not a tree to plant on exposed sites. He wrote from the south, and evidently stated but a general belief. The Beech is, however, one of the best trees for planting on bleak upland spots in all our lists. On a lofty ridge here, about 1200 feet above the sea and very much exposed to gales from east-west, that was many years ago planted with Scotch Fir principally and some Beech, the Fir has all but disappeared and the Beech alone remains, and has done well, making good spreading trees, although the soil is poor and thin. They have surprised many visitors. We have plenty of Beeches also in other exposed places that resist cold gales better than almost any other species, making but short growth annually certainly, and the tops leaning away from the stormy side, but quite healthy and with sturdy trunks well furnished. Most of the trees form a portion of the outside belt of an exposed plantation. The Beech thrives in a great variety of soils, but does not do well in wet soil or above the clay; that, however, is, I think, the only exception.

The Oak.—This tree thrives under conditions that suit the Beech and Ash, and grows largest and strongest, of course, in good deep well-drained soils. Yet we have here some very ancient specimens of large size that, as the poet expresses it, have literally "cast anchor in the rifted rock," and it would be hard to explain how they have grown so large and lived so long. These trees grow on the very brink of the most exposed and lofty cliffs, and although they are broad rather than tall they have made good trunks, and the descending sap has been so obstructed in its descent on reaching the fissure out of which the tree originally sprung, that the tissue has extended over the stone in a flat layer many inches wide. Our finest Oaks are, however, in the valley where the soil is best and deepest and free from stagnant moisture, and our healthiest and tallest Ash grows beside the Oak.

Spanish Chestnut.—Although this tree only flowers and fruits under favourable conditions of climate, still it is one of our hardiest trees, being almost as good as the Sycamore in that respect, which seems to prefer a cool climate. Hereabouts the Spanish Chestnut makes one of the loftiest as well as most spreading trees on hills from 800 feet to 1000 feet above the sea, and we have it thriving equal to the best in plantations about twenty years of age, situated about 1200 feet above the sea, and that, too, on very thin soils. One of the largest trees in Yorkshire here grows literally on the rock, there being scarcely soil on the surface to support a good herbage, and below nothing but rag for many feet down. How rapidly the tree grows in good soil, those who grow Hop poles in the south know, and if only the wood was more useful in a correspondingly young state, it would be one of our best timber trees. Old Spanish Chestnut timber is as hard and enduring as Oak, but old trees are not always found in such a sound state as old Oaks. The tree likes a dry site, and if it has that it will grow fast and live long on very cold situations, where it never by any chance produces any fruit, although it flowers in summer and produces empty husks.

Sycamore.—This is the tree to rear its top on exposed situations. A few Sycamores of great age and size are often found sheltering a farm steading on a hill top when no other tree is near. A grand tree to grow is the Sycamore, and it seems to defy the sea breeze at its worst, as, for example, on the east coast. I was greatly struck lately by the difference in the texture of the leaf on Sycamores near the sea. The leaves are much stouter and so much more leathery and strong in texture, as to almost look like the leaves of some other tree. Near Filey I saw a group of young trees with leaves of remarkable substance and colour compared to those produced inland. I suppose the Sycamore makes one of the finest trees in the north of Scotland, and in that country Sycamore timber fetches a rather tempting price when it has become old and is sound. It is not particular as to soil, and in this part of Yorkshire it is propagating itself naturally at an extraordinary rate, and threatens to out-grow all other timber trees when left to itself. Talk about thick planting! I was in a plantation the other day, near Wakefield, where the progeny of one Sycamore formed an impenetrable jungle for a hundred yards round, the trees being from 6 feet to 10 feet high, not much more than a foot asunder, and as straight as ramrods.

The Spruces.—With this note I must close these remarks. So far as I have seen, the proclivities of the Spruce are different from the Firs of the Austrian and Corsican type, and even from the Larch, so far as choice of soil and climate are concerned. The last tree prefers a dry climate and a dry soil, and the Spruces enjoy conditions just the opposite. Nowhere do you find the Spruce doing better, if as well, than on the west coast of Scotland, where the rainfall is heaviest, the climate damp, and the soil the same. In such places the common Spruces make specimen trees of gigantic size and grow at a rapid rate; hence they have been planted for covert there more than any other tree. The best deer woods of the south of Scotland and best game coverts generally are there composed of Spruce principally. The wild pigeon and the pheasant are alike partial to such woods, and the pheasant is more thoroughly naturalised there than anywhere else, perhaps, in the United Kingdom. YORKSHIREMAN.

The Larch disease.—I notice "J. F." does not attempt to reconcile the fact that the older plantations of Larch raised from foreign seed are admittedly better than younger plantations presumably from home-raised seed, with the general assertion or belief that the Larch failure is in some parts due to propagation from foreign seeds. The fact of the matter is this, Larch disease, which foresters are so glib in talking about, has no distinct existence. The Larch suffers from several complaints, and unhealthy plantations are to be found, both young and old, that can be attributed to local causes, no two cases resembling each other, while at the same time plenty of healthy plantations are found also. Neither do I believe quite in "J. F.'s" scare about bad seeds, although he declares it is carried away in burdens from his own locality, thus furnishing about the worst argument against the use of home-raised seed he could find, for if it be admitted that bad Larch seed is produced in such abundance in those districts where the home seed usually comes from, as to be far more readily procurable than any other, as "J. F.'s" "burdens" would indicate, what can be said in favour of such naturalisation? Still, the seed sown in our nurseries is not so poor as we are told to believe, otherwise the Larch quarters in nurseries would not be such a beautiful sight, the plants usually being both thick in the rows and as healthy as can be, and it is well known poor seed never produces good or strong seedlings. The physiology of "J. F." and others who teach that diseased seed produces fine young plants that only show the disease later in life after being transplanted—perhaps to an unsuitable soil or situation—will not do. Larch seed like "J. F.'s," that did not contain "above one per

cent. of vital seed," ought to tell a tale in a very short time after sowing.—Yorkshireman.

HEDGES—TRIMMED AND UNTRIMMED.

There is a medium between closely-trimmed hedges and allowing them to grow at will. There are two hedges here which will serve as examples, and I adopt both plans under different conditions. One of these hedges is composed of Hawthorn only, and is of ten or twelve years' growth. The other is much older, and is formed of bushes of Hawthorn, Hazel, Maple, &c. Both are by the roadside in a nearly straight line, and one is a continuation of the other. The young Hawthorn hedge fences in the shrubbery and the lawn. The older hedge is one boundary to the kitchen garden. The Hawthorn hedge is on the summit of a considerable grassy bank. This I like to keep frequently cut and level and uniform in appearance. In some cases I like to see hedges gradually tapering to the top, but in this case I prefer to trim it perpendicularly. To break any monotony I allow a large plant of Traveller's Joy, which grows in the shrubbery just within the hedge, to droop over it. This makes a break in the even line, and when in blossom and in fruit forms a most effective mass. Each autumn I cut it back, for if left to grow on year after year it would soon ruin the hedge it is intended to enliven. There is a young Spruce some 8 feet or 10 feet high which has been gradually dying away at a short distance from the Clematis plant, and this season I have allowed the growth to cover it. This raises a portion of the mass a few feet above the hedge, and is a decided improvement. The old hedge I treat differently in respect of cutting. The inside it is necessary to keep trimmed, or it would encroach upon the kitchen garden and injure the crops. The top and the outside I have only cut once in a couple of seasons, and then only enough to keep it within reasonable bounds. In this way I get a pleasing diversity. The old hedge on the outer side is naturally very varied and uneven. This serves to contrast with the trimmed part, and makes it look neater. The trimmed hedge in its turn serves to show up the inequalities of the old bushes. I thus get a double effect. The drawback with old hedges composed of a number of different kinds of bushes is, that they often get thin at the bottom and gaps gradually open up. The trimming on the inside, however, considerably lessens this. Beyond the contrast which has been spoken of, by treating the old hedge in this way it is of itself a great part of the year really ornamental, and in some seasons produces edible fruit. In the way of ornament this season I have had Dog Roses and Bramble blossoms. Now there are Hazel Nuts, and plenty of Blackberries are growing. There are also some bushes of the Wayfaring Tree, and the berries of these are very pretty. These, of course, are only two simple instances of different treatment, but they will suffice to show that even in the matter of trimming hedges it is not well to be too dogmatic, or to adhere too closely to one particular line of practice. Rustic.

TREES OF MONMOUTHSHIRE.

Although the timber of the Horse Chestnut is not sought after for any particular purpose in this county, I believe it is very suitable for carving. Looking at this tree from an ornamental point of view, there is no other more beautiful, especially when in flower. In this county we can boast of some very handsome specimens of Horse Chestnut. Some of the finest trees are in Tredegar Park, and these have an imposing effect in the distance. There is also a very fine row of Horse Chestnuts planted alongside the road leading from Caerleon to a residence called Belmont, and growing among other deciduous trees.

The Poplars flourish admirably in this county, with the exception of the very hilly districts. The Black Poplar (Populus nigra) grows well on our moors, in the hedges, and alongside the brooks and dikes. It grows so fast, that in the course of thirty to forty years it becomes a very large tree. I know of trees now that have not been planted fifty years with 100 feet to 200 cubic feet in them, many of them with a height of 100 feet. The soil in which they grow is a dark, loamy clay, close to the edge of a brook. I measured trees last spring which were felled with a length of 60 feet, and a circumference of 8 feet 5 feet from the ground. The soil they grew in was a rich, loamy clay on sandstone near the margin of a brook. There are, also, many fine specimens of Populus alba and P. tremula in this county. The wood of the Poplar is used here for brake blocks for railway wagons, and also for cart and barrow boards. The Black Poplar is a very profitable tree, and may well be recommended before the other species for profitable planting. Young Forester.

THICK PLANTING OUTSIDE TREES.

"In crowded plantations there is a marked difference between the trees on the outside and those in the centre; the former, having their branches and leaves fully exposed on one side, grow with comparative vigour, and form excellent timber on that side of the stem where light and air are admitted; while the latter, hemmed in on all sides, are drawn up like bare poles, and produce a small amount of ill-conditioned wood." I cull the above from a recent issue of The Garden; it is an excellent example of misapprehension of a plain lesson. It is true than the trees on the margin of a plantation always grow comparatively more vigorous on the exposed side than the trees inside the wood do, but they are seldom or never better timber trees in consequence, but worse: hence for that reason, and because they form a good wind guard to the plantation, they are not often felled or set out in a fall. Trees so situated send out far-spreading boughs as soon as they rear their head above the fence, make more branchy tops, and contain perhaps more timber in the aggregate than the single-trunked trees in the centre, but which are practically useless as timber. Whenever you find a tree producing a broad spreading top, either on one side or both sides, it is always at the expense of the trunk, which is shorter and less bulky in consequence. In fact, marginal trees are but little better in shape than hedgerow trees, which are unprofitable anyway. A better argument for thick planting "Scot" could not have cited, for the outside trees are the worst shaped in the wood, and buyers will not look at them if they can help it. I object, of course, to growing trees of different sorts together so thick as to smother each other, but it has yet to be proved that what scientific foresters call rank growth in a plantation is not much better than the severe thinning usually resorted to. Until an explanation is furnished why foreign trees and poles, imported in the rough, are so much taller, straighter, freer from knots, and generally more useful throughout than our home-grown timber, notwithstanding that the foreign trees "grow as thickly as seedlings in a hotbed" and are never thinned, I shall condemn our system of thinning in this country, and which the Scotch foresters are more responsible for than any other practitioners. There are neglected, and what would be called ill-managed, woods in England that would better bear to be measured by a debtor's and creditor's account than some of the much-talked-of Scotch examples of culture. The fault of the Scotch foresters is that they do not crop their ground sufficiently, and some of them have made the still worse error of planting the wrong kind of crop. I doubt if there be any forests in Scotland to be proud of from a professional point of view, unless it be the natural forests of Scotch Fir. The French professor, M. Boppe, in his report before alluded to in these pages, speaks of the pride with which the "father of Scotch forestry" showed him a 400-acre plantation of Oak, sixty years of age, in which the trees stood from 24 feet to 30 feet asunder, the necessarily much-too-spreading tops forming "a canopy overhead." This cannot be called forestry in the sense of timber production, and the Frenchmen did not need to tell us to go further than their own forest of Fontainebleau to see proof of this. In some vast tracts of that forest the first crop of Oak has long since been removed, and the second crop, at the rate of two, three, and four fine tall poles or trees from each stool, now covers the ground as rank as possible, the result being that the trunks are all drawn up straight and clean and remarkably uniform in size.—Yorkshireman.

—— What the writer of the note (p. 258) says about the development of branches and leaves where the trees have more room and access to light and air is true enough; but to deduce from this circumstance the conclusion that the best timber is grown on the margins of woods, or that it is better in any position where the trees have full opportunity to develop branches, is erroneous. I speak, of course, practically, as from our side of the forestry question theories are out of the reckoning. Except in very special cases, the freer trees are from these branches of which your correspondent speaks, the better we like them for timber purposes. In the Fir tribe this straightness and freedom from branches is everything, and, so far as my observation goes, this growth is only obtained by moderately thick planting. The same thing holds true about the Oak, but with the Elm it is rather different. For some purposes long and straight trees are wanted in this latter wood; but, generally, shorter lengths will answer. On soil which naturally produces good Elm, the best timber is very often found in trees which grow isolated in fields, but then the prime part is really only the butt of the tree, *i e*, the part from the ground to the first large limb or branch. Beyond this the wood is only fit for second class uses. Speaking as one who has had a good deal to do with home-grown timber purely from the market point of view, I think, on the whole, that "Scot's" advice on this point is bad. As I have said, there is the case of the Elm where really marketable timber is produced by isolated growing, but in this respect it stands almost by itself. With the Ash, we almost always pay a higher price for plantation-grown wood where it is grown thick, and therefore cannot produce branches and consequently knots. The Oak is regarded in the same light, except where very large dimensions are wanted, and then a large field butt sometimes comes in. In this case there is almost always half of the tree which is only fit for secondary uses. The sentence about producing ill-conditioned wood by being drawn up like bare poles is very unfortunate, as in almost all kinds of timber this is just what we seek for.

The Beech is typical of this. Grown, say, in open avenues, it has a grand effect and grows to a large size; but it is, nevertheless, generally unprofitable to the merchant to handle these trees, as there is such a large proportion of waste. On the other hand, Beech grown so closely that there is no room for branches, if in other respects good, always fetches the highest price. There are some Beech woods, I know, from which cuttings are made most seasons, and the trees are so thick, that they grow to a height of 40 feet to 50 feet without a branch. There is always a keener competition over this wood and a better price realised than for any other I know. I could easily quote many instances of this, but it is perhaps unnecessary. My object in writing is to let your readers know that, from a trade point, the ideas expressed in the paragraph under notice are about as backward as can be, except in here and there an instance. In short, buyers do not mind trees being grown like bare poles, but fight shyly over timber too highly developed in the shape of branches, which means a lot of wood of relatively little value. That trees growing thickly naturally produce ill-conditioned wood is certainly opposed to my experience.—A Timber Merchant.

Ornamental Conifers.—My favourites amongst Coniferæ for planting as single specimens where space can be afforded for them to develop themselves are Picea nobilis, P. Nordmanniana, and P. cephalonica, all truly noble objects; the latter, however, is somewhat tender, and should only be planted in positions where the sun does not shine on it in the morning so as to excite early growth or cause a too rapid thaw after severe frost, as that is how the soft, prominent buds generally get injured. P. nobilis and P. Nordmanniana will endure almost any amount of frost, as will also P. grandis, which is another very fine Conifer that should have a place even in the choicest selection.—D. S.

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"This is an Art
Which does mend Natnre: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FORMING NEW ORCHARDS.

PREPARATION.—Where the planting of young trees is contemplated now is the time, or as soon as existing crops are off to commence preparing the ground. The way in which this must be set about depends entirely upon the nature and quality of the land, and the system of management which will best dovetail in with other arrangements and requirements. When Grass orchards are to be planted with standards the only practical method is taking out large circular or square holes, but unless the land is thoroughly drained or light and porons when its suitability is doubtful, these pits only become so many reservoirs for the gathering of water in which the roots of the hardiest trees cannot live. Better take a smaller area in hand, and either cultivate, dig, or trench, and after taking a crop of Potatoes plant early in the following autumn. The cost at the outset would he more, but the result in the long run would pay, as the roots and branches would keep pace with each other, and fruit of the finest quality might reasonably be expected. In private places where small plantations only are needed and a very choice selection of sorts is about to be made, I would certainly drain well and trench 2 feet deep if the nature of the subsoil would permit, and plant with pyramids and bushes on the Paradise stock. By far the finest fruit is now gathered from this class of trees; a great number of varieties can be grown on a small piece of ground, the crop is sheltered from wind and storms, and the trees are easily manipulated and kept in order. October is the best time to plant, and the ground is now in good order for trenching, as it can be worked without becoming adhesive. If stiff and inclining to clay or marl, the system known as bastard trenching should be adopted, *i. e.*, the bottom spit should be broken up, but not brought to the surface—at least, until properly ameliorated by the addition of burnt earth, charred refuse, road-scrapings, or the like. This, by degrees, under the process of root-lifting, would become incorporated with the better soil, and the masses of fibres which these stocks produce would be ever finding suitable food, but there would be little danger of their descending to the detriment of the trees or fruit.

MANURES.—Next to a sharp pruning-knife the amateur thinks there is nothing like manure and plenty of it, but, necessary as this commodity is in nearly all gardening operations, there is a time to feed and a time to withhold, and it is questionable if the knife and the manure heap have not brought more trees to an untimely end than all other modes of treatment combined. If the land is light, hungry, and thin, a fair dressing of manure may be of use, but when thoroughly broken up to the depth of 2 feet, it must be very poor indeed if the correctives which I have named are not found quite sufficiently stimulating until the trees get well into bearing. As a rule, however, animal manures are not needed, and when the land really does require enriching, a crop of vegetables should precede the trees for the twofold purpose of taking crude or rank substances out and giving time to get the soil and manure thoroughly incorporated. As a mulch for the protection of the roots in winter and food in summer, good manure of some kind is indispensable and must be forthcoming when it is wanted. Light warm soils cannot easily be over-mulched; not so cold heavy loams, as a thick layer of rich non-conducting material not unfrequently keeps out summer warmth, forces a coarse crude growth, and induces a disposition to canker.

PLANTING.—Hardy fruit trees are now planted from October up to the end of April, but the best time to remove them from the home nursery to their permanent quarters is the month preceding the fall of the leaf. Why this is the best time may be explained in a few words. Vital force in the trees, perhaps never at rest, is still active, and the ground retains a portion of its summer warmth. Moreover, it is moderately dry and in good condition for working without becoming adhesive, and solar influence favours the formation of new roots before the winter sets in. The mode of planting depends upon the nature of the surface and subsoil, the lie of the ground, its elevation or the reverse, and its tendency to become wet in winter or too dry in summer. All these points have to be taken into consideration, and when the best mode has been decided upon, dispatch, combined with good workmanship, must be brought to bear upon the operation. On light, deep soils not subject to cold stagnant water, planting below the surface level will be found to answer best, and the compost should be made very firm, not by treading with the unmerciful heel, but by flooding home with water, the best of all solidifiers, and firming with a broad-faced rammer when the last of the soil has been placed over the roots. On cold, thin soils, or in low situations, the roots of the trees may be placed on the level and mounded up with fresh compost or the best of the surface spit where the general staple is considered good enough. In all cases, be the trees standards or free stocks, pyramids or bushes on the Crab or the Paradise, a dull day should be chosen for planting them, and having leaves upon them, water should be applied immediately. When trees are bought in from a distant nursery one cannot always insure suitable planting weather immediately on their arrival, and temporary laying in becomes the only way out of the difficulty, as permanent planting when the soil is wet or frozen cannot be too strongly deprecated. If received early in the autumn the roots should be lightly covered and the trees supported, as they soon commence making a fresh start, and great care should be observed in their removal, otherwise many of the tender rootlets will be destroyed. Trees, on the other hand, which have been grown for a year or more in the home nursery can be removed when the stations are ready and the state of the weather is favourable. Newly planted trees, it is hardly necessary to say, should be well secured to stakes to prevent wind-waving, and half rotted manure or long litter should be placed over the mounds to exclude frost and drought as well as to keep in warmth.

DISTANCE APART.—Standard trees should be planted from 30 feet to 40 feet apart in large orchards, but just now I have my eye upon the garden plantation of pyramids, bushes, and cordons, and as these are sometimes worked upon the Crab, but most frequently upon dwarfing stocks, the distance must be regulated by the stock and the mode of future training. The majority of planters, either for pleasure or profit, aim at variety and early fertility, and, notwithstanding the fact that root-lifting is intended to form a portion of their programme, they not unfrequently plant too thickly and find themselves in difficulties. Trees on the French stock are often planted from 3 feet to 4 feet apart and 6 feet from row to row, but these distances compel annual, or at most biennial, root-pruning and constant pinching; and although I have trees thus planted and bearing crops of fine fruit, I question if a little more space will not be an advantage in the long run. This difficulty I intend to get over by transplanting every alternate tree when more space is needed. Pyramids or bushes on the English Paradise stock require more room, 8 feet between the rows and 4 feet to 6 feet from tree to tree being near the mark. Some years ago—more than twenty—I planted long single rows of trees on this stock in rather rich garden soil, allowing 12 feet for each tree. These were trained into half globular bushes and now nearly touch each other. They are 5 feet in height, and some of them have borne as many bushels of fruit this season. Vertical and oblique cordons against east walls and trellises I plant 18 inches to 2 feet apart, and find the latter distance quite sufficient for ordinary varieties. Strong growers should have more room and be kept to two shoots each. When quarters containing larger trees are bordered with horizontal cordons, either double or single, 3 feet to 4 feet are generally allowed to each shoot, and where this mode of culture is made a hobby, the trees can be kept in condition for a great number of years; but quantity and quality of fruit being the object, 6 feet will be found the best distance apart to plant on well-prepared garden soils.

Eastnor Castle, Ledbury. W. COLEMAN.

ROSE GARDEN.

STAYING PROPERTIES OF ROSES.

IT is incredible that any practical exhibitor will endorse "D. T. F.'s" surprising suggestion that Roses fade when cut in proportion to the liberality of their culture! This is certainly contrary to the experience of most growers, and presumably it is not intended to record the actual experience of "D. T. F.," as he prefaces all his remarks with "possibly," "it seems," "are likely," and similar expressions involving no definite statement; nevertheless, it is none the less misleading coming from so high an authority, and might easily tend to raise the already too high rate of mortality among Roses through starvation. In practice it is found that the blooms that stand best are those that are grown on the richest and best soil, with plenty of manure and copious supplies of weak liquid manure when the buds are swelling, and it is only when exhibitors have learnt to produce by these means the strong growth that alone can carry first-rate flowers, that they can ensure their blooms withstanding successfully the ordeal of long journeys to and from shows. No doubt watering with liquid manure may be overdone if used too strong, and soapsuds and house-slops are perhaps the worst form for an inexperienced grower, since they always make the surface of the soil foul and sour, unless the hoe can be kept constantly going. But apart from such misuse, that copious supplies of liquid manure destroy the colour, and that the substance of Rose blooms is reduced to a gossamer by the richness of the soil, will be news to the majority of growers. It is rather difficult to get at the meaning of the remark that "blooms suddenly cut off from a full larder are the likeliest to fade or lose colour, unless their wants can be supplied afterwards," as a cut Rose's only want is fresh water, with which, if the bloom is cut for exhibition or vase decoration, it is, of course, always supplied at once. Again, there is not the slightest analogy between a Rose tree and an athlete, beyond the fact that it is an object of interest to both to be at their best at a given time. An athlete's one object in training is to attain to a perfect state of health, and while, if he were a bit off colour any morning, his trainer might prescribe him a glass of port or some other tonic, he finds his end is best attained by the avoidance of everything of a luxurious and enervating nature in favour of a strength-producing diet. Now there is nothing

in a plant growing out of doors to correspond with the human capability of indulging in or avoiding luxuries. Moreover, in the case of the athlete, whatever special development is aimed at, outward appearance, at any rate, never receives the slightest consideration; whereas, in the case of flowers, external beauty is the sole object in view. In fact, the preparation of a fat beast for a Christmas show would have been a more appropriate simile than "D. T. F.'s" athletic training. Our good Rose soil being of limited area, it has been necessary to plant a good many trees on beds of the natural sandy soil, made up as well as could be managed; but flowers from the latter are never used for exhibition when enough can be obtained from the richest soil beds, since, as a matter of practice, it is found that the flowers from the poorer soil, however beautiful they may be at the time of cutting, do not under trying circumstances stand as the "fat" flowers may be relied on to do.

La France is not by any means one of the easiest Roses to carry in perfection to a show in very hot weather, as it expands with astonishing rapidity after being cut. Frequently when staging a box of twelve blooms of this variety, if there are hardly enough of the richly-fed flowers, a few from plants on the light soil are taken as spares and as often as not, if the morning be a hot one, they arrive at their destination as yellow-eyed as Daisies.

In addition to Merveille de Lyon, the following varieties may be noted, which, though generally thin or not of first-rate quality, have occasionally produced a bloom which has been the cynosure of all eyes at some particular show: Bernard Verlot, Duchess of Edinburgh (T.), General Jacqueminot, Mabel Morrison, Madame Berard (T.), Madame Chedane Guinoisseau (T.), Madame Sophie Fropot, Princess Louise Victoria, Safrano (T.), and Ville de Lyon. Mr. Haywood's marvellous bloom of the last named, which gained the Royal Horticultural Society's medal as the best H. P. at the Reigate Show this year, will not readily be forgotten by those who saw it.

T. W. G.

SOUVENIR DE LA MALMAISON.

This exquisitely beautiful, delicate, flesh-coloured Rose has been so often recommended, that it may seem like a mere work of superarrogation to commend it yet again. But beautiful and useful as this Rose is, it is by no means so generally grown nor so extensively cultivated as it deserves to be. Some of us can look back to the time when hardly any garden belonging to cottage or palace was thought to be furnished without one or more pink or crimson monthly Roses. Never until Souvenir de la Malmaison is equally or more popular will it be time to leave off sounding its merits and advocating its universal cultivation. No wonder that "W. I. M." winds up his list of desirable September-blooming Teas with a eulogy on the merits and usefulness of this Bourbon (p. 283). Notwithstanding the beauty and usefulness of most of these, there is not one among them all—barring, perhaps, the Gloire de Dijon—that in all points of beauty, usefulness, and continuity of blossoming can compare with Souvenir de la Malmaison. To prevent disappointment, however, it must be repeated what has been so often stated in The Garden, that this Rose is emphatically an autumnal one, not merely in a general, but a special sense, the latter being so emphatic, that it may almost be said of it, with absolute truth, that it is good for little or nothing at any other season. This fact cannot have too wide prominence, for virtually it may be said there are two Souvenir de la Malmaisons—a worthless one in the early summer, and the best of all our delicate pink or flesh-coloured Roses throughout all the autumnal months till the frost cuts them off. It is the more needful to emphasise this difference, as a writer of "W. I. M.'s" experience claims for this Rose as one of its merits that it flowers before any of the hybrids. Yes; but, as a rule, most of these early flowerers are mere useless abortions. So generally is this the case, that this Rose on its own roots is not infrequently treated as double-bearing Raspberries are. It is well known that the latter will fruit in the summer like ordinary Raspberries if a crop of canes is left over for this purpose. But as the first crop on such canes never equals that on canes of the ordinary varieties, most good cultivators remove them and concentrate the entire vital and fruiting force of the double or autumnal bearing Raspberries into the current year's shoots, that start into growth early in the spring and ripen their fruit in the autumn. So, by cutting back dwarf beds or bushes of Souvenir de la Malmaison Roses on their own roots in February or March, strong shoots will spring forth from the stools that will yield a rich harvest of perfect flowers from July to December in mild winters, and in most ordinary seasons up till the middle or end of October. These strong shoots are not seldom crowned with huge masses of from five to fifteen blooms that open for a month or six weeks in succession. These shoots supply the richest furnishing for vases, cut in great branches, and will bloom for several weeks in succession after cutting, especially in the late autumntide. But for general purposes the buds should be gathered singly off the trusses in a half-opened state, and in this condition they are most useful for bouquets or other decorative purposes. If the entire plants are left to bloom in the ordinary manner from the first and the early shoots are cut to the ground as soon as they have finished flowering, the base buds will immediately break afresh and push forth other shoots in time for late autumnal blooming. Another most successful way of treating this Rose in beds is to peg down the strongest shoots almost level with the ground. The strain upon the neck of those near to the collars of the plants forces them to break. These breaks are allowed to grow upright and bloom, if so disposed, late in the season.

At the end of the growing and flowering season all the pegged-down shoots are cut close back, the beds top-dressed and pointed over, the vertical shoots pegged down, and in cold localities a few Fern fronds or boughs worked in as protection against severe frosts. By this simple mode of culture the Souvenir de la Malmaison really renews its growth annually, and the same beds continue to grow and bloom on the same spot for years. In warmer localities the overhead protection may be dispensed with. It must, however, be borne in mind that this fine Bourbon Rose is equally or more tender than most of the family to which it belongs, and is rendered yet more so by the cultural expedients here advised to accentuate its autumnal blooming proclivities. The Souvenir de la Malmaison is also a good wall Rose, either out of doors or in a cool house. By planting one or more plants on every aspect from south to due north, the cultivator will mostly be able to cut buds from the open for eight or even nine months out of the twelve. Unlike every other Rose, this fine Bourbon is improved considerably by cultivation under glass. The malformation of petal and horrid distortion of the eye so common to early blooms in the open are rare or wholly unknown under glass. Either in pots or planted out nearly all blooms under glass are equal to the best autumnal ones in the open air. Finally, to enjoy this Rose to the full cut it early, and discard the blooms so soon or even before they are fully expanded, for, however delicate in colour or exquisite in form in the bud, they are little or nought to be admired when fully expanded. As to fragrance, perhaps the less said the better, for I have met with rosarians loud in their praises of its odours subtle and rich, and others who compared its scent to stale dish-washings. That both were mistaken those who know this most useful autumnal Rose best will admit. It may also be admitted that the odour is unique and peculiar, but its chief merits are its soft colour, good form in the bud state, and its profuse blooming in the late autumntide and early winter.

D. T. F.

Rose Cramoisie Superieure.—I was much pleased to see "W. G.'s" note on this in the open air in the Handsworth Nurseries. It used to be a favourite Rose in pots or against warm walls, but I do not remember to have seen it bedded out in considerable masses; hence a few more particulars o the age of the plants described, and the mode of protecting them in winter, &c., would prove of interest to me, and probably be useful to many readers. This was always considered to be one of the brightest and most brilliant of the older China Roses.—D. T. F.

NOTES OF THE WEEK.

Richmond Hill.—The Local Government Board have sanctioned the application of the Richmond Vestry for power to borrow £15,000, to enable them to purchase the Buccleuch Estate on Richmond Hill, so as to convert it into public pleasure grounds, and preserve the view from the Hill.

Tuberous Begonias.—These, in Mr. Laing's nursery at Forest Hill, are now in greater beauty than they have ever been before this season. Both foliage and flowers seem refreshed by the recent rains and cool weather, thus superseding the Pelargoniums, which are now on the wane.

Diplopappus chrysophyllus.—This is a neat-growing and beautiful shrub. Its rich yellow stems and undersides of the leaves contrast strikingly with its heads of white bloom. It is a fine plant for isolating upon lawns or for shrubberies. We recently saw it in good conditiou in the Berkhampstead Nursery.

Nerine filifolia.—This, the thread-leaved Nerine, is distinct from others of the genus on account of its grassy foliage. The flowers are, moreover, different, inasmuch as they have narrow sepals with wavy margins, and are of a bright rose-pink colour. Mr. Ware sends us a few flowers of it from Tottenham.

Cox's Emperor Plum.—The crops borne by this thoroughly good all-round Plum, sometimes called Denbigh, are very heavy this season in the Berkhampstead Nursery. There we saw many trees of it, and also of that best of all Damsons, the Crittenden, with their branches bent down to the ground under their load of fruits, and in some instances large limbs were actually splintered off by their weight.

Sweet-scented Clematises.—Mr. Lynch tells us that the odour of the old bluish Clematis Davidiana is like that of Stephanotis, and that he finds the leaves fragrant when dry. He also sends from Cambridge the prettiest specimens of this somewhat neglected species we have seen.

Watsonia rosea.—This is one of the handsomest Cape bulbous plants now in bloom. It has tall and slender branching spikes beset with large and showy flowers of a deep rose colour flushed with a purplish hue. It is one of those half-hardy bulbs that repay any little extra attention bestowed upon them as regards protecting them by a handlight or a frame during winter and spring while they are developing their tender growth.

Narcissus serotinus.—This is perhaps the smallest of all Daffodils and the latest to flower. It is so unlike any other Narcissus, that it may readily be mistaken for a plant belonging to another genus. The flowers are only about an inch across, pure white, and have such narrow petals that they look like the blossoms of a Jasmine. There is the characteristic cup, but so small as to be scarcely seen. Each flower is borne on a slender stalk about 6 inches high. Mr. Ware, of Tottenham, sends us some flowers of it, presumably from plants grown in a frame, as we doubt if it is quite hardy.

Apple Prince Albert.—This is a handsome Apple, and one of the very best for culinary purposes, keeping in good condition till March. Intending planters cannot be too often reminded that it is only fruits of good quality that find a ready sale at remunerative prices, inferior produce being quite a drug in the market. The Prince Albert Apple, which we recently saw bearing heavy crops in Mr. Lane's nursery at Berkhampstead, is a variety that seldom or never fails to yield a good supply, even in seasons when most kinds fail to produce a crop.

Ixoras.—These brilliant-flowered stove shrubs are among the most useful of autumn-flowering plants; indeed, we might call several of them perpetual-flowering, for they are seldom without some of their clusters of brightly coloured blossoms. In the Victoria house at Kew there is a collection of Ixoras, most of which are now in flower, and these for purposes of selection might be turned to account by those who want to know which kinds of Ixora are likely to be most serviceable. Here is a list of what we saw in flower a few days ago: I. Pilgrimi, a very free-flowering kind with handsome bright green foliage, a shrubby habit, and large trusses of bright orange-red flowers, which are yellow when they first open. I. Prince of Orange, also a free-blooming sort with medium-sized trusses, flowers similar in colour to those of the preceding. I. javanica has dark green leaves

and large trusses of scarlet flowers. I. Fraseri is distinguished by its large flowers, enormous trusses, and compact habit, the colour of the flowers being first yellow and afterwards almost crimson. I. spectabilis, similar to I. Pilgrimi, but has smaller trusses. I. Bandhucca has a stiff habit, rather rigid foliage, and twelve-flowered trusses, the individual flowers measuring quite 1 inch across. I. parviflora has small white flowers; as has also I. laxiflora. Other species which may be seen at Kew are I. macrothyrsa (I. Duffi), the grandest of all Ixoras, but a strong woody grower; I. hydrangæfolia, characterised by leaves 1 foot long and 4 inches wide, very leathery in texture and recurved, whilst the stem is erect and unbranched; I. Ragoosola, I. brachiata, I. Griffithi, I. Findlaysoniana, I. ferrea, and I. Williamsi. Some of these are of botanical interest only, their flowers being very poor when compared with the garden kinds.

A finely-grown Eucharis.—A photograph of a finely-flowered Eucharis has been sent to us by Mr. Jupp, gardener at Torfield, Eastbourne. The plant is represented as bearing thirty-five flower-spikes, each showing from six to eight blooms. "The plant," says Mr. Jupp, "is growing in a 20 inch pot; only five years ago it was in a 10-inch pot. We have never been troubled with the Eucharis mite, and we are seldom without flowers of this plant. The plant photographed I hope to have in bloom again at Christmas."

September Pansies.—Mr. Rawson sends us from his garden, at Windermere, a gathering of Pansies, which for the season are most admirable. The flowers represent a different race from that of the ordinary border Pansies. Every flower has its petals adorned with a golden or silvery margin, while the ground colours are intensely deep and rich. No doubt Mr. Rawson's climate is favourable for the production of these fine September Pansies, but if he has any secret to divulge respecting the treatment which he gives them, we should like to know it.

Aristolochia elegans.—This plant, of which we gave a coloured illustration in The Garden in June last, is now flowering profusely in 3-inch pots, and the fact that such miniature plants do so should enhance the value of this beautiful species. Another new Birthwort to be found in Mr. Bull's establishment is A. ridicula, which makes a fit companion for elegans. It is equally free flowering, and though not so beautiful as elegans, singular enough to be attractive. The shell-like flowers of elegans when cut keep well in water.

Lasiandra macrantha.—This fine Melastomad is deserving of more extended recognition than it has hitherto received, its rich blue flowers, which are produced at this season, being specially attractive. Of this plant there are two distinct forms—so distinct, indeed, as to almost lead one to suppose that the distinction is more than varietal. The normal form is very free, producing large blossoms in abundance; while that called floribunda is even more floriferous. It is, moreover, dwarf in habit; its leaves are more rugose than those of the type, and the flowers are nearly double the size of those of macrantha. We recently saw both kinds in great beauty in Messrs. Veitch's establishment at Chelsea.

Hibiscus coccineus is a plant we have often read about, but never saw in flower in England till the other day, when we were shown a flowering specimen of it in the temperate house at Kew. In the United States it is looked upon as the most gorgeous of the indigenous plants, and is cultivated with the same fondness as H. syriacus or H. rosa-sinensis is in this country. It is just a little awkward with us, as it cannot be treated as a hardy plant because it flowers very late in the year, and it is not happy in winter, and it loses its foliage rather badly if treated as a greenhouse plant. It would, however, be a useful plant for late autumn flowering if it were planted out in a sunny border during summer, and taken up and planted in pots about the beginning of September. Meehan, in his "Native Flowers and Ferns of the United States," calls this plant the American Scarlet Rose Mallow, to distinguish it from the Chinese scarlet-flowered species (H. rosa-sinensis). It is not a new plant in English horticulture, Curtis having figured and described it in an early number of the *Botanical Magazine* and Collinson in a letter to Bartram, dated February, 1768, said of it: "The crimson Hibiscus is a charming flower. I could have no perfect idea of it, but from thy elegant painting. Pray desire thy father to spare no pains to get us seeds from Charleston, where I daresay it will ripen seeds." In the cooler parts of the Northern States it grows and flowers freely, and it is equally happy in the deep coast marshes of Florida and Georgia. In habit it grows to a height of from 4 feet to 6 feet, has smooth green branches, leaves as in Manihot, or the Hemp-plant, and axillary flowers, composed of a large green calyx and five spreading deep crimson petals, each nearly 3 inches long by 1 inch across. The name H. speciosus is sometimes given to this plant. It is probable that if we could induce some of our skilled hybridists to interest themselves in this fine Hibiscus, a race of gorgeously coloured hardy flowering shrubs might be obtained by crossing it with H. syriacus.

Nymphæa Sturtevanti is now in vigorous flowering condition in the Water Lily house at Kew, where it flowered in England for the first time last year, having been obtained from the nurseryman, Mr. Sturtevant, of New Jersey, after whom this grand hybrid is named, and who pays a good deal of attention to Nymphæas and aquatic plants generally. The extraordinary beauty of this new Lily is marred by its habit of closing its large, deep, rose-coloured flowers early in the day, the blooms on the plant at Kew closing at about 9 a.m.—very early closing hours, even for Water Lilies. All the species belonging to the N. Lotus set close their flowers before noon, and do not open them again till night, so that visitors to Kew do not have an opportunity of witnessing the display that is made in the morning by the flowers of these plants. To atone for this, however, we have, in the stellata group, the habit of expanding flowers about mid-day, and they remain open all the afternoon. To the latter belongs N. zanzibarensis, the giant purple-flowered Water Lily, and this has been flowering at Kew for the past three months; N. Daubenyana and N. stellata itself also open in the afternoon; so, too, does the tiny species N. pygmæa.

Coral tree (Erythrina Crista-galli).—This magnificent autumn-flowering plant is not always treated properly by those who use it for out-of-door effect, wrong treatment revealing itself either in the shoots being flowerless, or in the flowers not appearing before it is too late in the season for them to develop outside. Here is the kind of treatment this plant should have if wanted to flower in the open-air: The stools should be wintered in a shed or cold frame and kept just moist; in February they must be looked over and trimmed preparatory to placing them in a slightly protected frame to start into growth. The stools should be planted in this frame in a light, leaf-mouldy soil, so that when shifting time comes they will lift with good balls. By the middle of May the shoots should be from 6 inches to a foot long and sturdy, and there is no difficulty in getting them into this condition if the lights are removed from the frame on mild days, and the sunlight allowed to get to the plants. The bed or border in which the stools are to be planted for the summer should then be prepared; a strong, rich loam is most suitable for this Erythrina, and it likes plenty of water. Treated thus the shoots make their growth, set, and develop their showy flowers by the beginning of September.

Lonchocarpus Barteri.—This is a gigantic climber from West Tropical Africa, and is now flowering in the Palm house at Kew. In habit it is quite as vigorous and quick growing as Wistaria sinensis, so that except in very large houses it would not be at all happy. The Kew plant is, however, quite at home, stretching its long rope-like branches from the floor up the pillars, round a portion of the gallery, and on over a gigantic Date Palm till it reaches the top of the house, its whole length being at least 80 feet. But, notwithstanding this growth, it is only this year that the plant has borne flowers, and it is supposed that too heavy cutting back was the cause of its failure to do so in previous years. Some valuable lessons in pruning may be learnt from observations of this kind; it is not every plant that will submit to the annual shearing sometimes practised. The Lonchocarpus has pinnate leaves 9 inches long, and bears large panicles of flowers, some of the panicles being 2 feet long with six or eight branches each about 9 inches long, the whole being covered with fascicles of flowers and buds. The flowers are Pea-shaped, half an inch across, and coloured bright rose. The genus is important economically, owing to one of its species, also West African, being the source of the Yomba indigo, a valuable dye obtained from the flowers.

Orchids.

Cattleya gigas regalis (*G. Lawr.-Schofield*).—A magnificent flower—larger and richer in colour than usual. It is interesting to know that the flower is from the plant that first bloomed in this country.

Aerides Lawrenciæ.—This valuable Aerides is now flowering freely in Messrs. Veitch's nursery at Chelsea, thus showing it to be a good autumn bloomer. In general appearance it resembles a lax-growing A. quinquevulnerum. The raceme, which is very long, bears large, inflated, pure white waxy flowers, the sepals and petals and frilled front of the lip of which are tipped with rich magenta-rose.

Renanthera matutina.—This rare and beautiful Orchid has been flowering for a long time in Mr. Bull's nursery at Chelsea. Its flowers are not so large, nor so richly coloured as those of R. coccinea, which they otherwise much resemble, but they are produced more freely and on younger plants. It will, therefore, let us hope, escape the charge of being a shy bloomer, which coccinea is. In foliage matutina is quite distinct from coccinea.

Odontoglossum grande.—Though an old member of this genus, this is still one of the finest plants we have for enlivening either stove or Orchid houses during autumn. Its large, rich, yellow flowers, barred with tiger-like bands of chestnut-brown, are most attractive. It is a bold, free-growing species, and one which gives the least trouble as regards cultivation; all it wants is to be kept cool and moist. We recently saw this species beautifully in bloom in Mr. Bull's nursery in Chelsea.

Sale of Orchids.—The fine collection of Orchids formed by Dr. Paterson, at Fernfield, Bridge of Allan, was sold the other day at Messrs. Protheroe & Morris's rooms, Cheapside. Some of the highest prices realised were the following: Cattleya Trianæ, 45 guineas; Lælia elegans Turneri, 35 guineas; Vanda suavis (Paterson's variety), £32; Odontoglossum Alexandræ (extra fine variety), £33; Lælia Perrini alba, 20 guineas; Cattleya labiata (autumn-flowering variety), 18 guineas; Cypripedium Veitchianum, 15 guineas; Vanda Cathcarti, 15 guineas; Cœlogyne Gardneriana, 15½ guineas; Cymbidium giganteum, 12 guineas; C. Lowianum, 13 guineas; Vanda tricolor Patersoni, 16 guineas; Dendrobium Ainsworthi, 13 guineas; Vanda suavis, 14 guineas; Lælia superbiens, 9 guineas; Cœlogyne cristata (Chatsworth variety), 8 guineas; Odontoglossum Klabochorum, 10 guineas; and Lælia anceps Dawsoni, 9 guineas.

Is wire hurtful to Orchids?—I have seen so many leaves of Orchids, and particularly of such soft genera as Phalænopsis, Aerides and Cypripedium injured by being in contact with the wire suspenders used for hanging baskets, that I am persuaded that there is something in the wire, possibly of an electrical nature, which is a source of danger to the health of many Orchids for which it is used. Galvanised wire is seldom used for Orchid baskets, but we do meet with it now and then. We know that in mixing some plant washes galvanised iron pails have to be avoided, or the wash will be turned into a poison by the effect of the pail on the mixture. Here is a subject of enquiry and experiment for chemical horticulturists. It may be that whilst wire does little or no harm in one place it has the opposite effect in another, the difference being possibly due to the atmosphere, or the water or the soil being different. This, however, the experimentalist could decide; but that the matter deserves attention very few observant plantsmen will deny.—W.

Orchids at Chelsea.—The beautiful Lady's Slipper (Cypripedium Spicerianum) is now opening its flowers in Messrs. Veitch's nursery. As an autumn-flowering Orchid it is simply invaluable; and the same may be said of Cattleya Sanderiana, of which many fine forms are now in full beauty. Odontoglossum Roezli album is also now very fine. The beauty of this plant appears to us to have been much undervalued; for than this Odontoglossum few finer

autumn-blooming plants are to be had. Vanda-Sanderiana and the beautiful Aerides Lawrenciæ may also be looked upon as autumn bloomers. Both are now opening their flowers in this establishment. Among other Orchids of note now in bloom may be noted Coelogyne Massangeana, Dendrobium bigibbum, Odontoglossum Alexandræ in great variety, O. Pescatorei, and that striking novelty amongst Odontoglossums, O. Harryanum; and the beautiful old favourite, O. grande.

NOTES FROM THE CONTINENT.

Hailstorm at Paris.—The following, from the *Moniteur d'Horticulture*, shows how disastrous to horticulturists was the hailstorm which occurred at Paris in the last week of August: "On the 23rd of August an avalanche of hail fell upon Issy, Malakoff, Vannes, Bagnolet, Saint Mandé, &c., but more particularly on Montreuil aux Pêches, and has left irreparable traces of its course. We had the opportunity of seeing the damage caused by this scourge, and we may safely say that a description thereof is impossible. It is heartrending to see the naked gardens and to witness the complete destruction of all market-garden produce. The Peaches having such a wide reputation, and which are the support of the locality, are hacked to pieces; the trees cut about by the hailstones are condemned to certain death; all the espaliers have suffered terribly; there is not a whole frame of glass or a cloche left entire; they were crushed by the falling masses of ice. In brief, it is complete devastation—a ruin which is the precursor of frightful misery for a great number of cultivators, especially those newly established. To give an idea of the disaster, it is sufficient to say that the commission of examination has fixed the damage at more than £1200." This appears to refer to the glass erections, as the writer states that the total loss is estimated at £40,000, of which Montreuil is credited with at least £10,000. In commenting on the above the editor of the *Moniteur* bitterly laments the apathy of the French National Horticultural Society, which, he observes, has now a rare opportunity of making itself worthy of its name. Up to the present it seems to have done but little. Committees of inquiry have, it is true, been formed, but these have not been governed by any central authority, so that up to the present nothing substantial has resulted from their labours. It will, indeed, be sad if a number of worthy hard-working men should be ruined by a visitation which no foresight could guard against, and it is to be hoped that the influential members of the National Society will bestir themselves in the endeavour to lighten the distress which must result from this most fearful of scourges to which gardeners are liable. Glasshouses smashed in, the crops of the year annihilated, and the noble, beautifully-trained trees, the pride of French gardeners, mortally wounded, their death being but a question of time, and this extending over an area of many square miles, form one of the most desolating pictures imaginable.

Preserving fruit.—The *Illustrirte Garten Zeitung* states that the best way to keep fruits, such as Apples and Pears, is to place them between two layers of wadding in a tin box, soldering on the lid so as to hermetically close the box. This is put in a cool place, where no abrupt changes of temperature can occur. Even quite ripe fruit, it is asserted, can be kept thus in excellent condition for several weeks. Grapes may be preserved in the same way. In the case of choice Pears, the natural season of which does not last so long as is desirable, this plan of extending it might sometimes be found valuable.

Cantaloup Melons.—These are scarcely known in this country, and it is doubtful if they will ever find much favour with English growers. The Cantaloups mostly grow big, and some of the plants, even under the most favourable conditions of soil and climate, cannot be relied on to ripen off more than one or two fruits. In this country such large Melons could scarcely be utilised, but where the fruits are so universally consumed they are valuable. With fruiterers in France the Cantaloup holds the place of honour. During the summer season there is always a large one in cut which the thirsty workmen buy at a halfpenny a slice. Although we may scarcely hope to grow Cantaloup Melons profitably in this country, I see no reason why we should not eat them. We import largely the fruits we can produce ourselves, but we know next to nothing of one that we could obtain at a cheap rate, and which would doubtless become popular when well known. There is, of course, a difficulty in inducing people to eat what they know nothing about; but when one thinks of the way in which the Tomato has leaped into popularity, one may be allowed to speculate on the probability of any known fruit becoming a staple market commodity. The only Cantaloup Melon that would be likely to find favour with our growers is that called the Early-frame Prescott (Prescott petit hâtif à chassis). It is a small-fruited kind, but has scarcely enough flavour to satisfy the somewhat hypercritical taste of the regular Melon-eater, familiar with the delicate aroma of our best kinds. Its strong points as compared with these latter are robustness and hardiness, which naturally give facility of culture. There is, however, another variety in high repute with French growers called Noir des Carmes. It is larger than the preceding and of much better flavour. If any readers of The Garden have a sunny house empty in summer, they might use it worse than in giving these Cantaloups a trial. I have often wondered what sort of a race of Melons we should get by the intercrossing of these two with such kinds as Golden Perfection and Victory of Bath. Possibly a new departure of considerable commercial value. The two kinds above mentioned are those most favoured for culture under glass, especially for forcing, but the bulk of the Cantaloups is furnished by the Prescott de Paris and the Prescott argenté (silvery Prescott), which run up to a weight of eight pounds, the latter being rather the larger. Only one fruit is left on a plant. The Paris market growers cultivate these on a large scale, the markets of that town being supplied with them up to November. Melon culture is certainly a great industry in France; even more than that of the Grape. I look on the Melon as the national fruit there. Grapes are not grown everywhere, but Melons are. Through the length and breadth of France the Melon is the recipient of loving care; it is scarcely regarded as a fruit pure and simple; it is an article of food, and in a sunburnt region gives refreshment, health, and strength to millions of thirsty toilers. Two things strike an Englishman with surprise in France—the enormous amount of Melons consumed in towns and the way in which they are eaten. It certainly jars with our preconceived notions of the proper way of eating this sweet, juicy, aromatic fruit to see a Frenchman scatter salt and pepper on it with an unsparing hand, and yet seventy per cent. of the working men eat it thus. Perhaps it is necessary to use these condiments where the Melon comes into the daily dietary A friend once told me that I should never know the true flavour of the Melon unless I ate it in that way; it is "so much more wholesome," he said, "than eating it alone."

Hardy Apricots.—It is stated in the *Obstgarten* that M. Scharren, director of the Tiflis Botanic Gardens, has an Apricot of exceptional vigour and hardiness. It is considered as certain that this Apricot will live in the far north where Apricot life is now impossible. The ripening of the fruit is guaranteed, it is said, by the precocious nature of the tree. It is to be hoped that the Flor Ziran, as it has been named, will respond to the bright anticipations formed concerning it. We sadly need a climate-proof Apricot in this country, and if Flor Ziran is clothed in such armour, the sooner it finds its way here the better. The Apricot is the neglected fruit of English gardens. The hybridiser takes no heed of it, and, judging from what one sees, the small amateur has almost forgotten its existence. Truth compels the admission that the Apricot is a sad deceiver. It grows for a time with quite an astonishing vigour, and has such a happy look about it, that the heart of the possessor throbs with joy at the prospective sight of bountiful crops of luscious fruits. Then, without warning, comes the collapse; the fairest portions of the tree die away, leaving a mutilated wreck, which can be nothing but an eyesore and a reminder of misspent time. If we could but get a variety in which this element of uncertainty does not exist, the regeneration of our Apricot plantations would be certain. Every kind having a reputation for hardiness should be tried; and I therefore advise those engaged in the raising and cultivation of this fruit to endeavour to procure the Flor Ziran for trial. It might supply a long-felt want.

J. Cornhill.

CLEMATIS MONTANA.

As a wreathing or garlanding climber for early summer bloom nothing can approach this lovely Clematis. Its beauty is best seen when trained loosely and freely; nailed tightly and flat against a wall, the many graceful forms it is willing to fall into are lost. In the case of the annexed engraving it was guided first round the taller window; a long trailing shoot falling to the left, and partly caught by a Sweet Brier, gave the idea of training it across the lower window, which is now, and will be for many years to come, adorned with its wreath of living beauty in May and early June.

Lathyrus Drummondi.—"J. C. B." (p. 274), who complains of the difficulty of raising this plant from seed, will doubtless be interested in learning that, if not absolutely identical with L. rotundifolius, it is scarcely distinguishable from it. He will find this quoted in every seedman's catalogue, and will experience no more difficulty in raising it than with the common Everlastiog Pea, though it takes a somewhat longer time to obtain a good flowering plant than with that species. If there are any real points of difference between the plants bearing these names, I shall be glad to know what they are.—East Anglian.

Thunbergia laurifolia.—We learn that this plant has become naturalised in many parts of Tropical India, and that in many old gardens about Calcutta, Ceylon, &c., it may be seen festooning the largest trees, and in some cases completely smothering them with its long twine-like shoots and large clusters of blue flowers. In the Ceylon Botanic Garden it is used for tree-clothing in the same way as we employ Ivy and Clematis. It is obvious from this that to attain its full glory this Thunbergia must be allowed plenty of space. The illustration in The Garden last week of a small pot specimen of this plant was taken from a newly-rooted portion of a branch which had been cut from a large specimen. It is possible to obtain small well-flowered specimens of many large growing plants in the same way, but the pieces must be struck annually.—W.

Tropæolum speciosum.—I saw this the other day flowering in profusion at Reading. It was planted at the foot of a north wall, and evidently delights in a shady, but yet light, position. When growth commences, the young shoots are easily damaged by strong winds, being at that stage very slender; therefore, to obviate this, some slates about 6 inches high or more should be placed on edge, so as to shield them from harm. The roots require copious supplies of water, and free syringing should be given overhead to keep down red spider, to which this plant is liable.—E. Molyneux.

QUESTIONS.

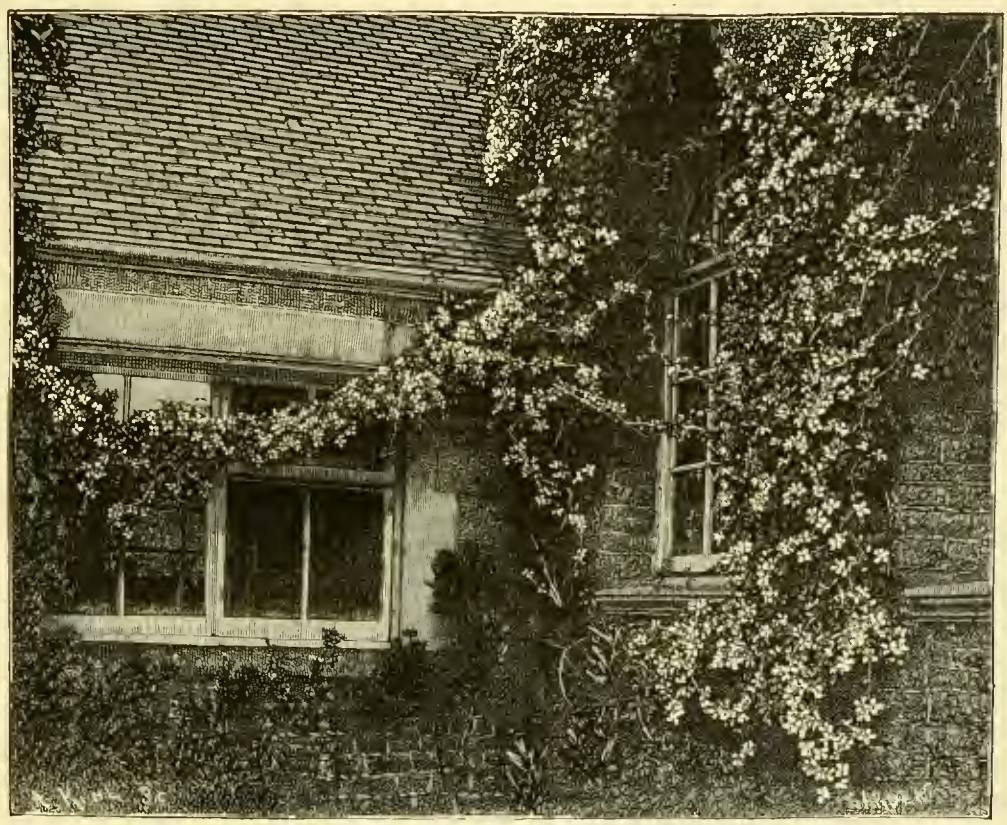
5519.—**Victoria Nectarine.**—Have any of the readers of The Garden been successful in ripening this Nectarine out of doors? I have a fine, healthy young tree of it on a south wall which has borne fruit for the last three years, but it has failed to ripen any properly. It has done well with me in a late house.—E. B. L.

5520.—**Ceylon creeper.**—A friend of mine describes a very beautiful creeper that grows in Ceylon on the hills, in the same temperature as that in which the Passion Flower grows. The native name is Tangapoo. It is said to be a very free-blooming climber, producing clusters of deep yellow, almost orange-coloured, bells. Can any of your readers tell me the name of it and if I can get it in this country?—E. R.

Indoor Garden.

WINTER FLOWERING PLANTS.

Calanthes.—These are simply invaluable for winter decoration, and ought to be grown in quantity in gardens where there is a great demand for flowers. In nearly every plant stove there are one or more shelves not far from the glass, and these, if shade is afforded during the hottest part of the day, exactly meet the requirements of Calanthes. Many recommend that loam be added to the compost in which they are grown; but if this is of a heavy character, it is altogether unsuitable for them, and as a rule they will thrive better in a mixture of turfy peat, horse-droppings, chopped Sphagnum, broken crocks and charcoal. Into this the roots ramble freely, and then, with the assistance of plenty of water and occasional supplies of weak liquid manure, strong bulbs will be matured, those of the Veitchi type being capable of producing fine spikes of bloom 3 feet or 4 feet in length. The bulk of our C. Veitchi bulbs are now between 6 inches and 12 inches long, and those of the C. vestita type are proportionally strong. I mention these facts in order that those who may have failed with Calanthes may form some idea as to why that happened and be enabled to obviate such a mishap next season. I have known instances in which the plants have received the best treatment imaginable during the growing period, and yet have failed to bloom satisfactorily owing to the cultivators of them being under the impression that some sort of rest is needed prior to flowering time. Directly the flower-spikes appear, *i.e.*, sometime in September, the whole of the plants are transferred to a cool house and kept dry for about six weeks, this being just long enough to completely cripple them. At no time should they be placed in a cool house, not even after flowering, for the purpose of resting them. Our plants are kept on the shelves in mixed plant stoves till the spikes are partially developed and the first blooms commence to expand, and receive water whenever they are at all dry. The atmosphere of these houses being, however, rather close and moist, causing the blooms to become spotted, the whole of our Calanthes are transferred to a larger span-roofed structure, where there is a better circulation of air, and this just suits them. This house is principally devoted to Ferns (Maidenhairs chiefly), among which they are mixed, and the temperature is maintained at from about 55° to 60° at night, and 10° higher in the daytime. After the foliage is cleared from the bulbs much less water is given to the roots, but it is not altogether withheld till the flowering is nearly over, unless it happens that some of the plants are required for house or cool conservatory decoration for a time when no water is given. Some admirers of Calanthes regret that they lose their foliage before the flower-spikes are fully developed, but I am disposed to think this a point in their favour, as the foliage is very stiff, and if it remained green, the plants could not be so effectively grouped as they now can be among Ferns or other decorative plants, as it does not matter where the pots are so long as the arching spikes of bloom are displayed to the best advantage. Calanthes, as has just been pointed out, are not suitable for greenhouse or cool conservatory decoration, except for a short time; a long stay in such places injures the bulbs, and, besides, the bloom does not last so long as it does in a warmer house. For ball-rooms and large front halls they are unrivalled, and with us they are available in quantity from November till the end of February, this long succession being maintained by means of two batches each, consisting of rather more than a hundred strong bulbs, one being nearly a month in advance of the other. We have when required formed four groups of Ferns and Calanthes in an entrance-hall, the outer fringe to C. vestita being of Maiden-hairs facing outwards, so as to hide the pots, while Davallia Mooreana and Adiantum tenerum, with spikes of C. Veitchi thickly studded through them, made a singularly attractive arrangement. Our bulbs are, for the most part, in 6-inch pots, but we have some in 4½-inch pots, and these, producing as they do much shorter spikes, are the best for mixing with Maiden-hair Ferns and Lycopods on mantel-pieces, in fireplaces, and small stands. Single flowers mounted are of service for bouquets and button-holes, and compact spikes with fronds of Maiden-hair Fern are frequently worn by ladies.



The Mountain Clematis (C. montana) in Surrey. Engraved from a photograph for The Garden.

Arum Lilies.—The demand for these appears to be increasing. Where cultivated in good earnest they are usually planted out soon after they have ceased to produce flowers, sometimes in well prepared trenches where they can be given abundance of water in hot weather, and often on ordinarily dry, well-manured land. On our heavy ground the latter method is adopted, and they invariably grow strongly without any aid from the watering-pot. Although we frequently hear cases of Arums surviving the winter in the open air, they are by no means hardy; indeed, an early autumn frost will seriously cripple the foliage, and when this happens little or no bloom will be available at Christmas. The whole of ours were potted up early in September, and after a week's time under canvas shading they were transferred to the central staging of a large span-roofed greenhouse, where they do not appear any the worse for the rough treatment to which they have been subjected. Unless they receive plenty of room and light, Arums soon become drawn and weakly, as well as badly infested with green fly. We always endeavour to keep them well together, even when in full bloom, in the conservatory, as when crowded with other plants they soon get spoiled. Moreover, they are more effective for house decoration in groups than in the shape of single plants. Arum Lilies will bear a moderate amount of forcing, but forced plants are not continuous flowerers; they are much more profitable in a warm greenhouse where they receive air whenever the weather outside is favourable. They require abundance of water and liquid manure very frequently, treatment which maintains them in a healthy flowering state from Christmas until Whitsuntide. They are very liable to attacks from green fly, and gentle fumigations with tobacco paper are the best remedy for this. Arum Lilies are very much used for church decoration, the bulk of the flowers sold being for that purpose, but the smaller blooms are very effective in crosses and even in wreaths, and very durable they prove to be when used in that way.

Bouvardias.—Under good culture these flower continuously for several months at a time, and that during the worst part of the year. Some fail with them because they imagine that they require greenhouse treatment; others err in believing them to be stove plants; whereas they are neither one nor the other, but really require an intermediate temperature. In a greenhouse they may flower very well for a time, but not long, simply because the heat is not strong enough for them; while, if treated similarly to the majority of stove plants, the blooms will be found to be flimsy and poor in colour, and the subsequent growth either too soft or too weakly to be floriferous. Supposing the plants to have been planted out during the summer in cold pits and recently potted up, after being shaded for a few days till recovered somewhat from the check sustained by that operation, they ought to be placed on stages, beds, or shelves not far from the glass, and receive plenty of air whenever it can be given without lowering the temperature below 55°, closing early and maintaining the night temperature not below 50° nor much above 55°. This genial, yet not at all forcing, heat serves to develop the blooms strongly

and of good colour, and the old wood, being well matured, continues to push out young flowering shoots, which, if not so fine and plentiful as at first are nevertheless very serviceable. Bouvardias require to be carefully watered, and liquid manure may be occasionally given, but only to such as are thoroughly well rooted. Plants kept constantly in pots are rarely so strong as those that have been planted out for a time, and they require more assistance in the shape of liquid manure. Those bought in from nurseries usually occupy comparatively small pots, and consequently often need a shift. If the loam used for this purpose is light and fibrous, it may be employed at the rate of two parts to one of leaf soil and a little well-prepared rotten manure, plenty of silver sand being added. Where the loam available is of a clayey nature it is advisable to use less of it and to substitute one part of good fibrous peat. Our largest supply of cut blooms will this season be obtained from strong plants growing in a light, well heated pit. They are planted out in good light soil, and with very little attention bloom strongly and continuously. The principal enemies to Bouvardias are mealy bug and red spider. The former if at all plentiful is not easily got rid of. Two ounces or a wine-glassful of paraffin to a gallon of soft water at a temperature of 110° or even hotter, and kept well stirred, will, if syringed forcibly on to the infested parts, prove fatal to the bugs, and subsequently the few that survive should be searched for and destroyed. When the leaves curl badly, red spiders will be found to be at work. These little pests are very minute, requiring a lens to detect them, and this accounts for the mysterious disease that many find to so completely disfigure and check the growth of their Bouvardias. Once established on a plant, no amount of syringing appears to affect them, but a sprinkling of flowers of sulphur soon destroys them. We have several plants on which the lower leaves of the shoots are curled and sickly-looking, while those formed since the sulphur was applied are broad, clean, and healthy. A handful of the sulphur is worked through a muslin bag into a gallon can of water, with which it mixes sufficiently well to admit of being distributed with a syringe. The sulphur which is not syringed off again on sunny days smells strongly, thus further discommoding the spider. We find Vreelandi, single white, the most useful sort, and Alfred Neuner is a good double companion to it. Dazzler is the brightest single scarlet variety, and with us will gradually replace Hogarth, though the latter is also good in colour and free. Maiden's Blush, blush-rose, is very free and good, and is worthy of culture where variety is liked, though, as far as we are concerned, red and white are the only colours cared for, and this is the reason why we grow but few of President Garfield, double pink. Humboldti corymbiflora and jasminiflora are both very beautiful white varieties, but with us they are scarcely so continuous flowerers as those just named.

Double Chinese Primulas. — These are of great value to all who have to maintain a regular, and perhaps heavy, supply of white cut flowers. According to my experience, the old Double White is still the most useful. Others there are which produce large blooms, but not in such profusion, nor are they so easily increased. Many err in treating double varieties similarly to single-flowered sorts. The semi-doubles from seed thrive well in cold frames during summer, and flower strongly on greenhouse shelves; but this seldom suits plants raised from cuttings or divisions of the old Double White, and unless a little heat is given the latter, they are liable to damp off badly. They will also fail if potted high so as to expose the bare stems; whereas if sunk into the soil up to the lowest healthy leaves, the stems emit roots, and thereby become a source of strength instead of danger. They are best kept on shelves in a gentle heat, where, if carefully watered, the more the blooms are cut the more the plants spread and bloom. Mixing them with other plants on stages and beds in stoves or even in an intermediate house is only to court failure; they must have light and air. If they must be kept in a greenhouse, a little fire-heat should still be given, if possible, and this, if the house is properly ventilated, will prove beneficial to all the other occupants of the house. Plants of white Primulas, strongly rooted, will be greatly assisted by occasional or bi-weekly supplies of liquid manure. Coloured semi-double varieties succeed best in a well-ventilated and heated greenhouse, as, when grown in a rather warm house, the flowers are of a sickly hue. Old plants of semi-double whites bloom very abundantly and continuously in heat, and are very serviceable. The pyramidal or "run-out" trusses of double white Primulas are particularly effective in vases. We have frequently used nothing but these, white Begonias, white Bouvardias, and Maiden-hair Fern fronds in silver stands on dinner tables, an arrangement that invariably gives satisfaction, especially when contrasted with other stands or miniature banks, as the case may be, of semi-double red Primulas, red Begonias, Bouvardias, and Ferns. Indiscriminate mixtures are much too common both in the case of plants and cut flowers. W. I. M.

Vallota purpurea eximia and V. p. magnifica.—Allow me to take exception to your assertion in The Garden (p. 260) that the above named forms of the so-called Scarborough Lily are identical, as they are quite distinct the one from the other. That sent you by Mr. Hartland under the first cited name is a much lighter shade of red than the variety known as magnifica, and has also a clear white throat, which the other has not. I have bloomed both of them well this summer, and consider the one you figured to be merely a fine form of the type, V. purpurea, with rounder and less pointed petals and larger and more cupped flowers, but inferior in beauty to V. eximia. —W. E. Gumbleton.

Tree Carnations in winter.—In the course of last winter a statement was made by a writer in one of your contemporaries to the effect that Tree or Perpetual Carnations do not bloom so well under glass in winter as is generally supposed. Yet it is a fact that plants of Tree Carnations in a greenhouse, with the assistance of just enough fire-heat to keep out frost, will bloom all the winter, even through the dullest portion of the year. But supposing there might be room for the objection as applied to propagated plants, it cannot possibly apply to seedlings. When at Slough, a few days ago, I saw three truly marvellous beds of seedling Tree Carnations, each bed containing about 700 plants. These plants had been raised from seeds, sown in January in a warm greenhouse, and they were planted out in the open ground in March. A good many of them are already in flower, and nearly every plant had produced buds. It is Mr. Turner's intention to take advantage of two or three fine days to pot up these plants in pots just large enough to hold the balls of earth lifted from the open ground, filling up with a suitable soil and potting firmly. Then they will go into a cold house, where a little fire-heat can be applied to keep out frost, and, if necessary, to ward off damp. Doubtless the bulk of these plants thus treated will flower freely during the autumn and winter, and their value for cutting purposes will be great. Near these was another bed of seedlings raised from seeds sown in March; they were getting well forward, but not so forward as those sown earlier, but they also will be potted up, and there is reason to believe they will flower in spring. If anyone, therefore, wishes to possess a batch of winter-flowering Carnations, let him obtain some good seed; sow in January in heat and plant out in good soil in March, lifting the plants in September to bloom in October and throughout the autumn and winter. To do them justice they should have a house to themselves and be treated as above described. But a little heat is indispensable in order to have blooms throughout the dullest weather of the season.—R. D.

Begonias from seed. — Begonias are well grown at Beddington House, Croydon, where many of the flowers measure 5 inches in diameter; their petals are round and fleshy in texture. They attain their largest size the second year, but after that time they become smaller; therefore, if very large flowers are desired, the plants should be raised from seeds.—W. H. G.

Winter-flowering Pelargoniums. — These highly useful plants ought now to be in their winter quarters. Those who have a light span-roofed house that is kept at from 50° to 55° in winter may have plenty of bright trusses of bloom during the dark days, when they are far more appreciated than in summer. Many, however, have to make shift with a few shelves in any warm structure, as houses cannot always be devoted to one variety of plant; and if the Pelargoniums have been carefully treated, they will flower very freely for a long time, provided the requisite temperature is maintained. They must not, however, be hurried too much at first, as the temperature of any glass house is high enough for some time yet. Ventilate freely on all favourable occasions; keep a dry, sweet atmosphere, and do not overwater, and such kinds as Vesuvius, Henri Jacoby, and Wonderful will form a mass of beautiful trusses of bloom quite equal to those of midsummer, and they will last in perfection much longer than at that season. Husband the strength of plants intended for mid-winter display by picking the blooms off until wanted. Summer-flowering kinds are now on the wane; but autumnal flowers may be obtained from open-air gardens, in which they are still abundant.—J. Groom.

NOTES.

White Chrysanthemums.—Herodotus tells us that now and then pure white oxen were born among the ancient herds of Egypt, and that these were held sacred for sacrifice. To this end it was essential that not a coloured hair could be found on their hides! This seems an impossibility, and yet as a fact he assures us that such perfect examples now and then appeared. It is so with Chrysanthemums. Look at all the white varieties ever obtained before Mr. Dowuton was so fortunate as to rear the snow-white Elaine! Many were considered white and beautiful before its birth, but of all the varieties of Chrysanthemums known to-day—and there are many—Elaine is, so far, the best and most useful of all the Japanese kinds. So, also, when we come to the now popular early or summer-blooming race we have nothing equal to Madame Desgrange, which has indeed very many of the good qualities which distinguish its fairer and taller sister Elaine. These two varieties are irreproachable in their way, nor would we willingly cease to remember Fair Maid of Guernsey, Mons. Astorg, Lady Selborne, and a score of other good late white-blossomed kinds, and yet there is still room for good seedling white Chrysanthemums of all sorts, shapes, and sizes. I believe Mr. John Thorp and Dr. Walcot, of New York, have some wonderful single or Daisy-flowered white kinds in store for us; but it will be a most exquisite blossom, and a fine-habited plant to boot, that will surpass either Elaine or Madame Desgrange. It might be worth while to offer a special prize for the best new white Chrysanthemum of 1886-7, and I hope it may be done.

Verdure only.—Of two remarkable women, both born gardeners, as their printed works abundantly testify, one scarcely knows which to most admire, whether Georges Sand or our own George Eliot. Ivan Tourguenieff has just published a letter he received from a French lady who was an intimate friend of Georges Sand and who was with her when she died. Her last words were, "Laissez verdure," that is, "place no stones over me, but let grass and flowers alone grow there." It would not be easy to find a more telling protest against the modern practice of making our cemeteries unbeautiful, and winged words like these can never die; on the contrary, they, like good seed, will bud, and leaf, and blossom again and again in the hearts of all who

love Nature, and whose sympathies are awake to the beautiful things ever with us. Do you know Alphonse Karr's story of the "Two Carpets," in his delightful "Tour Round my Garden?" If not, read it at once (chapter iii., p. 11). Speaking of his lawn, he says, "Now here is a carpet that I like, always fresh, always handsome, always rich. It cost me sixty pounds of grass seeds at twopence-halfpenny the pound—that is to say, twelve shillings, and it is about the same age as that carpet in my studio which cost me twelve pounds ten shillings. This last is becoming poorer and more faded every day, threadbare, disgraceful, and patched, while the one in the garden is every year more green and thick-tufted, every season more beautiful." What testimony is here for Grass or verdure only! "Ah!" said a rich Australian to me the other day as we stood on an English lawn, "if I paved my ground with sovereigns on edge I could not get Grass like this to grow in my garden." The fact is one must go to the south of Europe, or to the Tropics, to find out how rich, and green, and satisfying in its beauty is a well kept English lawn.

Androsace lanuginosa.—Tufts of silvery leaves, seemingly strung on pink thread, hang gracefully over the rockery boulders, each tuft bearing one or more cluster of delicate Primula-like flowers. Even if it never flowered, we could ill spare its little cascade-like masses of burnished leafage. One can well imagine the delight of old Dr. Mackay when he first saw seedlings of this plant blooming in the College Gardens at Dublin in 1844. Seeds had been sent to him from India, and he was the first to see flowering plants of it in Europe. An original portrait of Mackay hangs before me as I write, showing a fine, strong, thoughful face above the high-necked coat collar of half a century or more ago. He was a genial, kindly, studious man, author of "Flora Hibernica," and his name will live long in connection with Mackaya bella of Wm. Harvey, and Zygopetalum Mackayi of the late Sir W. J. Hooker, even if there was any doubt of his being ever forgotten as the man who formed the College Garden, Dublin, now nigh on a century ago, and lived long as its first curator. But the Androsace which he had the honour of being the first to flower still lives on, luxuriant in its original European home, and recalls many pleasant memories of a kind and gifted man. The plant is quite easily increased from slips, inserted now in sand under a cap or bell-glass, and such slips, planted out in May next, will go on blooming all the summer and autumn. It has quite recently (p. 100) been figured in The Garden, but although the plate shows a profusion of leaves and blossoms, the elegant habit of the plant has for once evaded the pencil of the artist.

Outdoor Grape Vines.—The immortal Mr. Samuel Pepys writing in his diary under date July 22, 1661, says: "I came to Hatfield before 12 o'clock and walked all alone to the vineyard, which is now a very beautiful place again, and coming back I met with Mr. Looker, my lord's gardener (a friend of Mr. Eglin's), who showed me the house, the chapel with brave pictures, and above all the gardens, such as I never saw in all my life, nor so good flowers, nor so great Gooseberries, as big as nutmegs. To horse again, and with much ado got to London." Not a word of Grapes, but July would, of course, be too early for them, and the "great Gooseberries" had to do duty for them, as it appears. The above extract, however, reminds me that I have repeatedly seen good crops of outdoor Grapes in the south and midlands of England, and even allowing that the wine formerly made from the produce of English grown Grapes was poor and thin, yet it had the advantage of being pure and undefiled. There is now an alcohol industry developing in Jamaica, the product of sweet Potatoes; this, we are told, is shipped to Spain for the avowed purpose of fortifying the poorer Spanish wines! Even if Vine culture out of doors fails us we can at least grow the "great Gooseberries," and make excellent and wholesome wine of them. Why is the Grape supposed to be the only wine-yielding fruit? Apples, Pears, but more especially the Plums, now going to waste in Kent, and the Gooseberries and Currants, which seldom fail us of a crop, would make better wines than the bulk of that imported from the Continent year after year. But it is, perhaps, too much to expect us to grow wine-yielding fruits, seeing that our fruit crops are often wasted for want of fruit-preserving or marmalade-making industries on the spot, *i.e.*, wherever large quantities of fruit are annually grown.

Change of place.—Someone has said that "a change of seed means a change of soil," and the veriest beginner in gardening soon discovers that many, even if not most, cultivated plants are benefited by a change of locality. Of course, the reverse of this is sometimes true, but this fact need not prevent us from giving plants which do not succeed with us a fresh position, and, as far as is possible, a change of soil now and then. Many greenhouse plants grow far stronger and better out of doors during summer than they will do under a glass roof. So, also, we often find hothouse plants improved by a change of quarters, which in reality also means a change of temperature and of light, unless the aspect of both houses is precisely the same. Of course, very often a change from one hothouse to another is accompanied by an entire change of cultural treatment, but even if the treatment be precisely the same in both cases, the results gained in the one house will be different from that obtained in the other, and especially is this so if the angle of the roof happens to be different. I know of a case in which Eucharises grown luxuriantly in a damp, half-shady corner of a plant stove, absolutely refuse to flower there; but if these plants are transferred to a light, sunny house for a few weeks, heat and moisture remaining the same, they soon throw up flower-spikes when returned to their old shady quarters, and the same is true of many other things.

Lilium auratum.—The Gold Star, or Gold-rayed Lily of Japan, is really a noble flower, a sort of professional beauty, one may say amongst garden blossoms, and as capricious and hard to please as a *prima donna* of the highest type. I read in the papers the other day of a specimen of this Lily bearing over three hundred flowers, the plant being the produce of a single bulb planted nineteen years ago. I did not think it was so long ago since Mr. John Gould Veitch introduced the plant, but time flies on silver wings, and never so quickly as in a garden. I can remember gazing with wonderment long before I saw the flower itself on an original drawing of this fine Lily by the late Mr. Andrews, who thirty years ago was the great portrait painter—the Sir Joshua Reynolds, let us say—of florists' flowers. Who can tell us how to grow Lilium auratum? No garden flower is quite safe and perfectly at ease in our gardens unless we can rear it from home-saved seeds, and this is especially true of this noble Lily. Of course, if we could make sure of getting up a stock of home-grown bulbs from the old bulb scales, the results might be better than now. As it is, in nine gardens out of ten Lilium auratum culture resolves itself into planting imported bulbs every season or so to replace those which die away after the second or third year. I wish those who can get up a healthy stock of home-grown bulbs from seeds or bulb scales would tell us of their soil and climate, in a word, how it is done. I hear the Bagshot sandy peat and cow manure suit it, also of its doing well at Ormskirk, but more information is needed in order to ensure its permanent beauty in our gardens generally.

Dendrobium formosum.—Colonel Benson, who introduced so many fine Orchids from India, told us long ago of the Lily-like beauty of this plant as seen at home in Moulmein. The collection of its ivory-white sprays is quite an industry during its natural-blooming season, when the flowers are gathered by the natives of the villages and brought by them into the towns by the basketful for sale. It is the old, old story, for the Eastern beauty, with an olive skin, must have these fragrant blossoms for her blue-black tresses just as must her fairer sister of the west. Well grown, it is certainly one of the finest of all known Orchids, and I remember an engraving of a specimen plant which was exhibited at one of the London flower shows in 1851 (*vide* Gard. Mag. of Botany, vol. iii., p. 239) which bore over one hundred of its great white blossoms. It was in a comparatively small wooden basket, and came from Mr. S. Rucker's collection. My own experience is, that this species and all its variations grow best on a bare block of wood or cork, hung up near the glass in the full sunshine, and when growing freely their roots should get water from a syringe three or four times a day. Thus treated, they grow and bloom freely year after year. Fine strong imported pieces of this plant are now readily procurable at a cheap rate, and I strongly advise any who have failed to grow this plant under basket or pot culture to try it once more on a bare bit of wood or cork bark in full sunshine. For cut flowers its single blooms or clusters of two to five are well-nigh perfect, remaining fresh and fair in water for many days.

The Japan Bramble.—In a sheltered sunny corner we planted out a small specimen of Rubus phœnicolasius a couple of years ago. It is now 6 feet high or more, and has fruited very freely, the flavour being something between that of a Blackberry and a Raspberry. It is of most value however, as an ornamental shrub in a sheltered corner, where its bright green leaves can show their silvery lining as blown by the autumnal breeze. One of the finest specimens of this Rubus I ever saw is that in the great temperate greenhouse at Kew, and in all cold, wet localities the plant should be planted out in a cool conservatory and allowed to grow up one of the pillars, so as to show off its fruits and silvery-backed foliage to advantage. Another good plant for a similar position would be the singular and nearly leafless R. australis, which, when planted out in a cool conservatory and allowed to grow up in its own free and prettily entangled way, becomes one of the most distinct of all ornamental greenhouse plants. A specimen of this last-named in a large pot had attained a height of 6 feet, as exhibited last autumn at the Antwerp Floral Exhibition, and it was very much admired. As so grown it reminded one of a well-grown plant of Asparagus plumosus as seen at a little distance, so light and feathery did it appear.

Rosa rugosa.—In the "Rosarum Monographia; or Botanical History of Roses," by the late Prof. Lindley, published half a century ago (1820), at p. 5 there is an etching of this plant by Lindley's own hand. The drawing was made from a Japanese figure, and it is quite evident that Lindley had never seen the plant, since his sketch reminds one of the celebrated statue of Artemus Ward, the peculiar advantage of which was its resembling no one in particular, so that it could be made to stand for nearly

every celebrity in its turn. And yet, Rosa rugosa is now in every garden, with its great rose-purple, crimson-rose, or snow-white blossoms, attar scented, and followed by great orange-red or lacquer coloured fruits, beloved here, I am sorry to say, by the birds; hence their beauty is but short-lived. My opinion is that Rosa rugosa was really in cultivation in Ireland fifty years ago. At any rate, when its re-introduction took place a few years back, it was sent to Ireland as a new thing, and more than one amateur was a little startled to find it a Rose which had grown in his garden since he was a child. Who can tell us the history of this species? The great Apple Rose—Rosa pomifera major of Parkinson, 1629—is another case in point, lost sight of for centuries, and then it turns up by no means unplentiful in the isle of saints! A friend of mine who has had many pleasant rambles in search of old Roses suggests that a good coloured plate of Rose fruits would be effective, and that it might call attention to a peculiar phase of their beauty. Rose fruits are of nearly all sizes, shapes, textures, and colours, so that I hope his suggestion may bear fruit. VERONICA.

Cyperus Papyrus.—Permit me to correct an error in "Veronica's" statement (p. 269) that this plant "exists yet near Syracuse in a wild or naturalised state." The plant which is found growing in considerable abundance in the river Anapus, near Syracuse, is the Papyrus syriacus, a different species. The Cyperus Papyrus, or Papyrus antiquorum, "once so important in the world of letters," and known as the "Paper-reed of the Ancients" and "Paper-reed of the Nile," although formerly extensively cultivated in Egypt, has long been extinct in that country, in remarkable and exact fulfilment of the prophecy in Isaiah (chap. xix., 7), and is now, I believe, confined to the remote upper waters of the Nile. These two plants are well described and illustrated in the fifth volume of THE GARDEN (p. 504).—NARCISSA.

Bees and rosy Sedums.—In "Veronica's" interesting note on the Magnolia grandiflora the following sentence occurs: "Again it is fruity autumn-time, and the bees and the butterflies are happy honey-hunting on the rosy heads of the Sedum." If happy at all, their happiness seems about as short-lived as that of moths, which, fascinated by the glare of lamp or candle, singe their wings. The majority of the bees that go honey-hunting to the rosy Sedum flowers return no more thence. Whether they feed too freely at first or the flowers poison the honey is uncertain. What is known is, that bees and butterflies speedily become rivetted to the flowers, merely expanding a wing or lifting a foot when disturbed, but totally deprived of will or power to leave the rosy heads of the Sedum. At the present moment we have a row of the latter in full beauty, pincushioned over mostly with humble-bees and a few butterflies. These remain night and day on their rosy bed, gradually becoming helpless, until they finally fall off and die, the ground being now strewn with their dead bodies. The wasps and honey-bees, and even white butterflies, seem to have sufficient sense to avoid this rosy field of sweetness and of death. The chief victims are butterflies of the peacock type and medium-sized humble-bees, mostly of one species. Perhaps "Veronica" will be able to say why the honey-hunting that begins so happily on the rosy Sedum heads should produce stupefaction and end in death.—D. T. F.

Anagallis cærulea.—Mr. Peter Inchbald (p. 284) expresses surprise at meeting with A. cærulea and A. arvensis in the same field, but, both being British, their occurrence together is not at all uncommon. In the north of London, between Hornsey and St. Albans, I have frequently met with both in friendly contiguity. I am of opinion that the species just named are distinct, but have been hybridised. The varieties from the shores of the Mediterranean, viz., A. Monelli, Phillipsi, &c., are delicate and will not stand our winters without protection. All the tender sorts now in commerce are varieties from the last mentioned species, with one exception, viz., A. fruticosa, from Morocco, a yellow variety which has somehow or other become orange-red, owing, I presume, to hybridisation while under cultivation by the seed growers in the south of France and Italy.—S. A.

ANCIENT EGYPTIAN PLANTS.

SOME two or three years since I called attention in THE GARDEN to the curious discovery in Egypt of flowers which still retained their shape and colour, though they had been buried with the mummies with which they were found for some 3000 years. Further discoveries have recently been made of flowers, fruits, and seeds in the old Egyptian tombs, which were alluded to by Mr. Carruthers in his opening address to the biological section at the recent meeting of the British Association, when he mentioned some very interesting particulars regarding these ancient flowers. He said, to quote the report given in *Nature*, "The recent exploration of unopened tombs belonging to an early period in the history of the Egyptian people has permitted the examination of the plants in a condition which could not have been anticipated, and happily the examination of these materials has been made by a botanist who is thoroughly acquainted with the existing flora of Egypt, for Dr. Schweinfurth has for a quarter of a century been exploring the plants of the Nile valley. The plant remains were included within the mummy wrappings, and, being thus hermetically sealed, have been preserved with scarcely any change. By placing the plants in warm water, Dr. Schweinfurth has succeeded in preparing a series of specimens gathered 4000 years ago which are as satisfactory for the purposes of science as any collected at the present day. These specimens consequently supply means for the closest examination and comparison with their living representatives. The colours of the flowers are still present, even the most evanescent, such as the violet of the Larkspur and Knapweed and the scarlet of the Poppy; the chlorophyll remains in the leaves and the sugar in the pulp of the raisins. Dr. Schweinfurth has determined no less than fifty-nine specimens, some of which are represented by the fruits employed as offerings to the dead; others by the flowers and leaves made into garlands; and the remainder by branches on which the body was placed, and which were enclosed within the wrappings."

Then follows a list of the fifty-nine plants determined by Dr. Schweinfurth; several different kinds of fruits were found, three of different Palms, varieties of Dates, and two kinds of Figs, all exactly resembling the fruits grown at present in Egypt. The Figs still show the incisions made in them to destroy certain insects which feed on them, just as is done at the present day. Branches of the Sycamore, one of the sacred trees of Egypt, which were used in the bier of a mummy nearly 3000 years old, were moistened and laid out by Dr. Schweinfurth, who said they equalled "the best specimens of this plant in our herbaria," and that they differed in no respect from living Sycamores. Grapes were common, and besides familiar kinds there were others which are now unknown. The leaves exactly agree in form with those in cultivation at the present day, but the under surface is covered with white hairs, which have not been observed on any modern Egyptian Vines. Wheat and barley were frequently found; some of the latter was in a tomb 5400 years old. It is curious that the seeds of various weeds, which at this day are a source of trouble to the Egyptian agriculturists, should be found among the seeds of cultivated plants in the tombs, showing that the fields in the time of Pharaoh were infested with just the same weeds as they are at present.

It is strange, indeed, how these flowers have been preserved for such an immense period of time, even though kept from the air, when one remembers that a flower is typical of what is frail and ephemeral, and that, with all our care, there are not many flowers which we can keep in our rooms for more than a few days after they are gathered; and it is remarkable that they should be exactly the same as those grown at the present time. The explanation of this, I presume, is that the circumstances of growth (climate and soil) have not changed; that the Egyptian is not a commercial nation nor one given to change in any way, so that new plants or methods of cultivation have not been introduced.

Mr. Carruthers further points out that "the cereals are good specimens of those still cultivated. This observation is true also of the cultivated grains which I have examined belonging to pre-historic times. The Wheat found in the purely British portion of the ancient village explored by Gen. Pitt Rivers, is equal to the average of Wheat grown at the present day. It is remarkable that in our own country, with all the appliances of scientific cultivation and intelligent farming, we have not been able to appreciably surpass the grains which were harvested by our rude ancestors of 2000 years ago. G. S. S.

FLOWER GARDEN.

ANEMONE JAPONICA IN MASSES.

THERE is nothing finer at this time of year than large plantations of the white and coloured Japan Anemones. When many hundreds of blooms of these look us in the face on a bright October day they seem to enhance our estimate of floral life. The flowering power of the Japan Anemone dies hard; the frosts and heavy rains of chill October only impair it; it needs murky November to kill it. Even through this month, when not too unkind and precociously wintry, the red and white stars still appear, and, in company with the brilliant Cardinal Lobelia and the common Marigold, they enjoy the faint gleams of the autumn sun. It is when frost has played havoc with the flower garden that the worth of the Japan Anemones is seen. To those who want many flowers for cutting, a large bed of them is a harbour of refuge when the beauty of the September flowers has been suddenly blighted. Cut and come again; the more flowers you cut away the more quickly do the buds swell up to expansion size; the supply is inexhaustible. Thousands of flowers can be cut from a few square rods of ground. Moreover, the flowers are perfection for cutting, although here the question of culture comes in, for if you grow them meagrely you will get small flowers, and, what is worse, they will not come well away from the axil, so that when you cut them you will, in taking off a piece of stem with a mass of embryo buds, destroy the source of plenty. Plants well established, good food, and to spare, with deep culture in light soils, and you will never have occasion to regret the pains bestowed, and will never have to go far for cut blooms at this time of year. I do not know why the red form is so little grown, probably because the presumably superior merits of the white have overclouded it. In their case comparisons are invidious. What one lacks in form is made up in colour. In the coloured forms the pink variety sometimes takes the place of the red. I think it washy and lacking in effectiveness as compared with the latter. The red kind wants good culture even more than the white; in poor arid soil it is a miserable stunted little object with the colour starved out of the flowers. It is food and moisture that give colour. With plenty of both this is a gloriously bright, joyous-looking autumn flower. BYFLEET.

Crocus speciosus.—I am afraid that the bunches of blossom of this beautiful species which Mr. George Paul exhibited at the last meeting of the Royal Horticultural Society scarcely got the attention which they deserved, and yet what, among autumn-flowering plants, can be more charming than this lovely Crocus? I have some bulbs of it round a circular bed in my forecourt garden, and they are now sending up flowers of very large size and beautifully coloured. It is on a north aspect, and rather shady and moist, but the bulbs appear to do well. It is also growing on the verge of another border in a spot fully exposed to the sun and flowering equally well. I therefore conclude that it is an accommodating

subject, and will do well in any spot, provided it has a proper depth of suitable soil. Passers-by wonder what the pretty blue flower is which seems to be so fresh and bright; and well enough they may, for it is rarely to be seen. It follows the Colchicums, which rank amongst the pleasantest of autumn flowers.—R. D.

PLATYSTEMON CALIFORNICUS.

In making selections of annuals some of the very best are often overlooked. The beautiful little Californian Poppywort shown in the engraving, though of high garden value, is very seldom seen, and by no means deserves such neglect. In light, warm soils it is quite hardy, and when autumn sown each plant will cover a space of 2 feet in diameter. The stalks and foliage are of a pleasant glaucous colour, and the flowers a rich cream colour with a large spot of full yellow at the base of each petal. It is not only good out of doors, but of value for cutting, the flowers lasting well in water.

Tree roots in flower borders.—If "H. R. C." carries out his intention of planting a row of Yews at the back of a border only 8 feet wide, he must be resigned to a comparative want of vigour in the greater portion of the occupants thereof. In dry seasons, unless there is an absolute command of water, the growth of hardy flowers is sure to be disappointing if their larder is invaded by the robber roots of gross-feeding trees. Only just lately I was noting, as instructive in this matter, the different appearance of two lots of red and white Japan Anemones, one of which is within the reach of the roots of a large Wellingtonia, the other just out of it. In the one instance, the dry summer notwithstanding, growth is strong and flower production continuous; in the other the plants are making a sorry show, and will soon be out of bloom. Wherever hardy flowers are grown in the vicinity of trees, the roots of the latter ought to be cut every three years. The better you make the border the more will the trees appreciate it, and with the instinct which roots seem to possess they will come straight into it from a considerable distance. I have often remarked that the roots of trees and shrubs fill a piece of ground that has been well stirred and manured much more quickly than when such ground is left in its original state.—J. C. B.

Platystemon californicus; flowers creamy white. Engraved for The Garden from a photograph.

Artichokes as decorative plants.—"Veronica's" note on the value of common Asparagus for ornamental purposes (p. 291) reminds me of the usefulness of the Globe Artichoke and garden Cardoon for mixing with herbaceous plants, or grouping with or contiguous to shrubs. These form a sort of connecting link between Yuccas and Thistles, and are almost a match in ornamental value to the general run of either, or both. The first is hardy in warm situations, and only requires a handful of Fern fronds or other litter in those that are colder. Cardoons are more tender, and are better raised from seeds and planted out annually towards the end of May. Artichokes rapidly form good stools, and grow and bloom with great vigour and profusion. The silvery leaves are among the most beautiful of all foliage plants, and the rich purple flowers are also strikingly beautiful in all stages from budhood to full expansion in rich looking thistledown. The effect against almost any sort of plants is rich, but particularly so contiguous to yellow Dahlias, blue Delphiniums, or Larkspurs, or purple Stocks. Sprays of the Clematis Jackmanni, either behind or before Globe Artichokes, also heighten their own beauty as well as enhance that of the Artichokes. The plants look best with the flower-heads uncut for use when grown in single specimens among other plants in beds or borders. But where masses are growing among or contiguous to shrubs, a supply of heads for culinary consumption may be cut in season without greatly lessening the general effect. Hence, those fond of Globe Artichokes and who have small kitchen gardens may grow their entire stock of these in the herbaceous borders or shrubberies. Without saying that these common plants are of equal merit with Asparagus for ornamental purposes, I commend them to "Veronica" and other readers, though it may be doubtful if even "Veronica" will be able to evolve such a rich combination as he does on p. 291 from Torch Lilies, Asparagus, Windflowers, and Violets.—D. T. F.

TRANSPLANTING CHRISTMAS ROSES.

There are two periods of the year when these may safely be transplanted, viz., spring and early autumn. The best time I consider is from the middle of March till the end of April, but the first week in that month is the time I would preferably choose. Just then growth recommences, the buds are beginning to break away into leaves, and young roots will soon issue from the collar. If care is taken not to allow any of the old roots to become dry, no check is experienced, but the plants break away into new growth quite freely. If in autumn moving is deferred until the heat of the soil has been lowered by late autumn rains the chances are that many of the roots which are by nature fleshy will rot. I know by experience how dangerous it is to transplant Christmas Roses during the late autumn and winter months, and it is probably because they suffer so much at that time that they are commonly reputed to be difficult subjects to remove. Few things recover so tardily from a severe check, and when the planting has been badly done, a year or two will elapse before the plants recover their pristine floriferousness. It is quite as possible to err in commencing the work at too early a date as in delaying overmuch. The soil does not get sufficiently warmed to induce root action before the sun has attained considerable power, and plants removed before March is well advanced are apt to stubbornly resist the coaxing influences of genial spring later on. They will often remain in a semi-inert condition all through the growing time. An instance of this occurred to me this year. I procured a number of young plants in February and was much pleased with their appearance. They had several crowns, and were furnished abundantly with good roots. They were laid in in a warm position in light soil for a month, and were then carefully planted and well cared for later on. Notwithstanding this, they seemed unable to make headway, and some grew less. On examination I found that some had rotted completely away, and not one of them has made really good growth. From our failures we learn much, and this has been emphatically impressed upon me, that we court one by transplanting Christmas Roses before the circulation is active. Never again will I move Christmas Roses whilst winter still leaves its traces with us. Recent examination, however, shows that the germ of future good growth is there. Numbers of little buds are formed on the crowns of the old roots whilst their future activity is assured by young white fibres 1 inch or so long immediately beneath them. Thus I lose through over-haste one season's growth, but I gain experience which I think proper to lay before your readers. With respect to old plants, I believe that no greater mistake can be made than in moving them bodily. The more they are divided the better the chances of success. By splitting them up a greater amount of root surface is presented to the soil, and young fibres issue where inactivity would reign. There are, doubtless, soils in which Christmas Roses will retain their usual vigour for years; but in the generality they seem to need the stimulus which replanting and dividing give. We know that with many herbaceous plants, such as Phloxes, age after a certain time brings with it comparative sterility, and it is so with Christmas Roses; they often come to a standstill. If old stools are cut into pieces, leaving but one crown to them, they will almost equal seedlings in growth. If large clumps are desired, plant a number of crowns together, and a large specimen will at once be formed. Christmas Roses like a little protection from cold winds, those from the east and north ruining the foliage and much retarding the expansion of the blooms. The foliage is, apart from the blooms, ornamental and worth conserving, for it gives variety of form to the garden in winter. Good food in plenty and moisture in abundance when growing, however, give beauty in winter, because they are the agents which build up robustness of tissue. Ill-nourished plants have flimsy leaves, which soon feel those adverse climatic conditions which assail them when at rest. Well-nourished plants remain in undimmed beauty through times of trial which are ruinous to those not so well favoured.

If autumn is selected for moving them, it is hardly safe to be later than the end of September, especially if the crowns are to be divided. There is still at that time a sufficiently quick circulation of sap and warmth enough in the soil to heal wounds and allow the roots to get hold of the soil before winter. In light soils planting can, of course, be done at an earlier date in spring or later in autumn than in those of a cold nature. If the plants are too much cut up, I would certainly prefer spring, as frost and worms are apt to loosen the root-hold of small non-established plants.

J. C. B.

Salvia patens.—We are apt to overlook good old plants whilst eagerly searching for novelties, and it is just possible that dozens, aye hundreds, of new Salvias are getting in front of and hiding the good, useful sorts which have proved themselves to be first-rate garden plants. S. patens is one of these. It has the best of all habits for a bedding plant, viz., a perennial tuberous root-stock, which may be kept under a greenhouse stage all winter as easily as one keeps Dahlias, and is a quick grower; its stems attain a length of 2 feet or 3 feet, and bear large, downy, soft green foliage and long erect spikes of flowers, which open perpetually nearly all summer, are large and attractive in form, and coloured the most lovely blue, almost as deep as that of Violets. Whether planted in beds, in ribbons, or in groups

among border plants, this Salvia never fails to look beautiful, and, so far as our experience goes, it grows freely in almost any garden soil. It has been a bedding plant for fifty years, but so also have been the Verbenas and other once popular, but now more or less neglected, plants. Wherever there is a bit of garden this Salvia should have a place, and it is one of the very best of all blue-flowered plants for use in the largest efforts at ornamental gardening.—B.

SELECT CARNATIONS AND PICOTEES.

No doubt some Carnation growers may like to know the names of the best sorts shown at the various shows this season at South Kensington, Manchester, and Oxford. I, therefore, give a list of the finest I have noted in the stands. *Scarlet bizarres:* Admiral Curzon (Easom), Arthur Medhurst (Dodwell), Edward Adams (Dodwell), Fred (Dodwell), George (Dodwell), Master Stanley (Dodwell), Robert Lord (Dodwell), and Tom Power (Dodwell). *Crimson bizarres:* E. S. Dodwell (Hewitt), Harrison Weir (Dodwell), H. K. Mayor (Dodwell), John Harland (Adams), J. D. Hextall (Simonite), Master Fred (Hewitt), Mrs. Gorton (Dodwell), Rifleman (Wood), and Samuel Barlow (Dodwell). *Pink and purple bizarres:* James Taylor (Gibbons), Mrs. Barlow (Dodwell), Sarah Payne (Ward), Sir Garnet Wolseley (Hewitt), Squire Llewellyn (Dodwell), Thomas Anstiss (Dodwell), Unexpected (Turner), and William Skirving (Gorton). *Purple flakes:* Dr. Foster (Foster), Florence Nightingale (Sealey), George Melville (Dodwell), James Douglas (Simonite), the best of its class; Mayor of Nottingham (Taylor), Sarah Payne (Ward), a sport from the bizarre bearing this name; Sporting Lass (Flowdy), Squire Meynell (Brabbin), and Squire Whitbourn (Dodwell). *Scarlet flakes:* Clipper (Fletcher), Dan Godfrey (Holmes), Figaro (Abercrombie), Henry Cannell (Dodwell), John Ball (Dodwell), Matador (Abercrombie), Robert Morris (Dodwell), Scarlet Keet (Dodwell), and Sportsman (Hedderly). I have not included Annihilator (Jackson), because it is difficult to propagate and sportive in character. *Rose flakes:* James Merryweather (Wood), John Keet (Whitehead), Miss Erskine Wemyss (Dodwell), Mrs. Bridgewater (Bridgewater), Mrs. Tomes (Dodwell), Rob Roy (Gorton), Sybil (Holmes), one of the best, and Tim Bobbin (Gorton).

A selection of Picotees will be as follows—*Red-edged, heavy:* Brunette (Kirtland), Dr. Epps (Smith), Henry (Matthews), J. B. Bryant (Ingram), John Smith (Bower), Mrs. Dodwell (Turner), and Princess of Wales (Fellowes). *Light:* Clara (Bower), Mrs. Gorton (Simonite), Thomas William (Flowdy), and Violet Douglas (Simonite). *Purple-edged, heavy:* Mrs. A. Chancellor (Turner), Muriel (Hewitt), and Zerlina (Lord). *Light:* Alice (Lord), Clara Penson (Willmer), Her Majesty (Addis), Jessie (Turner), and Nymph (Lord). *Rose or scarlet-edged, heavy:* Constance Heron (Fellowes), Edith Dombrain (Turner), Louisa (Addis), Miss Horner (Lord), Mrs. Payne (Fellowes), and Royal Visit (Abercrombie). *Light:* Daisy (Dodwell), Evelyn (Fellowes), Favourite (Liddington), a real beauty, and so reliable; Nellie (Rudd), another lovely flower, dividing with Favourite the honour of being at the head of its class; and Miss Gorton (Dodwell). R. D.

Tritoma Rooperi.—In my note on the Torch Lilies (Tritomas), p. 261, T. Rooperi is by an error described as being T. Hooperi. T. Rooperi is a handsome plant, which with me produces spikes rather more than 6 feet high, terminating with heads of bloom 18 inches long. Although this variety is described in many catalogues as only growing 2½ feet high, I find it to be a strong, robust-growing kind and very distinct. I may mention, perhaps, that T. Burchelli is sometimes sent out under the name of T. Rooperi, although the two are quite distinct, the latter being the earliest to bloom.—W. J. G.

Harpalium rigidum —This fine hardy perennial has been most striking in our herbaceous border for some weeks past, and it will continue in good condition for some time to come. It should be grown by all who cultivate hardy plants. It grows freely and looks best in large clumps. The flowers, which are very useful in a cut state, last a considerable time in water.—E. B. L.

THE GENUS TRITOMA.

One of your correspondents has expressed his desire to see the genus Tritoma revised. I should myself gladly welcome a treatise on this rather obscure subject, and, as a means of obtaining the information necessary for such a revision, I would suggest the following plan: That all who grow Tritomas should send specimens of their plants to the botanist who may be entrusted with the study of the genus; that they shall also subscribe a sufficient sum to defray the expense of printing the work, of which one-half of the copies shall be the honorarium of the botanist, and the other half sold for the benefit of any horticultural work that may be decided upon. Towards this monograph of the genus Tritoma I will subscribe 100 francs (£4), and I will also, of course, contribute specimens of all the species of these plants in my possession. Should the sum of the subscriptions be of any considerable amount, it would be easy to have the work illustrated with coloured plates. In a matter of horticultural interest like this it is of especial importance that no time should be lost. I may here remark that the genus Tritoma has already given birth to a certain number of hybrids, and in a few years it will be very difficult for anyone who may then endeavour to reduce them to order to steer clear of confusion. I have some plants of Tritoma Leichtlini which exhibit very distinct characteristics, the spikes of some specimens commencing to flower at the base, and those of others at the top, while Professor Duchartre has also shown me some spikes which commenced to flower in the middle. The other species here mentioned come into flower in the following order: In May, Tritoma præcox; June, T. Macowani; July, T. Saundersi, T. nobilis; August, T. corallina, T. media; September, T. Uvaria, T. Burchelli, T. Leichtlini, T. carnosa; October, T. formosa; November and December, T. Quartiniana; January and February, T. caulescens, and any other species now in cultivation. I am quite convinced that the elucidation of this genus is not so beset with difficulties that it would not be possible to bring out a work of present utility, and I hope that you will allow this appeal to go forth, through The Garden, to all who would be inclined to favour the project. Incidentally, I wish to mention another genus which is very popular just now—the genus Primula—and I would invite you to direct attention to the "Yunnam" species, amongst which there are some wonderful things, of which I have some dried specimens.—V. F. Lebeuf, *Argenteuil.*

—— I have read "W. J. G.'s" remarks (p. 261) about his apparently very rich collection of Torch Lilies, very handsome plants, of which I am a great admirer, with much interest, but think, from what he says as to the relative height of T. Macowani and T. corallina, that he can hardly have got the latter of these varieties true to name, as I had my plant thereof direct from its raiser, Mons. J. B. A. Deleuil, of Marseilles, as soon as it was sent out, and have always found it to be a much taller, stouter, and more vigorous grower than the slender, pretty, and comparatively dwarf-growing T. Macowani, which is one of its parents. I may add that both these varieties are growing under precisely similar conditions side by side in small beds, cut out of the Grass in front of my house, and facing the south-east. Of the variety T. Rooperi, mentioned by your correspondent, I have never before heard, but should not be surprised if it turned out to be a synonym for some variety that I know under some other name. As to the variety so pompously named T. Uvaria maxima globosa, I think it must be the same plant as I grow under the name of grandis, which is much shorter and, I venture to think, quite as expressive of the characteristics of the variety as the longer name. I should be glad to exchange spikes with your correspondent, and so set this doubt at rest.—W. E. Gumbleton, *Belgrove, Queenstown, Ireland.*

—— Two correspondents, I think, have referred to the want of a monograph of the genus Tritoma; allow me, therefore, to tell them that there is a good monograph of the genus by Mr. Baker in the *Journal of Botany* for September, 1885.—R. J. L.

KITCHEN GARDEN.

SOWING V. REAPING.

I am, not, as a rule, a stickler for dates in the matter of getting in crops, but, nevertheless, I am willing to admit that old gardeners of a past generation had some tangible grounds for their superstition or belief in such matters, and we know that they had red-letter days in their cropping calendar, which if not observed they believed would result in misfortune in some shape or other. This subject has interested me much this season in reference to a crop of Wheat that I have taken notice of from the day it was sown till the day it was reaped. Old-fashioned farmers hereabout say that the nearer to the 11th of October the winter Wheat is got into the ground the better and earlier will be the crop. The 11th of October last year was a good dry day, and on a journey I often go I noticed a farmer sowing a field on that day—the very first sown in the district that I know of. I have passed the field about every month in the year since and I noticed that this crop was the first up, the strongest in the neighbourhood, and that during the whole of last severe winter it looked better than any other crop near on the same kind of land; and finally, that it ripened first, and was reaped and carried first by a week or more, being also a good crop. A field sown considerably later, and only separated by the roadway from the other, was partially green when the earlier sown crop was cut. I attributed the better and evener condition of the crop in winter and spring to the deeper hold the roots had got of the soil, and its earliness to the earlier sowing. This is not, of course, a gardening example, but it is instructive. There are important crops in the garden that require considerable labour to get in, and which it is important to get in in good condition, and there is a shorter limit to the period in which sowing must be begun and finished than some appear to imagine. Much, of course, depends on climate and locality, and everyone must make allowance accordingly; but, after all, the time is not long in which to get in some main crops to do well. It is an advantage for hardy seeds to be in the ground if they do not vegetate, because they are ready to start as soon as favourable weather arrives. Thus, Onions in the north and midlands always do best if got in between the middle of February and middle of March. I have seen fair crops raised from sowings about the 1st of April, but except in favourable seasons that is too late to sow. Onions sown late seldom get large or ripe. In speaking of "hardy" seeds, however, I do not allude to all kinds of vegetable crops, because some seeds are much hardier than others. The hardiest seeds are those of Onions, Leeks, Turnips, Beans, early Peas, all the Kale and Cabbage tribe, Spinach, Parsnips, Celery, Lettuce, Parsley, Cress, and the like. These seeds are all safe enough under a covering of earth so long as they do not germinate, no matter how severe the weather may be; but such subjects as late Peas of the Marrow sort, Carrots, Scarlet Runners, French Beans, Marrows, &c., are not and will rot, nor are the seeds of any half-tender vegetable safe in the soil till the latter is nearly warm enough to promote vegetation soon after sowing.

In the case of early Peas, crops sown in the back end of the year—say in November—are usually in a week before the same sort sown in February at least; but in some seasons there is not much difference between them, and the spring-

sown crop is, as a rule, the most prolific, producing the most straw. Still, the fact that the autumn-sown crop is generally ready first, although there may be little between the spring and autumn crops in appearance in April, shows that, as in the case of the Wheat before mentioned, the autumn-sown crop has the advantage. The Turnip crop is a peculiarly erratic one, and much depends on the date of sowing of main crops. Early crops are very apt to "bolt" right off without bulbing, and the earlier the crop is sown the greater the liability to bolt. Sow the Early White Dutch Turnip every month from January till the end of July, and the tendency to run to seed grows less and less until it disappears altogether; hence, farmers relying upon a knowledge of this fact do not sow till May and June, and sometimes not till July. Why the Turnip is so disposed to seed right away almost from the first rough leaf without bulbing, or almost as soon as small bulbs are formed, and to bulb only later on in the season, is a matter as yet unexplained. Other tuberous-rooted subjects have the same habit, as, for example, Beet, Carrots, and other Crucifers.

The latest, tallest, and best cropping Peas of the wrinkled Marrow section take from sixteen to twenty weeks to produce gatherings in the northern parts of England and Scotland in ordinary seasons; hence the advantage of sowing two main crops sometimes, in April and May, according to the locality. If the season be good, the first crop will be early, and the second sowing will afford gatherings till the frosts set in. Good late Peas are almost always tall in the straw, and, notwithstanding what is said about dwarf sorts, tall Peas, or Peas with plenty of straw, are, as a rule, the most prolific and the longest bearers. If it was not for their earliness, early Peas would not be worth growing. They are scant croppers, small in pod and Pea, and deficient in flavour. Both quality and crop improve as the season advances, and the varieties become more robust.

Celery is a crop which may be lost or won very much according to the time of sowing. I doubt if those who aim at having large heads—prize heads—make the best of it. Large heads can only come from early sown and planted crops, and how many of the heads in a row become useless from bolting, those who grow early or large Celery know. We have seen the apparently fine heads at autumn shows rejected one after the other in judging when laid open by the knife, every head having "run." There is not much good, therefore, in producing very early Celery. It is never so tender as later crops, is really not so much needed, and, besides, by timely and judicious earthing up small heads of later crops can be had in September. Large Celery is no better to eat than small, and in the pantry the large stalks are split into fragments of suitable size for salad. Small Celery, sown late enough to avoid risk and loss from bolting, can be grown proportionately thicker in the trenches and is the best paying crop. Market gardeners in the provinces endeavour to hit the right mean, and seldom have whole ridges of Celery run to seed and waste before a stick can be used—as may often be seen in private gardens. Celery is an expensive crop to grow, and bolted crops repaesent a serious money loss, not to speak of the disappointment.

Spinach is a crop which no gardener dare well be without every day in the year, and it sometimes requires nice calculation to have a succession of crops. Both the common kinds—prickly and smooth-seeders—produce abundantly in spring and autumn, but under the best culture run to seed as soon as up during the summer unless the weather be cool and moist and the soil rich; hence the value of the New Zealand Spinach, not nearly so much grown as it should be, as it never fails to produce abundance of leaves when the common kind fails—that is, from July till frost cuts it off. The common prickly Spinach yields the best crops in winter and spring, but seldom affords abundant gatherings in the north unless sown about the middle of August or a little later. Sown sooner than that, it runs to seed and is useless; sown later, it never gets forward enough in the foliage to afford good pickings during the winter, and never gets into plentiful leaf till late in spring. This is, however, a good and most useful vegetable from September till May, and even June, in late districts, provided a sufficient breadth is sown.

As to the predominating crop of the kitchen garden—the Brassica tribe—their maturity is subject to great fluctuations. Some gardeners say that by sowing at different intervals in spring Broccoli can be had in succession during winter and spring following, but I never found it so. The coming in of the crop depends on the weather between November and May. No matter how early the crop is sown or planted, it will not come on unless the winter be mild. Late and early varieties stand still in cold winters, and, as a rule, only begin to heart freely from February to April. Then the different sorts do come in in succession according to their character; but in fine springs all come on too fast, what should have been the supply during the winter coming in when the very latest are supposed to be in season. It is a good plan to sow Broccoli early in spring, and to plant early, too. There is no fear of the plants heading before winter under any circumstances, and the longer the season of growth the larger and finer the heads. The summer Cauliflower will button prematurely if checked in any way, but hardly any amount of rough usage will cause Broccoli to do so.

S. W.

MUSHROOMS IN SHEDS.

When some notes of mine on this subject were published in The Garden last winter I received several letters which proved that Mushroom-growing in sheds was to many a subject of considerable interest, and as the time has again arrived when beds, to produce a crop during December and January, should be made up, I will, with your permission, offer a few more remarks in reference to this mode of Mushroom-growing. Our Mushroom house has not been used for four or five years; consequently, we save the expense of fuel and of working it, for shed-culture costs us but a mere trifle compared with house cultivation. I have nothing to say against open-air culture in winter, but must own that I have never managed to make it quite a success, owing to the beds suffering so much from damp and from checks to growth sustained through opening the coverings in unfavourable weather. I, therefore, now adhere wholly to shed culture. We have made some dozens of beds up in all sorts of sheds during the last half-dozen winters, and every one of them proved to be a success, the Mushrooms produced by them both in quantity and quality being quite astonishing. The temperature of an ordinary shed suits them better than great heat or a damp atmosphere, such as is generally kept up in a Mushroom house, and the substantial manner in which they develop, and the extraordinarily long time during which they continue to be produced from the same bed, are most gratifying to the cultivator. When we began to desert our Mushroom house—properly so-called—we made up a bed or two under a stage in a slightly heated pit, in order to try what could be done there: but a bed made up in the potting shed at the same time proved so satisfactory, that we carried the practice into other sheds, and found all to do so well, that sheds are now the only places in which we grow Mushrooms. In the potting shed we put as many beds as it will accommodate, and we have had equally productive beds in the tool shed, the wheelbarrow shed, and in the orangery, which is a large, unheated structure. Others in this district, who have seen how well Mushrooms have succeeded in such places, made up beds in empty stalls in cowsheds and stables, and although some of them knew little or nothing about Mushroom-growing, the crops which they obtained astonished them and proved highly remunerative. Such growers as those to whom I am now referring—farmers and others—would never be at the trouble of growing Mushrooms by means of fire-heat, but when they can make up a bed in any odd corner of a shed to-day and find on going to it in four or five weeks' time that it is bearing, and promising to bear, Mushrooms abundantly, no further inducement is needed to make Mushroom-growing in their case both a pleasant and profitable occupation. I cannot say so much for outdoor culture, for if anyone unacquainted with Mushroom culture makes up a bed now and expects to gather its produce in five or six weeks hence, he will most likely be disappointed, and on this account no further attempt will be made to grow Mushrooms.

The present is a most excellent time to begin the shed mode of growing Mushrooms, and I hope that everyone who can obtain a cartload or two of horse droppings and can have access to any odd corner in a stable, cowhouse, or shed of any kind will try their hand at their culture. Gardeners, too, who have still faith in the old hothouse style of growing them might give this plan a trial. Many fine Mushrooms have been produced from cowshed manure, as well as from material in which there were but few horse droppings. The latter are, however, undoubtedly best, and should, if possible, always form the main body of all beds, especially those belonging to beginners. Horse droppings alone do not, however, make a good bed; we prefer the manure which we use for such a purpose to consist of about half short straw from the stable. It must never be used when wet and sticky, but if turned over every day for a week or so in any open shed it will soon become dry enough to enable it to be made up. It is best when just sufficiently moist to ferment slightly in a day or two after being made up. Rough pieces of loam are very serviceable for mixing with the manure, as these, if dry, absorb superfluous moisture, and they also help to keep down any intense heat which may be inclined to arise in the bed. It need not be thought that, because the manure only consists of one cart-load or so, it is not worth putting into a bed, as we have made up many with no more, and we have gathered dish after dish of Mushrooms from a bed not more than 4 feet square. The beds should always be from 1 foot to 15 inches in depth, but the width and length are unimportant. We are, however, greatly in favour of beds about 3 feet in width, as they can be easily covered up, and it is a simple matter reaching over them to gather the Mushrooms. As soon as the manure is sufficiently dry for making up it should be put together. It loses its virtue when allowed to lie and dry day after day after it is ready for being made up, and I am sure there is as much danger of failure through the manure being too dry as when it is too wet. It is almost impossible to make the bed too firm, and in a day or two after it is made up it should be spawned. We invariably make up our bed one day and spawn it the next, and here I come to the most important point of all, which is this, let the spawn, above all things, be good. To begin with spawn of a doubtful character is useless, and the only way of insuring its being good is to get it from a respectable dealer. In my own case I am now using spawn from two firms, and I am absolutely certain that it is good, as the parties from whom I bought it know what good spawn is, and they also possess a reputation which they take good care to maintain. I cannot give a

better guarantee of the spawn being genuine than this, as the cleverest expert would often fail to tell whether it was sound or not simply by looking at it.

In breaking up the bricks for insertion in the beds a hammer may have to be used, in order to get them into bits about the size of a pigeon's egg. These should be dibbled into the surface about 8 inches apart and 3 inches deep, and the small material that falls away in breaking the bricks should be thrown on the surface. The holes should be covered over and the surface trodden down as firmly as it is possible to make it; then a quantity of gritty soil should be put over the surface to the depth of 2 inches. Ordinary garden soil of a light character is very suitable for this purpose, and it should be beaten down firmly with the back of a spade. This completes the making of the bed, and we finish off all our beds by spreading a thin coating of hay over them. This wards off cold winds which may happen to blow through the shed, and if the hay becomes too wet it is taken off and replaced by dry material. In very cold weather this covering is increased sometimes to 1 foot in depth if the frost is severe; Mushrooms will spring up under it as fresh and freely as anyone could possibly desire. J. Muir.

Margam.

MARKET ASPARAGUS IN AMERICA.

The first thing to be done by one who wishes to grow Asparagus for market is to see if he has any soil that is suitable. It should be a light loam and as deep as it is possible to obtain. Asparagus will grow on almost any soil, but I do not think that its cultivation will prove profitable on a heavy clay soil, nor where a stiff clay subsoil comes up within a few inches of the surface. It can be made profitable on very light sand by the use of plenty of manure.

The next thing is to arrange for a supply of plants. These can either be purchased or can be grown from seed. Dry Asparagus seed when sown in the open ground is slow to germinate, and it is difficult to prevent weeds from taking possession of the ground before the Asparagus plants appear. My own plan has been to soak the seed in hot water until swollen and softened before sowing. It should be sown in long rows a foot or more apart, so as to be tended with a hand or horse cultivator. If a few Radish or Cabbage seeds are sown with the Asparagus they will come up at once and show where the rows are, so that the ground can be cultivated before the Asparagus appears. Some growers, after soaking the seed, put it into a coarse bag and bury it deep in the ground until it begins to sprout, and then when sown it comes up immediately.

During the season, while the plants are growing, you should prepare the permanent bed. It is not necessary, as was formerly supposed, to dig out all the earth to the depth of 2 feet or 3 feet, and then fill in the bottom with all manner of trash and fertilising material. The land must be deeply ploughed and thoroughly pulverised. It cannot be made too rich. A successful market gardener in Illinois, writing some years ago upon the raising of Asparagus for market, used the following language: "The profits are just in proportion to the amount of manure used, which should be more than most people think enough." This is strictly true. The kind of manure and its mechanical condition when applied to an old bed are not material. Fresh stable manure may be used, no matter how coarse so long as it can be ploughed under. But in preparing the ground for a new bed well-rotted manure is to be preferred. Asparagus always starts into growth early in the season, and the bed should be ploughed late in autumn, that it may dry and be ready to work as early as possible next spring.

The proper distance between the rows and between the plants in the rows is a matter of dispute. Years ago the rule was 3 feet between the rows, and from 12 inches to 18 inches between the plants. This is universally conceded now to be too close; 2 feet by 3 feet or 4 feet, usually the last, is the closest planting allowed. Many set their plants 4 feet apart each way and cultivate the bed both ways. The growers of the celebrated Oyster Bay Asparagus make their rows 5 feet or 6 feet apart, and set the plants 2 or more feet apart in the rows. In planting, the crowns should be set at least 3 inches under the ground, and in many places 4 inches or 5 inches would be better.

The first season all that is necessary is to keep the bed clear of weeds and the surface mellow. In most parts of the north winter protection is a great benefit. If there is no danger of injury to the plants from severe cold, still a heavy mulch, put on before the ground freezes, will keep all, or nearly all, the frost out of the soil, so that the plants will start much earlier in spring. A thick coating of fresh stable manure is the best possible mulch, and that is also an excellent way to apply manure. The coarsest of the litter should be raked off in spring and the balance ploughed under. This may be supplemented by the application of a few hundred pounds per acre of some good commercial fertiliser, ground bones being one of the best. The question whether salt is needed on an Asparagus bed is by no means settled. While some claim that it is necessary and should be applied every year, others say that Asparagus does not need salt any more than any other vegetable. Without undertaking to decide the question, it is certain that Asparagus is not injured by the application of sufficient salt to destroy almost all other vegetation near it. If not specially useful as a fertiliser, the free use of salt on an Asparagus bed is an advantage; it has a tendency to prevent the growth of weeds, and by attracting moisture from the atmosphere helps to carry the bed safely through a drought. Coarse or refuse salt may be applied every spring, and enough may be used to make the surface of the soil look quite white.

In spring, run a cultivator along the top of each row two or three times, and then harrow in order that the soil over the plants may be loose. Between the rows stir the soil often enough to keep it mellow and clear of weeds until the tops shade the ground. The second year a few heads may be cut, but be very careful not to continue the cutting too long. The third year a few more may be used, but a full crop cannot be expected until the fourth year. It is a good plan each year, when you stop cutting, to apply at that time a liberal dressing of stable manure and fork it in; the object of this is to insure a strong growth of tops and roots during the summer and autumn. In autumn, just before the seeds are ripe enough to drop off easily, mow off the tops and burn them; otherwise the ripe seed falling upon the bed will grow there, and young Asparagus plants are undesirable weeds anywhere, and especially so in an Asparagus bed.

Oyster Bay Asparagus is very popular; it is all white, being cut 8 inches or 10 inches under ground as soon as the top shows itself above the surface. The rows are 5 feet or 6 feet apart, and the crowns are set very deep under ground. Every spring the earth between the rows is ploughed until it is very mellow, and then with ploughs and other tools specially contrived for the purpose they ridge up the earth over the rows until the bed looks very much as if it were intended for planting Sweet Potatoes, except that the ridges are broader and are not sharp, but rounded off rather flat. Though this blanched Asparagus sells for a higher price than green, yet as it costs much more in time and labour to grow and gather it, I doubt if it would generally prove any more profitable than that grown in the ordinary way. Asparagus should always be cut a little below the surface of the ground, if for no other reason than that the sharp stubs left may be out of the way.

The stalks must always be cut before the heads show any signs of breaking; the lengths should range from 6 inches to 10 inches. The size of the bunches must depend upon the market in which it is to be sold; for New York they should be 4 inches or 5 inches in diameter, about 7 inches or 8 inches in length, and should weigh from 3 lbs. to 3½ lbs. To put up such large bunches in good shape requires the use of a regular bunching machine, which costs from 12s. to 16s. In western markets the size varies according to the taste of the growers. For Chicago market a good saleable size is about 3 inches in diameter and from 6 inches to 9 inches in length. Great pains should be taken to have the tops exactly even, and after the bunch is tied up the bottom should be cut off square, so that all the stalks will be of exactly the same length. The bunches should be tied in two places, near the top and near the bottom. The tying material must be broad and soft; common twine will not do, as it cuts into the stalks too much. I have seen it tied with strips of white cotton cloth, having the name of the grower printed upon them, so that every bunch sold advertised his business. Bast is one of the best tying materials, and is probably most commonly used.

If the crop is to be shipped to a distant market it is packed in crates with tight bottoms, but with slat sides and tops. The crate should be large enough to hold three or four dozen bunches, and just deep enough for one layer of bunches when standing upright. The Asparagus should be perfectly dry when put into the crate; this is indispensable, otherwise it will surely heat and spoil, and it should be packed so snugly as to prevent any shaking about in the crate, which would perhaps cause the tender tops to be broken off, thus rendering the Asparagus unsaleable. Shippers often put a layer of dry Moss over the bunches to protect the tops. When shipped a long distance, a layer of wet sand or Moss in the bottom of the crate, on which to set the bunches, will help to keep them from wilting.

The profits of growing Asparagus depend so much on soil, manure, cultivation, and market, that it is difficult to fix on any reasonable average. The range is from £20 to £200 per acre; the average is probably much nearer the first figure than the last. Usually, however, that is the fault of the grower. If he restricts the amount of manure and cultivation, he illustrates the old adage, "He saves at the spigot and wastes at the bung-hole."—W. C. Steele, in *Vick's Magazine.*

Garden Flora.

PLATE 564.

CHRYSANTHEMUM-FLOWERED ANEMONES.*

For some three centuries Crown Anemones have been cultivated in our gardens, and in March and April few plants are more attractive. Beautiful as they are, however, they are inferior to the Chrysanthemum-flowered race, which constitutes an entirely new section, the flowers of which are differently formed and much more double than those of the ordinary Crown Anemone, resembling in this respect a perfect German Aster or a fine Chrysanthemum flower. This the sorts figured in the annexed coloured plate fully confirm. Their flowers, which are large and brilliant, are in the spring garden what German Asters are in that of autumn. The first variety belonging to this class was raised accidentally in 1848 amongst seedlings of A. coronaria, but it was not distributed till 1870. Since that time this class of Anemones has been greatly improved—so much so indeed, that at present varieties representing nearly all colours may be had, and if planted in good soil and situations, few other plants can compete with them in spring as regards display. Cut flowers of them will last a week if kept in water, and they are now largely used by florists instead of Roses. The following varieties are the best at present in cultivation, viz.: Gloire de Nantes, the flowers of which are very large, double, and blue-violet in colour, as shown in the annexed plate; this, being the first variety obtained, is the parent of all the others. Lilas, another variety and one of the oldest, has very large and very double flowers of a fine lilac colour. Etoile de Bretagne, which is robust and good in habit, has large and very double flowers of a fine peach or apple-blossom colour—one of the oldest and also one of the best of the class to which it belongs. La Brillante.—A fine bright red flower and

* Drawn from flowers sent by M. D. Guiheneuf, Nantes.

CHRYSANTHEMUM-FLOWERED ANEMONES.
1. GLOIRE DE NANTES, 2. PONCEAU, 3. MAUVE CLAIR.

very double, producing, amongst other varieties, a striking and grand effect. Mauve Clair.—Very large and double, and, as will be seen by the plate, delicate mauve in colour. It is a strong grower, and blooms very profusely. Ponceau.—This, as will be seen by the annexed illustration, is a charming variety and unusually double, the petals being regularly imbricated and more brilliant in colour than those of even Anemone fulgens. It is a free bloomer, and probably the strongest grower in the class to which it belongs. Rosine has very large double flowers of a fine rose colour and green in the centre. This, amongst other sorts, produces a striking effect. Belle Bretonne has also large and very double flowers of a delicate red colour, and the plant is dwarfer in growth than other varieties. Rouge pourpré has small flowers of a dark purplish red colour, but they seldom fully expand. Meteor has large double or semi-double flowers, each petal of which is red, bordered at the end with white. Armoricaine.—The flowers of this are very large and double, and the petals, which are well imbricated, are of a dark blue colour; it is probably the strongest grower of all the varieties in this class. La France has very large double flowers, the petals of which are well imbricated and of a fine violet colour, which contrasts

Tuft of Chrysanthemum flowered Anemone.

strikingly with that of other varieties. Yvonne.—This is not yet in commerce. Its flowers are very large and double and pure white; therefore a welcome addition to this class of Anemones.

These Anemones, which are dense and compact in habit, grow from 1 foot to 2 feet high; good sized roots will each produce successively from fifteen to thirty blooms every week from February until May; they are invaluable for either beds or borders, and also for pot culture indoors.

Cultivation.—Anemones belonging to this section should be planted, like other kinds, in September about 10 inches apart and an inch deep; they soon make their appearance above ground, and bloom, according to the character of the season, from February to May. If to bloom in June they should be planted in February and March. If need be they may be planted in October after the summer bedding plants are removed, and the roots will be ready to be lifted at the end of May. Being quite hardy no frosts hurt them. A light, rich, deep, well-manured soil suits them best; in heavy, damp ground the roots are apt to rot. They do admirably on a south border in front of a wall, which protects the flowers against cutting north winds in early spring.

These Anemones may be lifted as soon as the leaves and stems have become yellow. They may be propagated by dividing the roots, but that is not advisable, as the largest roots produce the finest plants. Roots of this class of Anemone are still scarce, and therefore others are sometimes substituted for them. M. Guihéneuf, to whom we are indebted for the beautiful flowers from which our plate was prepared, grows them well at Nantes, where both soil and climate seem to be most favourable for Anemone growing; indeed, we doubt if in any other place they could be cultivated and propagated with such success.

WORK DONE IN WEEK ENDING SEPT. 28.

September 22 and 23.

Though much colder, the weather continues fine and bright, but rain is sadly needed for outdoor crops of every description, as it also is before we can plant out Cabbages, Endive, and Lettuce with any degree of confidence that they will start into kindly growth if planted under such adverse conditions; therefore, our present resolve is that we will wait for rain. Hoeing all and sundry in the kitchen garden department; weeds do not pay, and, after such a dry season, we shall have no legitimate excuse for any crop being weedy. Cleared from Brussels Sprouts the decayed leaves, as well as a portion of the largest good leaves, to let in light and air to the sprouts. The old Cabbage plot we served the same, and in a piece of Autumn Giant Cauliflower that had grown so abnormally large, all the yellow bottom foliage has been pulled off. Housed Onions; having plenty of space in a cool, airy shed, they are laid in a single layer only on the shelves. Harvested all herbs that are likely to be required in a dry state. We tie them in small bunches and hang them in an open, airy shed, and there they remain till needed for use. Notwithstanding the drought, Peas are still abundant; No Plus Ultra, Latest of All, and British Queen are our best late kinds. Deep trenching and mulching defy drought, as is shown not only by our present good supplies of Peas, but also of French Beans, Cauliflowers, and Turnips, &c. Gathering Apples and Pears. Except the very latest kinds, Peaches are over, and the trees are being gone over to pinch back the few side lateral growths that have formed on the main shoots, our one aim now being to keep the shoots thin that sun and air may have that hardening effect on the wood, without which there could not be a satisfactory crop of fruit next year. The same remarks apply to Apricots, the new growths of which we persistently pinch back. Two or three of the trees have grown far too strong, and root curtailment is in prospect for these as soon as the soil is sufficiently moist to admit of its being done with the least amount of injury to the surface roots that are nearest the point where the roots are to be severed. Got in a few Chrysanthemums—the latest kinds; the bulk of the plants we shall leave outside till there are signs of really cold weather. Meantime, we are bottling all the Grapes our room will hold to make room in the vineries for the plants. Black Hamburghs, Gros Maroc, Madresfield Court, and Mrs. Pearson are the varieties that we are now placing in bottles. Having had no previous experience as to the keeping properties of Madresfield Court Grape when thus housed, I am rather fearful of the result, and it will, therefore, be the first to be used. The susceptibleness of this Grape to cracking is a terrible drawback to its extended cultivation. This season it has done better than usual with us; indeed, at one time we thought we should escape it; but no, it began, after several "knowing ones" predicted we were safe. No pains were spared; every conceivable plan and method were adopted to steer clear of the evil, but without effect; and now, though inclined to give it up as hopeless, we mean to give it one more trial, but faith as to succeeding is of the weakest description. Pinched out small side crowns and cut runners off Strawberry plants in pots, and to prevent rooting into the ash beds on which they stand, each pot is lifted, and the roots rubbed off as frequently as the plants are gone over for removal of runners. Prepared frames for cuttings of Calceolarias and Violas. Top-dressed Cucumbers and thinned out growths. Potted up Capsicums, Bouvardias, and Callas from the open borders. They will be kept rather close in a warm moist pit, and well syringed early in the afternoon till well established in the pots, after which air will be freely applied.

September 24 and 25.

Still far too fine, because so dry. Where watering can be done, it is just right for flowers. Our flower-beds having had good supplies, there has not been a greater profusion of flowers all the season than now. Single Dahlias are grand; seed-pods are not tolerated; hence their free and continuous flowering. Picked over all flower-beds, and made all the surroundings as neat as the use of scythe, edging-shears, and garden-roller could make them. Note has been taken of mistakes in colouring, and arrangement for rectification another season, and one or two extra favourite bits have been noted for repetition. In regard to herbaceous flowering plants, no arrangement of them that I have ever seen, or that I have attempted to make myself, seems to have been the best of which such plants are capable. Grouping the plants according to genera or species which some have attempted is simply execrable—I mean as to general effect—because of the unevenness of height and varying habit of growth. The straight-line way of planting, with all tall kinds at rear of borders, is very little better, because so formal. Neither of these plans have we attempted; but our present mode is not better, and must be altered. The plants are mainly in groups of three or five, but some stand alone, and though not dispersed over the border in regular heights, some care was taken to have the bulk of tall kinds at the back of the borders. All have to be lifted this winter, and we have been taking note of varieties that look best both in flower and foliage, of these that flower for the longest period, of those that look best as single specimens, and what number of plants will look best for size of groups, for those that are most effective when planted in this manner. Of necessity the tallest must mainly be in the rear part of borders, and these, I think, should be planted in single file, with the moderate-sized growers grouped between them. The same will hold good with respect to the front portion of borders, the plants being graduated as to height from rear to front. I think, by some such arrangement as this, we may get uniformity without undue formality. These borders are getting still more gay with Michaelmas Daisies and the varied section of herbaceous Sunflowers, and the only attention they need is safe tying up against injury from wind-storms which are now due. Gathered more Apples and Pears. The latter have matured very rapidly, I suspect, because of the dryness of the soil, as most kinds are undersized, but this does not appear to affect the quality, as these that have already ripened have been unusually good. The fruit-room ventilators we leave open night and day till the fruit has got inured to the temperature of the room, for then sweating ceases, and the chances of decay are less. Re arranged Pines in the fruiting pit, and filled up from first fruiting succession pit the vacancies made by cutting ripe fruit. Watered all Pines; fruiters have clear manure water on every occasion that water is needed, and syringing of walls and floors for atmospheric moisture is done twice daily. Looked over all Grapes to cut out decaying berries; cut back laterals on late Vines to let all the air and sun possible reach the fruit and wood. Inside border of Lady Downes Vines has been given another drenching, and at once was covered with clean dry straw as a mulching, which adds neatness, and will probably prevent its being necessary to water the border any more this year. Put Pelargoniums in Strawberry house for winter flowering, and put a few Poinsettias in strong heat, but the bulk of the plants will still be kept in an intermediate house to bring them on successionally. Cleaned out and re-arranged plant houses, and tuberous Begonias that had

done flowering were taken out and given space in a pit to gradually dry them off for the winter.

September 27 and 28.

At last we have been favoured with rain, and planting out of Cabbage, Lettuce, and Endive is finished for this year. Pricked out Cauliflower plants at the foot of a south wall to stand the winter. Earthed up late planted Kales and Broccoli. Thinned out winter Spinach; the plants are 1 foot apart and the rows 2 feet. Ground is now being freed of old Pea haulm in readiness for wheeling on the ground manure that is to be trenched into the soil on the first convenient opportunity. Pinching back the lateral growths on wall trees, and began root-pruning Apricots. Partially root-pruned Peaches and Nectarines in second house; this house is somewhat shaded by other houses, so that the wood does not put on that nut-brown colour that one likes to see in well-matured wood, and this severing of part of the roots will check the flow of sap and help the ripening. Potting Hyacinths, Tulips, and Crocuses. Trained Euphorbia jacquiniæflora to Melon trellis in one of the warmest divisions of Melon house, in which form it does best for use as cut flowers, and blooms freely from November to March. Pricked out on a south border a quantity of seedling Wallflowers, Brompton Stocks, Canterbury Bells, and Sweet Williams that will become useful in spring for filling up blanks that may be made by a severe winter in flower beds generally.

Hants.

FRUITS UNDER GLASS.

Cucumbers.

The weather so far has been all that could be desired for frame Cucumbers, which at this season generally keep up the supply, but long cold nights will soon be too strong for fermenting material unaided by fire-heat, and we must once more look to our houses. Winter fruiters, in the proper acceptation of the term, are now only growing, but the bright, sunny weather is favouring them, and under fair treatment they will make short-jointed Vines capable of responding when called upon about Christmas. A sound, sturdy constitution being so important, a genial heat, principally from fermenting material, should be kept up for the benefit of the foliage and roots, as it admits of a free circulation of moist air almost independently of the hot-water apparatus. Hot water, it is hardly necessary to say, cannot be dispensed with; it must always be in readiness for turning on at the shortest notice; but, provided the proper degrees of heat can be maintained through the autumn, the milder it is applied the better. In many old country places, where manure from a well-appointed hunting stable formed a very important item amongst heat-producing materials, linings broad and deep and covered with close-fitting shutters ran parallel with the fronts of Pine and Cucumber ranges. Into these once a week a given quantity of fermenting manure was introduced, and, provided rank steam did not bring the steed to a sudden stand, fire-heat was only a supplementary agent in ordinary weather. But the plants liked it, for they grew dark and dense, and seemed ready for a summer's bearing after working all the winter. Mildew was not more troublesome than it is now, and spider—now the curse of our winter system—was unknown under good culture in an atmosphere well charged with ammonia. Where these old linings still exist, I would link the old with the modern by filling them, not with rank manure, but with mild, well-worked fermenting leaves, to which some horse manure might be added, and pot culture being in the ascendant, the same might do good service in the plunging bed. In deep pits where the bottom-heat pipes are absent, or as good as absent by being placed too far away from their work, the pot system is the best, as dry, brick pedestals, built hollow immediately over them, form channels for the ascent of fire-heat and the descent of diluted liquid followed by the roots which have escaped from the drainage. The pots placed on the tops of these pedestals stand firm and altogether independent of anything so unstable as fermenting leaves, while the latter can be renovated, turned over, or turned out at pleasure without disturbing the pots or interfering with the roots clustering about the interior of the pedestals. Where plants have been kept waiting for the removal of Melons and the pits are abundantly supplied with top and bottom heat, many people prefer planting out, as they seem to make up for lost time by supporting a few fruits at a very early stage. But for growing Cucumbers from Christmas onwards through March, they should be divested of every fruit and flower until they have filled the trellis, and a firm, steady growth, neither gross nor puny, should be encouraged. To develop this, the pit must, of course, be kept close and moist for a few days, when more air and all the light attainable must be given. Direct syringing will be slackened, but a moist, growing atmosphere, so essential to health, and freedom from insects must be maintained by damping the beds and walls, and that important aid, cleanliness, must not be overlooked. Pure soft water and soap are quite as valuable in the forcing as in the dwelling-house, and quicklime applied to the walls prevents offensive matter from accumulating in the wrong place. Fresh maiden loam, burnt earth, dry peat, or charcoal dust, little and often, thrown over the surface of the bed in winter are excellent deodorisers and absorbents of impurities.

Melons.

Having an abundant supply of October Peaches, Pears, and Golden Drops, if we can induce the latter to become golden, many consumers will not care for November Melons, but will be willing to leave off with the flavour of a good green flesh on the palate. Others who insist on having them as late as possible, after providing a house specially for their culture, should make every allowance for collapse and failure. This season so far has been very favourable and fruit is swelling fast, but the next break in the weather may put an end to our summer, and more care, even to maintain that which we have gained, will be needed. Bottom heat being right, the next important point is full control over and the judicious use of water. Aquatics when in full growth in summer, Melons require very great care when cooped up in semi-light houses in late autumn; hence the importance of growing late crops in pots which can be moistened or dried at pleasure. Where plants are carrying crops of fully developed fruit they must not have more than will prevent the foliage from flagging, as an excess may cause many of the best to crack, neither must they be kept too dry, otherwise the foliage will ripen before the fruit, when the latter will be worthless. Water in moderation, then, being absolutely necessary, early bright morning is the best time to give it without wetting the stems or foliage, and, prevention being better than the necessity for frequent repetition, some good dry mulching cast over the tops of the pots will tell favourably in two ways. The foliage of late Melons should be kept thin, not by mutilation, but by the removal of every particle of lateral growth, and free from insects by a bi-weekly blast of smoke from the Eureka Fumigator. I have given up set forays or field days, but smoke lightly every week, and the plants never touched by fly require very little direct syringing, no small matter in late culture. Next to freedom from insects, cleanliness in the care and keeping of the house is a great factor. Filth, Lichen, decaying leaves and stems tell quite as unfavourably on Melons as they do on Cucumbers, and for this reason should never be allowed to accumulate.

Plants in manure pits and frames, now finishing off fruit, should be kept as dry and warm as possible by the frequent addition of fresh fermenting manure to the linings and good dry covering every night. If laterals persist in growing, they must be closely pinched to let sun and air into the bed, and in order to obtain the best attainable flavour, the fruit may be elevated until it nearly touches the glass, which, by the way, must be kept perfectly clean.

Figs.

Where trees in early houses were root-pruned early in September, they will now be bare of leaves, and none the worse for three weeks' or a month's exposure to the elements. The roof-lights being portable, they may be taken in and painted, and, provided the branches are untied and slung, the trellis and rafters may have a coat also. Figs are almost invariably infested with insects of some kind, and no matter how well they are cleansed, the work is only half done where the woodwork and walls are neglected. The best wash for the walls is quicklime and sulphur, applied hot, and turpentine, a pint to a gallon of oil, should be used when mixing the paint. If nothing worse than spider and scale have attacked the trees, washing with soap and hot water will remove them, and the trees need not be painted; but bug will require a little more attention. Washing, of course, comes first, and the tar mixture, half a pint of tar to a gallon of dry sifted loam, must follow. Tar paint should always be applied when the trees are quite at rest, otherwise I should not like to be held answerable for its action. Once upon a time, I was induced by a man of great experience to paint some trees with castor-oil; but the oil, or the operator, took the wrong turn, and the first crop of Figs came to nothing. Friends to whom this suffocating varnish is recommended will please to take warning. If late Figs are in demand, houses in which the tail end of the crop is likely to ripen must have constant fire-heat to keep them swelling and prevent damping. Brown Turkey often gives nice dishes up to November, but unless they are really needed, the trees will pay best for being divested of their fruit and rested.

Pot Vines.

Where the earliest Grapes are obtained from Vines in pots, the time is now at hand for getting them into position. Some growers, through force of circumstances, others from choice, place their Vines out of doors after they are ripe to lose their leaves and have a short season of complete rest; but, space being plentiful, this end is best attained by keeping them in the dry, airy house in which they have been grown until the leaves part freely from the canes. Assuming that they are still in the open air, or perhaps in the nursery, steps should be taken for putting the fruiting house into thorough working order, first, by cleansing and painting, and secondly, by forming pedestals or solid stations for the pots to stand upon, as there must be no sinking or strangling after forcing is commenced. The Vines, previously divested of all laterals to plump up the buds, will require careful washing with soap and warm water; the pots also must be washed and the apertures examined to insure the free passage of water, for, much as they enjoy good living, they soon resent a clogged condition of the roots. These matters satisfactorily arranged, place a good sod of turf, grass side downwards, on each pedestal and arrange the Vines according to their strength, shorten the rods more or less to suit their position, dress the points with styptic, and sling them in preference to tying up to the wires, to insure an even break. Having removed all inert soil, top-dress with good loam to which bone dust and rotten manure have some time previously been added, and keep the house open until the time arrives for starting. If they can be started with a gentle bottom heat from fermenting Oak leaves and a little short stable manure placed about the pedestals and the lower parts of the pots, much time will be saved at the outset. Moreover, the constant use of the syringe at a critical period of the year can be dispensed with, as the warm vapour from the bed will feed and swell the buds, when saturation of the soil from constant syringing might prove injurious. Where good leaves, the best of all bottom-heat-producing materials, cannot be obtained, well worked tan may be used, but leaves are milder in their action and feed the roots and foliage throughout the season. Vines intended for cutting back

or planting out in the spring should now be ripe enough for removal from the pit in which they have been grown. Nurserymen who produce them by the thousand are obliged to turn them out of doors, but the private gardener, who grows a few for his own use can generally find room for them along the back walls of Peach houses or cool vineries, where moderately watered and the rims of the pots covered over with old tan or leaves, they will sink gradually to rest and be fit for cutting back in December. Gardeners who have to buy in for early spring planting should lose no time in making their selection, not only of varieties, but of canes. The best and in every way most satisfactory course is to pay a personal visit to the nursery while they are yet in full leaf, as everyone is anxious to have the first pick of the stock. Unless thoroughly ripened under glass, the strongest Vines in large pots are not always the best. For my own use I should give preference to stout, short-jointed canes, well clothed with healthy foliage, turning off to a bright nankeen colour in 8-inch to 9-inch pots nicely filled with roots. If in a light, airy house they might remain until the leaves fall; otherwise, I should have them home and under my own care without further delay. W. Coleman.

Eastnor Castle, Ledbury.

Fruit Garden.

NOTES ON DWARF APPLE TREES.

The culture of Apple trees on stocks calculated to restrict their growth is a much more fascinating pursuit than that of standard trees. I have found that dwarf trees frequently escape frost-winds when tall trees are greatly injured thereby. Of this the present season affords ample proof. In our own garden, which is surrounded by a wall, very few of the dwarf trees failed to bear good crops, while those on tall trees are comparatively a failure. Some four or five years ago the same thing occurred in the gardens of the Royal Horticultural Society at Chiswick. The dwarf trees in a large quarter were bearing a full crop, while large trees were very scantily furnished. Apple trees are more certain to bear a crop of fruit than Pear or Plum trees, not because the blossoms stand frosts better, but because they are produced later. No kind of fruit tree is better adapted for small gardens than the Apple, and its produce is always appreciated both by rich and poor. Now, therefore, being the right time to obtain the trees, and also to prepare ground for them, perhaps a few notes in reference thereto may be serviceable. Few gardens contain soil exactly suitable for Apple trees, but it can be made so in most of them by suitable preparation. It is only in gardens where the subsoil is good clayey loam, and not liable to become too dry in such seasons as the past, that good Apples can be grown without trouble, and even under such favourable conditions careful preparation of the soil is needful, if not absolutely necessary. The worst of all garden ground for fruit trees is light sandy loam overlying a dry gravelly subsoil. That, at least, is my experience. The trees in such a soil are liable to canker, and to be attacked by insect pests. In order to obtain anything like permanent success, the depth of loam over the gravel ought to be at least 18 inches. It is all very well to say "choose a suitable position for the garden, and one where the soil is good." Ninety-nine out of every hundred have no choice in the matter, and those who purchase ground for building purposes generally look out for a gravelly subsoil. They care nothing about the value of the ground for fruit trees or other cultural purposes. I have before now got as much gravel out of the soil during the process of trenching as made up the whole of the garden paths with good material. That nearest the top is always inferior and must be used for the bottoms of the paths; all the best should be laid aside and used afterwards on the top of the walks. The soil taken out of the paths will replace the gravel that has been removed, and if nothing better can be obtained, turf cut from the sides of roads may be buried in the bottom of the trenches. Even if full of Couch Grass, none of it will come to the surface when buried 18 inches deep. In the neighbourhood of large towns good turf and loam can readily be obtained where new ground is being broken up for building purposes. "Will such work pay?" may be asked by some, and I may reply, perhaps not directly, but the difference between a well cultivated and a badly managed garden is so great, that it is always worth while to set matters right at first, *i.e.*, make a good beginning. Some prefer bush trees, others those of a pyramidal form. I prefer the latter. Two, three, or four-year-old trees ought to be selected in some nursery now, and be sent home when ready. In the meantime the ground ought to be trenched when the weather is favourable, and if rich no manure will be needed. It is easy to stimulate too much; therefore it is better to work in some short manure, or apply it as a mulching to be dug in afterwards, than to put in too much, which will cause the trees to make gross growths, and to form few flower buds.

In some parts of the neighbourhood of London the long back gardens attached to villa residences might be made to contain many varieties of fruit trees. They are generally narrow; therefore the best arrangement would be a 4 feet or 5 feet wide pathway down the centre, and a border 6 feet wide, or so, on each side of it. In the centre of a border of this size might be planted a row of fruit trees 6 feet or 8 feet apart; they might be planted 4 feet apart at first, and each alternate tree might be removed when the branches encroach on each other. The superfluous trees might be planted in another place, or might be sold; or, as a last resource, given away to some neighbour who neglects his garden, but who might be constrained to pay attention to it if he could have his trees for nothing. In planting dig out a pit wide enough to take hold of the outstretched roots, and if half a barrowload of maiden loam can be placed round them it will encourage the formation of fibres. Trees for small gardens should be worked on stocks that restrict growth, and the union between stock and scion should be close to the ground, so that it may just be underground. The soil ought to be well worked in amongst the roots, if necessary with the fingers, and be pressed moderately firm. The first year the trees will not require very much attention. They will form plenty of roots, and also blossom buds, but probably not much young wood; any shoots that straggle out too much should be pinched back, when they will make three shoots instead of one, which will ripen by the end of the season. Long shoots not pinched back early, but cut back at the end of the season, will make their growths the next year, and in that way a season is lost. By judicious summer pinching fruit trees may be increased in size in double quick time. Insect pests must be carefully watched during the growing period. Few collections of Apple trees are quite free from that troublesome pest, the American blight (Aphis lanigera). Its first appearance is that of a white downy substance to be found in the crevices of the bark. When that is observed take a fine hair-brush; dip it in paraffin, and with it thoroughly wet the retreats in which the insects have established themselves. In hot seasons red spider also attacks the leaves, and if not destroyed causes them to drop off prematurely. It may be destroyed by syringing the trees daily with clear water, or more speedily by means of a solution of Tobacco; but daily syringing with clear water is highly beneficial during hot, dry weather. It keeps the trees in health, and unless that is so and the foliage good, well developed fruit cannot be expected. Mildew often appears in dry seasons, but the treatment recommended for red spider will keep that fungus in subjection. If badly attacked, dust with sulphur. The caterpillar of the goat moth (Cossus ligniperda) attacked some young trees in a small villa garden near here. The mouths of their tunnels were near the ground, where a swelling existed at the union between graft and stock. I destroyed them by thrusting a flexible wire into the holes. A very tiresome pest is the codlin moth (Carpocapsa pomonana). In dry autumns like the present it has things pretty much its own way. Many of our young trees were loaded with fruit, and the grub of this moth has destroyed quite a third of them. One tree of Lord Burghley had every Apple injured by it. The only cure is to destroy the Apples containing the grubs.

Canker I believe to be caused by the roots getting down into an unkindly subsoil, and, as pretty conclusive evidence of this, I have lifted the roots of cankered trees nearer the surface, placed a barrow-load or two of good loam for them to work into; the cankered portions were at the same time removed, and under this treatment the trees grew away again with renewed vigour. The late Mr. Thompson, of Chiswick, believed that severe and untimely pruning induced canker. He says, in "The Gardener's Assistant" (p. 381): "If a large limb is cut off late in spring when the buds are just breaking, the sap must either overflow by the wounded surface and cause weakness, or it must stagnate, and when it does so, being partly in contact with the air it very soon becomes vitiated and the bark cankers."

The following are a few of the best Apples, both for dessert and kitchen, viz.: Dessert—Irish Peach, Kerry Pippin, Adams' Pearmain, Cox's Orange Pippin, Court of Wick, Golden Reinette, Pitmaston Golden Pippin, Ribston, Hubbard's Pearmain, King of the Pippins, Mannington's Pearmain, and Sturmer Pippin; kitchen—Lord Suffield, Cellini, Cox's Pomona, Hawthornden, Loddington, Lord Derby, Alfriston, Dumelow's Seedling, Lane's Prince Albert, Brownlee's Russet, Blenheim Pippin, and Yorkshire Greening. James Douglas.

The best Currants.—After trying nearly all the kinds of Currants grown, I have come to the conclusion that the following are amongst the best, viz., Black Naples and Baldwin, both extremely fine Black Currants, having berries more like Cherries in size than ordinary Currants. Of Red Currants, Raby Castle is probably the finest in cultivation, and of a good dark colour. Amongst White Currants, which are not so much grown as they ought to be, the Dutch variety and the Transparent are good trustworthy sorts. If people grubbed up their old worthless kinds, and substituted young healthy plants of the above, they would soon find the produce of their Currant trees augmented. There is, moreover, no need to wait long for fruit, as the finest crop I had last year was obtained from young bushes, three years old, from cuttings that had been left in nursery rows; the berries were of great size, and the bunches long and full. In the old kinds of Black Currants the fault is that there is one or two large berries at the base, and the rest are small, and, if not picked directly they are ripe, the largest drop off, leaving the small ones, that do not pay for the picking. Let anyone interested in Currant culture try a few bushes of the above, and if they do not find them superior to the older sorts, their experience will be different from mine.—J. Groom.

Autumn Apples.—There is no better class of Apples in our gardens than those which produce fruit for use during the autumn months—say, from the middle of September until the new year. Amongst leading kinds for this purpose must be included Lord Suffield, Keswick Codlin, Hawthornden, Cellini, Worcester Pearmain, and Kerry Pippin. Those who have these varieties in their gardens need never be without Apples in autumn. They are heavy and sure fruiters, and it is very rare indeed that they miss a crop. Anyone who plants a dozen Apple trees, including two of each of the kinds named, might rely on always having a crop, let the Apple season generally be what it might, as when there are any Apples at all these are always among the first and best; and I do not remember a year when we were without quantities of fruit of them. Many plant a great variety of trees to fruit in succession from July to May, but amongst these many are indifferent bearers; in fact, in many districts they do not bear a crop once in three or four years. Therefore, growers generally would find it more profitable to

plant sure-fruiting sorts than a succession of uncertain bearing kinds. The varieties which I have named are notable for excellent quality as well as for constant bearing, and when their fruit is properly stored it is astonishing how long it may be kept in good condition. The Keswick Codlin is in prime condition now, and it will be so for the next two months; while Hawthornden and Worcester Pearmain will both remain good until the end of January or beginning of February. This being the case, doubtful fruiting sorts to come in during November, December, and January should be planted sparingly, but it is almost impossible to plant sure fruiters too numerously. I do not know of any midseason or late Apple which fruits so surely and freely as the old Keswick Codlin, and the others named are in no way behind it. They will succeed north or south in garden or orchard.—Cambrian.

NOTES ON PEACHES.

In my paper on Peaches a week back I emitted, not altogether unintentionally, as I had limited myself to numbers, four excellent varieties which I have grown and can strongly recommend. Unfortunately, they are pale sorts, and some, I know, object to the Noblesse family on account of their want of colour. "Hortus," on the other hand, evidently convinces himself, if he does not convince others, that colour in Grapes is a defect, and, assuming that he looks upon Peaches with the same eyes, I feel sure he for one will endorse the few words I have to say in favour of my old friends. The first is

Malta, a variety to which belong three or four French synonyms. It is now rarely met with, and I never saw it on the exhibition table, but it is one of the most luscious Peaches I ever tasted. The fruit is large, flattened on the top, with a broad shallow suture. Skin greenish yellow in the shade, like the old Noblesse, blotched with purple next the sun, and beautifully suffused with pink when grown under glass. Flesh greenish white, red next the stone, tender, juicy, and very rich. Flowers large, leaves without glands, bears carriage well. This and Dymond were strongly recommended to me by the late Mr. J. Veitch, no mean authority on fruits.

Sulhamstead.—This is a very hardy form of Noblesse, ripening about the end of August on open walls, and with me for many years carrying heavy crops of handsome fruit. Like Malta, the fruit is depressed, giving it a large appearance in proportion to its weight. Skin pale yellow in the shade, but highly coloured, for this family, next the sun. Flesh fine, rich, and excellent. Flowers abundantly produced and very large; leaves without glands.

Montagne or Montauban, sometimes called Double Montagne.—This is a very large Peach when grown under glass and forces well. Fruit roundish, running to a nipple at the apex. Skin pale yellow all over in the shade, but beautifully marbled with red next the sun. Suture very distinct. Flesh white to the stone, rich, and juicy. Flowers large, often semi-double; hence its name. Leaves without glands. The tree bears well, and years ago was a great favourite in the neighbourhood of Dublin.

Raymackers.—Since my paper was published, Mr. Bennett, the gardener at Rangemore, Burton-on-Trent, has sent me a most beautiful fruit of this excellent variety. In his letter he says he looks upon it as one of their best late sorts, and, judging from the size, shape, and high colour of the example now before me, I should say there is no other member of the family so well adapted to late house culture. The tree is hardy, a good bearer on the open wall, and leads well up to Walburton Late Admirable; flowers large, leaves without glands. I have seen very fine fruit from the Oolite formation, shown by Mr. Birch, gardener to Sir T. Bazley, rather deficient in colour, but complete bags of luscious pulp.

Late Peaches.—Mr. Gilbert, at p. 287, says he succeeds with Princess of Wales and Late Admirable, but fails with Walburton. The fruit on the latter swells to the size of marbles, then falls, and he attributes his loss to imperfect fertilisation. Mr. Muir, same page, succeeding article, says, "once formed, the fruit is sure to swell and prove satisfactory." Where this is not the case, "failure may be put down to want of protection when the trees are in flower." Possibly both of these cultivators may be right, but I am inclined to think they are wrong, as I have yet to learn that Walburton is more tender than Late Admirable or the Princess, which gives good crops under identical treatment. When Peaches set and make a stand at the stage named by Mr. Gilbert it is evident that something is wanting, and that something, in my opinion, is water, for I have proved to my own satisfaction that a dry stratum of compost near the drainage will produce this result, not only on walls, but also in glasshouses. If I might venture a suggestion to an old hand, I should say, lift all your Walburtons now and replant in fresh, certainly in properly-moistened, loam—not too rich; for the variety a strong late-grower takes a little coaxing to get the wood and blossoms properly ripened. Having replanted and mulched with stable litter for the winter, he may protect with fishing-nets, as Mr. Muir suggests, and fertilise with foreign pollen in the spring. I have a large tree on the open wall which never fails. It is now loaded with fine fruit, but I never fertilise the flowers, and the spring covering of netting is very scant indeed. I root-prune every year, and deluge the roots with water. Our garden lies low, between two cold-condensing limestone hills, which render our climate if anything inferior to that of Burghley.

Eastnor Castle, Ledbury. W. Coleman.

WATERING LATE-FRUITING VINES.

In my opinion late Grapes, as a rule, are not sufficiently watered at the root during the autumn and early winter months. When they are green and growing they are watered pretty freely, but when once they begin to ripen, and especially when three parts ripe, as many of them are now, water is almost withheld from them, and by the time they are ripe or nearly so the roots are so dry, that the fruit soon begins to shrivel and loses its crispness and freshness. When this happens the wood must suffer too, and many of the young rootlets must also shrivel up and become useless. Therefore, both fruit and Vines would be better were more water applied to the roots in winter; many keep their borders dust-dry during the short days to prevent the fruit from damping, but observation leads me to remark that Grapes keep better when the roots of the Vines are in a moderately wet soil than in a dust-dry one, and the fruit is not half so much inclined to decay when the border is damp as when the atmosphere is in that condition, arising from spilling water about the floor and pathways. Indeed, I think dry roots and a damp atmosphere are fertile sources of decay in Grapes and should be avoided; some who are afraid of watering freely give them a little drop on the surface of the border, but this is not good practice at the present time, or, indeed, at any time, as the subsoil is sure to become very dry, and Grapes never keep better than when the border is in a uniform condition throughout as regards moisture. All surface dribblings are deceptive, and do more harm than good. A thoroughly good watering is more beneficial than anything else; the border, indeed, should be kept constantly saturated so long as the foliage remains on the Vines. It will have often been observed that late Vines with their roots wholly outside and with no protection have perfected as good a crop as any can do with their roots inside. In fact, those with their roots in the outside border often do much better than others inside. The fruit is always more plump, juicy, and crisp, a circumstance wholly owing to the roots being supplied with sufficient moisture to prevent any shrivelling in the fruit, root, wood, or foliage taking place. The best practice is, as I have said, to keep the border quite moist so long as the foliage keeps green, and it will be a great advantage to the Vines if the border is not allowed to become too dry afterwards, as a dust-dry border is injurious to the present and future well-being of the Vines. Cambrian.

THE SEASON FOR AND PLANTING FRUIT TREES.

I have been into several fruit-tree nurseries of late, and I scarcely ever before remember to have seen the trees in such excellent condition as they are this year—so vigorous, with such a strong clean summer growth, and with the wood hardening off and ripening in the most satisfactory manner under the influence of the dry weather of September. So far, then, all is favourable. What planters and nurserymen alike want just now is a good ground rain, a warm soft fall, for in many places the earth is very dry, and it will be unwise to attempt to plant until the soil has been saturated by rain. But there are indications that this fall of rain is near at hand. As to the time for planting, fruit trees may be planted from the fall of the leaf until the rising of the sap in spring, but an autumn planting is preferable to any other when the soil is suitable. Nevertheless, it is often advisable to plant at different times according to the nature of the soil. If the borders have been formed such a length of time as to be fit to plant in at the latter end of October or beginning of November, this is unquestionably the best season for the performance of the work; for if the trees be then planted, they will in many cases have pushed forth some new roots before the commencement of severe weather, which is generally looked for at the end of December and in January and February, and will have materially established themselves before the moving of the sap in the spring following, which greatly assists them in making new wood the following summer, and this will, naturally enough, be more vigorous and matured than in the case of trees the planting of which had been deferred until the spring. This is one advantage attending planting in autumn; therefore the planting of fruit trees should be performed at this season of the year whenever it can be done.

Sometimes it is not convenient to plant until winter has set in, or necessity may demand its postponement until then, but it should be done when the weather is mild, as a frosty air and soil soon damage the tender fibres of the roots. But in all cases where the borders are formed of a moist, heavy soil, the planting had much better be deferred until spring, and the reason for this recommendation is, that the roots will not strike so soon into such a soil as into one lighter and more porous. Therefore, it is better in such a case to plant either in early autumn or in early spring. In a cold, wet soil roots are slow in putting forth fibres; it rarely happens that they will strike root until the spring has well advanced; therefore, plant in September, or not till March or early in April, for removal gives a check, and by reason of the soil being cold, stiff, and moist, the fine roots are frequently injured; indeed, we have known the tender fibres to rot away. And so in the spring, when their assistance is wanted to aid in the speedy establishment of the tree, the rot thus caused acts as a kind of paralysis, and the welfare of the tree is retarded rather than promoted.

But whatever may be the time of year chosen for planting, it should not be done in wet weather, for, in order to assist the roots to strike into the soil as soon as possible, it is requisite to press it firmly about them, so that it closes upon them. If this be done when the soil is wet, it becomes lumpy, and when it dries, bakes hard together, and in that state is unsuitable for young trees. It is also apt to crack in hot, dry weather, and then it is decidedly unsuitable for the trees.

If by some means the planting had to be deferred until spring, and it is high time the tree should be planted, though the weather may be continually wet for some days, then some drier soil should be provided to place about the roots at

the time. But the soil so introduced should be of a similar quality to that forming the border, and it is not difficult to provide this. If it is not handy, then let some of the soil forming the border be dried preparatory to planting the trees. When a plantation of fruit trees has to be made, the ground should be previously prepared by draining (if necessary), trenching and manuring; time should be allowed for it to settle, then the proper position for each tree should be marked out; and some planters hold the reasonable opinion that the longer time the holes are made before the planting is done, the better for the soil, as it is improved by being exposed to the action of the atmosphere.

The size of the hole dug for the roots of the tree must be regulated to a great extent by their dimensions. It is too often the practice (especially in the planting of suburban villa residences not yet occupied) to make small holes, and when the roots are placed in them they cannot be properly extended; indeed, they are frequently obliged to be unnaturally twisted and cramped in order to get them into the restricted space. The roots of trees are naturally inclined to proceed in a straight direction outwards; therefore it is always proper to allow them to be placed as much as possible in such a position. The roots of trees that have been grown in pots require special attention in this respect, and it is a practice with experienced planters not only to make the holes intended for such plants large enough to admit of the roots being fully extended, but 12 inches or 18 inches wider all round. And the reason for the practice is that when a hole is made only just large enough to take the roots, they, on pushing, strike immediately into the soil that has not been recently disturbed or that in which the tree is planted; the latter consequently settles more than the other; and when the roots begin to establish themselves in the other part of the border, the ends of them are often forced upwards and out of their proper lateral direction; this is more particularly the case with trees that are planted late in the winter or in the spring. But if the trees are planted in November or December they will not be thus liable to injury, because the roots will not begin to spread until the soil in which the tree is planted will generally have settled equal to the other part of the border.

Great care is necessary that the trees be not planted too deep in the soil, as it is always injurious to them. In the case of fruit trees planted against a wall, 6 inches will be found deep enough in such a soil as that in which they would be placed. But it should be observed that in the case of wet, heavy soils the roots should be placed nearer the surface, and a little deeper in those that are of a lighter character. When trees are thus planted, the roots will always find their way down into the border or along the upper part of it in search of necessary food; when, on the contrary, if planted too deep, they do not nearly so readily find their way to the surface, unless in a border that slopes away from the wall a good deal, a form that should be avoided if possible. But although the roots of those trees that are planted too deep may after some length of time find their way to the surface of the border, yet they will be a long time without having enjoyed the benefits of sun, air, rain, &c., which they would have done had they been nearer the surface. Neither will the trees have made so much progress, nor have proved so fruitful, nor the fruit be of so good a flavour; but by being planted at the depth directed, the trees will derive every advantage from the influence of sun-heat, and mulching placed on the border.

Great care should be exercised in digging fruit-tree borders for the cultivation of any vegetable that the roots be not damaged, for where they are, considerable injury is often done to the tree, which will frequently show itself afterwards in the shape of canker, &c, also in the production of suckers from the roots, which generally are caused by the spade in digging the borders, for the sap frequently makes a callosity at the wound, and the production of suckers is a consequence. Only surface-rooting subjects should be permitted to grow on fruit-tree borders, or, at any rate, near where the roots of the trees are likely to be found. R. D.

SPOTTED GRAPES.

Would you kindly tell me the cause of the spot on the Grapes sent? Both black and white are alike spotted. Our vineries are 30 feet long, 15 feet broad, and the borders, which are 3 feet deep, rest on a putty clay, with no drainage between them and the clay except the ordinary drains 9 feet apart. I watered my borders this season, as recommended in The Garden, with diluted liquid manure of the strength of one of liquid to four of water, giving them about 250 gallons each time, *i.e.*, the inside borders. The outside ones I renewed some years ago; the Vines are sixteen years old. The Muscats are always full of stoneless berries, which spoil their appearance. I syringe them when in flower, but all to no purpose.—M.

EDWARD BECK.

*** The Grapes sent to me in dry Sphagnum dust did not arrive in good condition for examination, but they conveyed unmistakable signs of a bad case of spotting. The above communication, however, more than the berries leaves but little doubt that the borders, "3 feet deep and resting on putty clay, with no drainage between them and the clay," are the cause of the mischief. The borders, it is said, were renewed some years ago; but it is not stated whether concrete was introduced; drainage, beyond ordinary drains 9 feet apart, is, it is asserted, absent. It is, therefore, not to be wondered at that the Grapes set badly, became spotted and putrid in autumn. Ordinary liquid manure, one to four of water, would not injure healthy Vines, but in the case in question it most likely would do harm, as the roots, already gorged with crude matter from a cold subsoil clay, could not assimilate it. The remedy lies in lifting, concreting, draining, and relaying the roots in warmer and shallower borders; but before commencing refer to copies of The Garden, in which you will find full instructions for lifting and renovating repeated over and over again. Lose not a day in setting about these matters; obtain suitable materials for the purpose—turf from an old pasture, old lime rubble, burnt clay, and crushed bones. Also get an abundance of clean broken brick or sandstone for drainage and a supply of mortar for concrete. Renovate the borders at twice taking the internal or the external border—whichever may be worst this autumn—this month, if possible, and the other twelve months later. Excavate carefully, saving every root, down to the clay; give a good slope outwards to the front or longitudinal drain; then concrete the surface of the clay, also the bottom and sides of the drain. Allow a few hours for the mortar to get stiff; then on the top of the concrete lay transverse drains of 4-inch pipes 4 feet apart, and cover evenly with a foot of drainage. Lay on the turf Grass side downwards, using the same for the front or retaining wall, and wheel in the compost. Trim and relay the roots as near the surface as may be practicable, and when all is finished the result will be a warm border from 2 feet to 2½ feet deep, completely cut off from the clay, well ventilated, and capable of taking any quantity of water.

Look well to the ventilators, as imperfect ventilation or sudden rushes of cold air when the atmosphere is charged with moisture not untrequently aggravate this disorder.—W. Coleman, *Eastnor Castle, Ledbury.*

THE LATE MR. EDWARD BECK.

By way of perpetuating the memory of one who in his lifetime did good work in relation to floriculture, we present our readers with a portrait of the late Mr. Edward Beck, of Worton Cottage, Isleworth. Few men did more in their time than he did to improve the show Pelargonium, and bring about that development which has been going on during the last twenty years. It was he who practically showed us the points of excellence which the Pelargonium should possess as a florist's flower; in all he did he aimed at securing breadth of petal, and consequently roundness and fulness of flower—stoutness instead of flimsiness, smoothness instead of coarseness, and refinement and harmony as regards colours; these he secured in a large degree by crossing, judiciously, different varieties. Half a century has elapsed since he commenced work of this kind. I can just remember some of his flowers which stood high in public estimation forty years ago. Amongst them were Rosamond, Aurora, Arabella, Bacchus, Cassandra, Desdemona, Gulielma, Centurion, Competitor, Blanche, Refulgent, Princess, and Star. Of the last two, excellent coloured illustrations were given in *The Florist* for 1848, a work started by Mr. Beck, and for some time carried on by him. At the time of his death, in January, 1861, he, in conjunction with his contemporaries, the late Mr. Edmund Foster, of Clewer, and the late Mr. G. W. Hoyle, of Reading, had brought the show Pelargonium to a high stage of excellence; at that time his leading flowers were Apollo, Bridesmaid, Emperor, Fairest of the Fair, Mars, Sappho, Sunset, The Bride, and Vestal. After his death, the raising of seedling Pelargoniums was continued by his son, Mr. Walter Beck, at Worton Cottage, until within the last few years. Mr. Edward Beck was an enthusiastic gardener, ever ready to put into practice anything which seemed to be an improvement on former methods of procedure. When heating by hot water in tanks first made its appearance he at once adopted that system, substituting slate for wood in the construction of the tanks. He was the first to show that plants could be grown in non-porous pots, *i.e.*, in little square slate boxes, and the Roses which he grew

and showed in such receptacles will be still fresh in the memory of many. Being a sailor in early life, he had something useful to say on emigration, and wrote a series of papers on that subject for the benefit of young gardeners about to emigrate. He also wrote a little book called "A Packet of Seeds Saved by an Old Gardener," the object of which was to elevate the condition of gardeners generally, but especially to induce employers to give them better "bothy" accommodation than they had hitherto been having. This at the time it was published was read with interest. R. D.

Trees and Shrubs.

THE HATCHET-LEAVED THUJOPSIS.

(T. DOLABRATA.)

I was forcibly reminded of the extreme beauty of this a few days ago when looking over the fine collection of trees in the grounds at Baronhill, the residence of Sir Richard Bulkeley. Here several of the specimens have attained to heights of fully 16 feet, with well and regularly branched stems and an abundance of bright, healthy foliage, due in a great measure, no doubt, to the sheltered site and sea breezes to which they are subjected. This is usually termed a slow-growing Conifer, and rightly too, for neither as regards its yearly increase nor ultimate height attained has it much to boast of. As an ornamental tree, however, it ranks high, and deservedly so, for perhaps in no other Conifer is the tinted green of the upper and silvery hue of the undersides of the leaves more prominently seen. Planted in a rather moist, cool loam and a semi-shady position, this tree seems to thrive best; and though the upward rate of growth is slow for the first dozen years, yet when fairly established, a change for the better usually takes place, and occasionally an average yearly increase of half a foot is attained, but this is rarely maintained, here at least, for many years in succession, although our favourable situation and mild genial clime is enjoyed by most Japanese Conifers. For lawn purposes, and especially where space is limited, I know of nothing among Conifers to equal this ornamental tree, and being of the easiest culture and perfectly hardy is therefore well suited for almost any part of the United Kingdom. I fancy, however, in judging from specimens growing in the grounds at Penrhyn, that a shady position is best suited for this tree, as those planted where exposed to direct sunshine have not the glossy appearance that is characteristic of others growing in partially shaded positions, or even where never a ray of direct sunshine strikes upon the foliage.

In well-grown specimens of this Thujopsis, the whole contour is usually strictly pyramidal, with branches that are somewhat vertical and drooping towards the points. The leaves are hatchet shaped (hence the name dolabrata), loosely imbricated, and of a beautiful shining green above and silvery beneath. Usually the main branches are few, but the branchlets are numerous and compressed, and certainly constitute the most striking feature of the tree. Cones have been produced in some abundance on two of the trees here, but they are rather inconspicuous, being small and globular in shape and usually with five-winged seeds at the base of each scale.

The propagation of this tree is simple, indeed, for whether an attempt be made with seeds, from cuttings or by grafting, a fair amount of success is usually the result. Cuttings, however, form the best trees, perhaps not better than those raised from seeds, but the operation is quicker, grafts being particularly liable to be broken over either by wind-pressure or other accident. August and September we find the best months to insert cuttings of this Thujopsis, which should be placed rather thickly in boxes or pots of free, sandy soil, and these stood in a cold frame until rootlets are formed. When grafting is the mode of increase, it should be borne in mind that the nearer to the ground level the scion is inserted the better, as by this means roots may be made to emit from the latter, thus, to a great extent, minimising the danger of loss through the scion becoming detached from the stock through accident.

There are two varieties of the above—variegata, with irregularly variegated leaves of an indistinct yellow; and nana, in which the original is by some means dwarfed into a neat, erect, dense bush of 4 feet or 5 feet in height. If Mr. Coleman will tell where the hedges of Thujopsis dolabrata, to which he recently referred, are growing, he will answer a query that has been asked by more than one correspondent. A. D. Webster.

Cotoneaster frigida.—Among trees and shrubs remarkable for their bright fruits in autumn this is one of the finest. It is of robust growth, not particular as to soil, and produces freely large bunches of bright red fruits. These, too, seem less liable to be attacked by birds than those of many other trees and shrubs, and, therefore, remain in perfection for a long time. Their depth of colour seems to vary a good deal in different individuals, no doubt owing to the plants being raised from seed. Comparatively common though it be, it is certainly better worth the attention of planters than many oftener employed by them.—A.

The golden Weigela (W. Looymansi aurea).—This beautiful shrub is seen at its best during the height of the summer's sun; indeed, last season some plants of it employed to hide an unsightly fence to which they were secured formed one of the brightest pieces of leafage that I ever noticed, the colour being greatly heightened by the roasting to which they were subjected. This Weigela may be struck from cuttings put in during autumn or winter when in a deciduous state, but I have been most successful with young shoots made into cuttings in summer. These latter must be kept close and shaded till rooted, which will not be long. Care must be taken to stop damp or decay should any signs of either be seen.—H. P.

Fine-foliaged Vines.—The varieties of Vines that are usually grown for their fruit in this country all possess very ornamental foliage, but in this respect they are surpassed by the North American species, some of which are among the finest of hardy climbers—that is, where bold, strong-growing kinds are desired. They make very rapid growth, and, if unchecked, quickly festoon neighbouring trees and shrubs with their long rope-like shoots and huge leaves. The North American kinds bear a good deal of resemblance to each other, and of these the Fox Grape (Vitis Labrusca) may be taken as a type of the whole. It is very vigorous in growth, with heart-shaped leaves, sometimes more or less three-lobed, and of a stout leathery texture. In autumn the decaying foliage sometimes changes to a bright crimson hue. Vitis amurensis is another in the same way, whose huge leaves are conspicuously veined on the under surface. Like the last, its autumnal tints are sometimes very bright. Among the varieties of the common Grape Vine may be mentioned the cut-leaved apiifolia, the foliage of which is much laciniated, thus imparting to it a distinct and singular appearance. Another noteworthy variety is purpurea, the foliage of which during the first half of the season is but slightly reddish, but the colour is much intensified by the summer's sun, and before the fall of the leaf it is very pronounced. The little variegated form of V. heterophylla is too tender to hold its own as a hardy climber, and too delicate to compete with the giants of the genus. While on the subject of Vines I may mention that my plants of humulifolia, that bears pretty little blue berries, are this season very sparingly furnished with fruits—less, indeed, than has been the case for some years.—T.

Golden Ribes alpinum.—This little shrub forms a dwarf-spreading bush a foot or so in height, very suitable for exposed parts of rockwork and similar places, where, during spring and early summer, it is very conspicuous, but as the season advances it becomes much greener. Where the shoots come in contact with the earth they often root, so that it can be increased in this way, especially if artificially layered. Cuttings of it by no means strike root readily unless the stock plant is taken into a little heat a short time beforehand, in order to draw the young shoots out, as is done in the case of Fuchsias and similar subjects. When putting in the cuttings it should be borne in mind that, though hardy, as they were grown in a little heat, the same should be maintained till they are rooted, for if put in a lower temperature than that in which they have been grown, many will probably be lost.—A.

THE PLANTING SEASON.

As the tree planting season has again come round, a few notes relative thereto may be useful. Planting may be done from October till March, but I would prefer the first or the last of the months named, as the weather is generally changeable and trying during the shortest days; I know, too, from experience, that planting between intervals of frost is often injurious to the plants. In dealing with a quantity of trees, I planted part of them in favourable weather in October with the best results; others, again, were put in in January, and much loss occurred; while with the remainder, planted in March, I had greater success. Much, however, depends on the subjects operated on and their condition. Small plants of the hardiest kinds are not so easily killed at any time; but large tender ones have to be dealt with most carefully. In established places there is often a good deal of transplanting and thinning out to do at various times in a number of years, and by doing this at the proper season very large plants may, as a rule, be shifted without injury; but it is a mistake to buy very large plants at a distant nursery in the hope of securing immediate effects with success. I am referring now to such plants as large Hollies, Evergreen Oaks, and Evergreens generally. Large deciduous trees can, as a rule, be more successfully transplanted than Evergreens.

In lifting any kind of tree, especially when the leaves are on it, the roots should never be divested of soil; on the contrary, as good a ball as possible should be retained. Where trees are treated as in properly conducted nurseries, the roots can always be had in a compact ball; being often lifted and transplanted when young, the roots become matted in a very confined space, and plants of this kind may always be moved with safety. Crowding them into a small hole is a mistake. This may not kill the plants outright, but it will check it for years to come. When lifted, the roots should never be long exposed to the influence of sun or wind. This is one of the very worst things that can happen to them, and should be strictly avoided. When plants are brought in from a nursery, it is, of course, impossible to plant them all at once; but the first attention they require is to cover up the roots with damp Moss, straw, or soil.

As to pruning and cutting generally, the period named in which planting may be done also answers for these operations. We begin cutting our bushes in October, and go on from time to time as the weather and other work will allow until March. That this time is right we have annually ample proof in the luxuriant manner in which the trees grow afterwards. It is, however, only hedges, Laurel banks, and upright-growing bushes near the edges of walks on which we use the shears, the knife, or bill-hook. J. M.

Golden-leaved Ptelea.—This (P. trifoliata variegata) is one of the handsomest of golden variegated trees, and its variegation is much more enduring than that of the golden Oak, which speedily burns in the sun. It is also much brighter than the golden Elder; in fact, in the distance it appears to be covered with rich golden flowers. Nevertheless, it is a tree which is seldom seen. Why is this, for it is not new?—T. S.

The Pyramidal Birch.—Allow me to draw the attention of ornamental planters and nurserymen to the Upright Birch (Betula fastigiata); it deserves to be better known than it now is, for I think it is destined to become a most effective and useful tree, especially adapted for town and suburban parks and

gardens, as well as for general landscape planting. It is not so stiff in outline as the Lombardy Poplar, being more light and airy in habit, with a strictly fastigiate growth. I believe it is of continental origin, and, as yet, only sparsely distributed in this country. The specimens I have of it were imported from France some few years back; they are now about 12 feet high, and I must say that I am much impressed with their distinct and characteristic appearance.—B. G.

DWARF TREES IN JAPAN.

By examining closely the specimens in Japanese gardens one may see traces of the dwarfing process. The leading shoots have been clipped or bent downward; the lateral branches turned in and tied back; lusty limbs twisted and wrenched into quaint postures; marks of the torturing pins, and bands, and cuts are still observable; it is a crippled dwarf of a tree made quaint and picturesque by years of struggle. Among Conifers may be noted young plants of that Japanese species seen under the wings of Japanese buildings—quaint pigmies not 3 feet high, yet over seventy years old. They are gnarled and twisted as if they had fought the winds and caught their picturesqueness of form—as old Oaks catch theirs—by battling with tempests and wintry storms upon the hills. And yet is there a compensating beauty in them? Not surely as we reckon the beauty of plant growth. But consider that the Japanese, in their horticultural system, have offices for such dwarf trees. With them no homestead is complete without its garden; a few square rods may be all at command, but this area must have its garden treatment, and the gardens are modelled after Nature. "San-sui" (mountain and water) is the term which in the Japanese describes the cultivator's work. The aim is—within, however, a limited area—to present a complete landscape, with rock, valley, plain, water, and mountain. Under such miniature presentment, trees and plants must be dwarfed to bear proper relations to the dwarfed valleys and rocks. To such an extent is this copying of Nature in miniature carried, that a rocky landscape, with its heights and level spaces and trees, is wrought out, with close attention to proportions, within the limits of a great bronze basin. We doubt if cultivators of the West will emulate them in their mimicry of Nature; but they may well emulate the painstaking skill which makes such small successes possible, and the assiduous care and the close study of plant life which are enforced by such arts.

W.

The Douglas Fir.—For growing for ornament as well as profit no Fir surpasses Abies Douglasi, the growth of which in free, loose soils is as rapid as that of the Larch, and the tree, containing as it does so much resinous matter, would, no doubt, form sleepers for railways and telegraph posts quite as, or even more, durable than those obtained from the latter. The wood of the Douglas Fir when cut down is remarkably heavy, and were it only better known and more plentiful, it would not be long before planters would turn their attention to it and grow it extensively.—D.

Skimmia japonica.—This is the best known and most commonly cultivated of the Skimmias. It may now be seen quite laden with bright red berries, while other kinds are fruiting but sparsely. Its foliage is not, however, always in as good a condition as might be desired, for, though naturally deep green, it often assumes a yellowish tinge, and the whole plant bears an unhappy appearance. This I am convinced is owing to the plants disliking exposure to full sunshine—an opinion confirmed by specimens with which I met the other day; all of them were heavily laden with fruit, but while the plants that were in full sunshine had a yellowish tinge, others, so situated that they were completely shaded without being overhung by trees or choked up in any way, were in robust health. The Skimmia, too, delights in a soil that does not, even during summer, become too dry. S. japonica transplants readily—indeed, it may be lifted when full of berries; and if this operation be carefully performed, and the plants potted at once, they will sustain no check, and retain their berries as well as if left undisturbed. Thus Skimmias may often be utilised for decorative purposes indoors during winter, as, being hardy, the plants may be used in cold, draughty places where more tender subjects would be injured. Skimmia seeds germinate readily, and in this manner large quantities of plants can be raised without difficulty. S. oblata is altogether a more vigorous shrub than S. japonica. It forms a neat, sturdy evergreen bush, very densely furnished with dark green leaves. Its flowers are pretty, but it fruits sparingly. Its berries are, however, brighter than those of S. japonica.—H. P.

Books.

IRISH DAFFODILS.

"Whatever may be introduced, especially in the way of novelty, is and ought to be subjected to the closest, keenest, and most unflinching examination; then, after passing the trying ordeal, we may expect it to be good because of the removal of everything pertaining to it of a doubtful nature." We recommend these words to the attention of advertisers of new plants, and especially new varieties of Narcissus. They may be found in an essay on "opposition" at the end of Mr. Hartland's "Little Booke of Daffodils" for this season, a work which discourses not only of Daffodils in particular, but of most things in general. Mr. Hartland will, therefore, undoubtedly be pleased if we take his own maxim as a kind of text for a short commentary on his "Little Booke," even though little of it should survive after the "removal of everything pertaining to it of a doubtful nature." We should not thus examine an ordinary trade catalogue, but this pretends to be a scientific treatise, and is a good example of the kind of crude production which hinders the work of the Narcissus committee and other really careful workers at this extraordinarily interesting family of plants. We are sorry to criticise Mr. Hartland unfavourably, for he is an enthusiast about Daffodils, and so far we have much sympathy with him; nevertheless, we wish he would content himself with a simple catalogue until he has digested his knowledge more completely. His "Little Booke," like the memorable plum-pudding and other things, has two sides—an outside and an inside. As to the former, we cannot imagine what we have done to Mr. Hartland that he should punish us with such an atrocity as the illustrated cover of his book. In one of the upper corners, a damsel, entangled in a growth of impossible Daffodils, is apparently defending herself with the poker against the attacks of a flight of noxious insects; while on the opposite side a gouty caterpillar—or is it meant for a cornucopia?—is pouring a shower of objects like jointed dolls and Cabbages down upon ancient John Parkinson and a short-sighted gentleman, whose botanical studies are much impeded by a swarm of bees hovering round his bald head. Turning to the inside, we are pleased with the toned paper and excellent type; but is not the fashion of old English, long s's, "bookes," and "Daffodyls" becoming a little sickly to the taste?

The wildest remarks about the botany of Daffodils begin in earnest with the first pages. The native Lent Lily, we are informed, is "not much found in Ireland. If found—strange! it would be in pure yellow." Is Mr. Hartland sure it would not be in pure blue? As a matter of fact, it is found in Ireland and is not pure yellow. We do not object to the canine Latin of "Bulbocodium citrinus grandiflorus"—it is good enough for a catalogue—but we do to the addition of grandiflorus. Is Mr. Hartland's variety larger than that already in commerce? And why is the long-known white Hoop-petticoat described as a beautiful new white form? How can Mr. Hartland know that his seed of princeps is "naturally hybridised" (p. 3) until he has actually raised hybrids from it? The double form of obvallaris, he says, is not worth growing (p. 3). As this has never yet been identified and probably does not exist, everyone is entitled to his own opinion about its value. Of Ard-Righ, the yellow, or Irish King (p. 6), he observes that he sent it out last year as Golden Dragon. He might also have added that he sent out Golden Dragon as spurius coronatus. This was our personal experience of his Irish Kings last year; it is a pity they have so many aliases. We will not presume to follow Mr. Hartland into the largish subject of the arrival of Ard-Righ with the advent of Christianity from the East, lest we should be landed at Jacob's stone and among the lost Ten Tribes, but will proceed to point out that the five varieties of dwarf Ajax of last year's "Little Booke" have reduced themselves this season to three. We invested our hard-earned savings in all five last year, and had the gratification of seeing at least three of them changed into one and the same plant by the unfortunate peculiarity of our soil. We fear lest the same thing should happen with some of Mr. Hartland's new white varieties now offered; he will increase his reputation, we think, by keeping and watching his plants rather longer before distributing them. Why should Horsfieldi (p. 9) be called so loudly the King of Daffodils? It is a noble flower, but Empress is undoubtedly finer in all points; let him who doubts this go to Whitton next April and see Empress grown as Mr. Walker grows it. Mr. Hartland is "certain" (p. 12) that princeps is a cross between a yellow pseudo-Narcissus and a white or moschatus variety. We are equally certain that it is not, for the home of princeps is in N. Italy, where the wild moschatus has not been found, and at elevations where it probably could not be found.

Our chief quarrel with Mr. Hartland is that he is doing his best, like some others, to make the lamentable confusion of Narcissus nomenclature worse confounded. Thus, he first fits the new and unauthorised name of tortuosus tenuifolius to the plant hitherto known and long sold by Mr. Barr as tortuosus, and then assumes it to be identical with that named Leda by the Narcissus committee. In this he is quite mistaken, for Leda is the same as his Bishop Mann, and distinct from typical tortuosus. We notice that Mr. Barr, too, makes the same mistake; both he and Mr. Hartland have been misled by the similarity to tortuosus of the cut flowers of Leda which were brought to Kensington. They are unacquainted with the entire plant of Leda, which is early, tall, and large-bulbed. We have grown it in our garden side by side with tortuosus. We see that the little white Minnie Warren has changed its scent this season from that of Violets to that of Cowslips. In our garden it smells very little of either. On p. 15 we are again reminded of the wonderful and protean properties of Ard-Righ, for Sir Watkin, we are told, "probably" reminds one in outline of Ard-Righ! Talking of outlines, will Mr. Hartland tell us what qualities constitute a "remarkably æsthetic outline"? (p. 14). We have made ourselves tolerably sure, in a negative way, as to what outlines are not æsthetic by studying the cover of the "Little Booke," but we have not yet attained to any positive knowledge about such mysteries. On p. 25, Mr. Hartland gets into a terrible muddle about the great "doubling" (not Dublin) controversy. He devotes a laborious paragraph to refuting the theory that "the true English pseudo in its double form becomes (in cultivation) what we call Telamonius plenus." No one has ever said it does, and he entirely misses the point of the discussion. It is a pity, too, that he should struggle to assign each double Ajax to its own single form (pp. 25—28). This attempt has long ago been demonstrated to be hopeless and useless. Of double forms in particular we will instance Rip Van Winkle, despite the praise of Mr. Hartland and his friends, as a Daffodil which should be promptly discarded as an ugly and unworthy little monster—a veritable Daniel Quilp among Daffodils. There are good Daffodils enough in cultivation to enable us to dispense with such abortions; we hope Mr. Hartland will go on collecting the beautiful sorts, and especially the lovely white varieties in which Ireland is so rich. But we hope, also, that before

publishing another "Little Booke" he will get it revised by competent authorities upon such matters as languages, living and dead, æsthetics, and Daffodils. G. H. E.

FERNS.

HARDY FOREIGN FERNS.

Those about to plant a new fernery in the open air, or those who are desirous of producing greater diversity of form in one already established, will find that an admixture of some of the most distinct of hardy Ferns from foreign countries with our native species and varieties will produce both a striking and pleasing effect. The majority of Ferns from North America are quite hardy in this country; so, also, are many of those introduced from China, Japan, Chili, and some of the kinds from New Zealand and Australia; therefore, ample material exists with which to add to the charms of outdoor ferneries. It often occurs in the arrangement of a new garden that everything in the way of accommodation for plants under glass, and also out of doors, is settled before a fernery is even thought of, and, therefore, it is often relegated to any unoccupied corner that can be found for it without the slightest consideration as to its adaptability for plant growth. It must be recognised as a fact in the formation of a fernery that Ferns are lovers of both shade and moisture, but they must be free from drip from overhanging trees. The majority of North American hardy Ferns are fond of moisture; therefore, in planting, this should be, if possible, secured. In all other respects the species and varieties hereafter quoted will be found to readily conform to the ordinary treatment usually given to the more common native kinds.

Cystopteris.—This is a genus of small-growing, deciduous, and elegant Ferns, amongst which our indigenous kinds are amongst the most interesting. It comprises, however, some bold-growing foreign forms, which are perfectly hardy in our climate. Being deciduous, they should be planted in positions in which no water rests about their crowns in winter. They thrive best in stiff, well-drained soil, and enjoy an abundant supply of moisture.

C. bulbifera.—The fronds of this species are slightly arched, and are, when well developed, about 18 inches long; they are divided into numerous finely cut segments of a pleasing shade of pale green. This species bears numerous small bulbils on the under side of the rachis, which germinate freely and soon form a considerable sized mass. It comes from North America.

C. tenuis.—This is another North American plant, known also by the name of C. atomaria. It forms dense tufts and produces erect, finely divided fronds upwards of a foot high, lanceolate in outline and deep green in colour, but it does not produce bulbils on the undersides of the fronds. Other handsome, but somewhat rare, kinds are C. Douglasi, C. fumarioides, and C. tasmanica.

Ceterach aureum.—This resembles our native plant, but is larger; those who have seen our native scaly Ceterach covering stone walls, as it does in many parts of Ireland, may imagine what the appearance of this gigantic form would be under similar circumstances. The fronds are a foot or more long, deeply sinuate, with broad, obtuse lobes. The upper side being deep heavy green, but below, densely clothed with large, brown chaffy scales. It is a limestone-loving plant, and should occupy a sheltered, but not too shady a nook. It comes from the high mountain of Teneriffe.

Antigramma rhizophylla, popularly known as the Walking Leaf Fern, is a small-growing, decumbent plant, with simple dark green fronds from 6 inches to 9 inches long, and lobed at the base; the points are much attenuated, and bear young plants at the apex; these take root and speedily form young fronds, which again extend some 6 inches or 9 inches; hence its vernacular name. It delights in shade and moisture, and thrives best when planted in good leaf mould. It comes from North America.

Botrychium.—This is a widely distributed genus belonging to the section known as flowering Ferns. Its species should be planted in well-drained sandy loam, and the situation should be such as to afford them plenty of moisture after the fronds have fallen in autumn, and they should not be subjected to frequent removal, as this is inimical to their well being.

B. virginicum.—This is the Rattlesnake Fern of the Canadians. It produces large decompound infertile fronds of a deep green colour. The fertile or flowering frond, as it is commonly called, attains a height of from 9 inches to 12 inches, and springs from the base of the barren segments. This is wholly contracted, somewhat paniculate, and bears reddish brown sori. It is widely distributed in North America and elsewhere.

B. lunarioides is somewhat similar in general outline to the species just named, yet it is abundantly distinct. Its sterile fronds are much broader and of a deeper green than those of virginicum.

Lygodium palmatum.—This species is an outlying member of a family widely distributed throughout the Tropics. It has the twofold advantage of being the most distinct of the genus (although not the handsomest) and in being hardy. It is, nevertheless, an interesting and elegant Fern, which bears slender climbing fronds from 1 foot to 2 feet long. The infertile pinnæ are palmately lobed and bright green; the upper portion of the frond is similar in shape, but the segments are much contracted and wholly sporangiferous. This plant should be placed in a well-drained secluded position. Like the last-named species, it comes from North America.

Onychium japonicum.—This is a robust growing plant, which produces from a creeping stem fronds from 12 inches to 18 inches in height, divided into numberless finely cut segments. The latter are bright, shining, green in colour, a circumstance which has led to its sometimes being called O. lucidum. When fertile, the sori form a continuous line near the margin of the pinnæ. It is a distinct and handsome plant in an open-air fernery. It comes from Japan.

The North American Climbing Fern (Lygodium palmatum).

Anchistea virginica.—An erect, bold-growing deciduous species, producing from underground stems large fronds, which are twice divided, the pinnæ being deeply sinuate. They are from 18 inches to 30 inches high, 12 inches wide, and bright green, the under sides being ornamented with dense lines of sori,

arranged on each side of the midrib. It comes from North America.

Onoclea sensibilis.—In this we have one of the most distinct of hardy Ferns. It is sometimes placed in the genus Struthiopteris, but it is so thoroughly distinct, especially in a garden point of view, that we prefer the name here quoted. It produces fronds of two kinds, which are totally unlike each other. The barren fronds are erect, some 2 feet or 3 feet high, deeply pinnatifid, the lobes being broad and obtuse and bright green. The fertile fronds are erect, bearing sori in bacciform segments, totally different from any other known Fern. These are only produced upon well-established plants, and are persistent during winter. It comes from North America.

Osmunda.—The general appearance of this family of what are called flowering Ferns, is well represented by our native species, O. regalis, popularly known as the Royal Fern, the most majestic in the genus. Osmundas are thorough bog plants, and in order to have them in vigorous health in the fernery, they must be so treated.

O. Claytoniana.—This very handsome Fern attains a height of from 2 feet to 3 feet. The fronds, which are erect, are twice-divided, segments obtuse and rich deep green. When fertile, some three or four pairs of the pinnæ, in the centre of the fronds, are shortened, contracted, and wholly sporangiferous, a circumstance which has led to its being called O. interrupta, a name under which it is sometimes cultivated. It is, without doubt, one of the very finest of decorative Ferns. It comes from North America.

O. cinnamomea.—A plant of noble port, its style of beauty being quite different from that of O. Claytoniana, inasmuch as it produces two entirely distinct forms of fronds. The infertile fronds rise to a height of from 2 feet to 3 feet or more, and are some 9 inches broad. They are erect and spread outwards in a vase-like manner. The segments are obtuse and deep green. The fertile fronds, which are numerous, are contracted, and profusely laden with sori, which are cinnamon-brown. These fronds rise up like plumes in the centre of the others, giving the plant a very attractive appearance. It is widely distributed throughout North America, the West Indies, China, and Japan.

Struthiopteris (the Ostrich-feather Fern).—A genus of highly decorative deciduous plants, which, from their habit of producing underground stolons, soon form fine clumps. The fronds are of two kinds, the fertile ones always being surrounded by others which are barren.

S. germanica.—This is a European species, which grows to a foot or more in height, the infertile fronds arching and of a soft light green colour. The fertile fronds, which are about the same height as the barren ones, have all their segments contracted. It comes from the south of Europe.

S. pennsylvanica.—This is considered to be only a variety or form of the European plant; nevertheless, under cultivation it is abundantly distinct. The fronds attain a height of from 18 inches to 2 feet, and are about 6 inches in breadth. They are more erect than those of the previously described plant, and of a pleasing shade of green. It comes from North America.

S. orientalis.—This very distinct plant has large, broad, somewhat ovate fronds, the segments of which are deeply divided and dark green. The fertile fronds when mature are deep chestnut coloured. It comes from Northern India and elsewhere.

Lomaria striata.—A fine, bold, erect plant, and one which produces fronds of two kinds. The infertile ones, which are arched, measure when vigorous from 3 feet to 6 feet in length and nearly a foot in breadth. The pinnæ are thick and leathery in texture and deep, heavy green. The fertile fronds are similar, but much contracted and deep chestnut-brown when mature. The stems and crown of the plant are densely clothed with large ferruginous chaffy scales. This is one of the most distinct and striking of hardy Ferns yet introduced. It comes from Chili.

Adiantum pedatum.—The stems of this beautiful species are black, smooth, and polished, the rhizome creeping, and the fronds deciduous. The latter attain a height of from 1 foot to 2 feet. They are broad and spreading and pedately divided, the pinnules or segments being of a pleasing shade of light green. It comes from North America and Japan.

Lorinseria areolata.—This fine plant is often named Woodwardia, but its contracted, fertile fronds and habit of growth sufficiently separate it from that genus. The barren fronds, which are erect, are deeply sinuose or sub-pinnate, some 12 in. to 18 in. high and 6 inches broad, and pale green in colour. The fertile fronds are very much contracted. It is a conspicuous and handsome North American plant.

Pellæa atropurpurea.—This is not a bold or conspicuous plant, but very distinct and effective when planted in a crevice of rockwork, about on a level with the line of vision. The fronds, which are evergreen, vary from 6 inches to 12 inches in length; they are simply pinnate, the segments somewhat oblong in outline, leathery in texture, deep heavy green on the upper side, but paler below. They are borne on deep purplish stems. It comes from North America.

P. gracilis.—An elegant evergreen plant, delighting in limestone. Its fronds, which usually attain a length of 9 inches, are pendulous, the segments being twice divided and deep green in colour. It is a native of North America.

Lastrea Sieboldi.—This is a plant of robust habit and distinct appearance. The crown and base of the fronds are furnished with large brown chaffy scales. The fronds are somewhat drooping and pinnate, the terminal pinnæ being about the same size and shape as the lateral ones. The fronds, which bear about four pairs of thick leathery pinnæ, are from 6 inches to 12 inches long, nearly 2 inches broad, and pale green in colour. The sori, which are on the undersides of the fronds, are large and conspicuous. It comes from Japan. Other species of Lastrea, too handsome to be overlooked, are L. Goldiana, marginata, sparsa, atrata, erythrosora, and varia.

Polystichum acrostichoides.—An erect-growing plant with pinnate fronds, the upper portion of which is, when fertile, somewhat contracted. The pinnæ are auricled and deep green. It may be considered as a somewhat gigantic Holly Fern. It comes from North America.

Cyrtomium.—This is a small genus consisting of distinct species, which are very effective when contrasted with kinds having finely divided fronds. It contains two species admirably adapted for the purpose which we have in view. One, C. caryotidium, produces arching fronds a foot or more long, the segments of which are large, auriculate, and light green; the crown of the plant and base of the fronds are furnished with brown chaffy scales. It comes from Northern India. C. falcatum, the other species, is similar in general appearance to the preceding, but more erect in habit; the pinnæ are thick and leathery, and deep shining green in colour. The crown of the plant and base of the frond are densely clothed with large ferruginous chaffy scales. It comes from Japan. W. H. G.

NEW AND RARE FERNS.

Gymnogramma Muelleri.—This plant is widely distinct from the common type of Gymnogrammas, popularly known in gardens as Gold and Silver Ferns, but the genus is very variable, and G. Muelleri is one of its most remarkable kinds. It forms a tuft of erect fronds 1 foot long, with the stalks covered with brown scales, and the upper part bearing two rows of roundish pinnæ, 1 inch long, arranged alternately, their texture thick, almost leathery, the underside thickly covered with silvery scales, and the upper surface, which is bright green, having a few of these silvery scales scattered over it. As a stove Fern this species should find favour because of its distinct and pretty foliage. It is a native of Australia, and seems to prefer a moist stove. There are several handsome examples of it in the Kew collection. G. vestita, a closely allied species with larger fronds, but requiring cool-house treatment, being a native of the highest elevations of the Himalaya; and G. rufa, a pretty kind from the West Indies, are also in cultivation at Kew. A collection of Gymnogrammas would be a very interesting and highly ornamental group of Ferns, which any amateur Fern-grower would find worth his attention.

Davallia fumarioides.—There are several species of Davallia with fronds 3 feet and 4 feet in length, or even more, and a climbing habit, the fronds growing up trees or over shrubs by means of the sharp prickly spines which clothe their stalks and stems. D. aculeata, which is common in the West Indies, where its fronds reach a length of 6 feet, has been in cultivation in England several years, but it does not attain with us the dimensions of specimens in a wild state. Lately plants of D. fumarioides have been introduced into Kew from Jamaica, and they are so exceedingly pretty, even in a small state, that we wonder the species has not long since become popular with Fern growers. It has a creeping rhizome, fronds as long as in D. aculeata, tripinnatifid, the lower divisions 12 inches to 18 inches long; whilst the pinnules are divided up into small segments, as in the foliage of the common Fumitory—hence the specific name. For baskets this Fern seems fitted to become of great value as an ornamental plant. It is also very interesting on account of its climbing habit and the spiny character of its fronds, the latter being a rare character among Ferns.

Cheilanthes radiata belongs to the group Adiantopsis, and is remarkably like Adiantum pedatum, except that it is smaller. It is a stoutish kind with erect fronds, the stalks of which are black-brown, polished, and a foot long, whilst the blade is formed of from six to nine radiating divisions, each 8 inches to a foot long and bearing two flat rows of small three-sided bright green pinnules. It is a native of Tropical America and the West Indies, and prefers a stove temperature. C. pedata, a Jamaica species, is very similar to the above, and both are pretty stove Ferns, deserving a place in all Fern collections. They are of no value for cutting purposes, fading very soon even when placed in water; but as pot plants they have a pretty effect. We saw it at Kew a few days ago.

BEWARE OF WEEDS.

"One year's seeding makes seven years' weeding." Seventy might almost be substituted for seven without much exaggeration. And yet, with what a light heart various cultivators of field and garden go to work seeding the land with weeds. The first practical results of agricultural depression on field and garden have been the sowing of more weeds. Money is scarce; knock off a weeder; draw labourers by twos, threes, half dozens from the garden for the harvest, and let the weeds run riot and to seed in all directions. It is only for a few weeks—a month, five weeks at the longest—and then we shall make raids upon the weeds and out with them. No, no; this is simply impossible; a crop of weeds is by far the most impoverishing and embarrassing legacy of these bad times. It is also the most expensive luxury that can be indulged in; too expensive, in fact, for any but the most wealthy to experiment with. Hence a crop of weeds must needs hasten the ruin and intensify the distress of all cultivators struggling with the difficulties of hard times and low prices. Weeds lower prices still further by lessening produce, not only for the current year, but many, one might almost add with but little exaggeration, all future years. And then, weeds add to the cost of production, the second great outlay of cultivators. If one year's seeding means seven years' weeding, who will tot up the money-cost involved in getting rid of the weeds? The more we hoe up or pull out, the more and the faster they grow, until every clod has its weekly colony of weeds; and they must be destroyed before any produce of value can be realised. Left to themselves, the weeds would simply possess the earth, the survival of the fittest meaning in this connection the strongest and most worthless. And yet with all this as obvious as that twice two are four to practical cultivators, rank weeds and Thistledown are possessing the land and smothering the plants and flowers out of not a few gardens this harvest-tide. Weeds, weeds, more weeds! are the practical response not a few cultivators are

making to threatening distress and impending ruin. In a drive of 20 miles I have lately seen more Nettle-seed and Thistle-down than would suffice to stock the whole of East Anglia for seven or seventy years. The impoverishment of the soil is another evil rapidly accomplished by weeds. All of us have heard of a man so keen at a bargain that, failing any other customer, he used to deal with himself, and impoverish one pocket to enrich another. But the weed grower does his best to empty all his pockets at once. There is his best bank, the earth carefully filled by Nature and art with productive force in the form of plant food. He lets the hungry weeds empty that rich safe while he rubs his hands in glee that he has saved a few farthings in the wage of the weeders that would have kept them out. The cultivator has another bank to guard in the earth below and the air above; the roots need room, the stems, leaves, and flowers light and air to do their work of growth and to finish their produce. The weeds cramp the roots into weakness, and crowd out light and air from the tops to the reduction of the yield, or the impoverishment of the sample below marketable value. Never will agricultural or general prosperity be restored by such suicidal tactics. If farms or gardens are too large for the capital or labour available for them, let them be reduced in area. For if cleanliness will not pay, foulness cannot, and those who have least to spend are the very last to be able to afford to grow weeds either in field or garden, to say nothing of the luxury now, alas! by no means uncommon, of growing weeds *ad libitum* in both. D. T. F.

Garden Destroyers.

MILDEW ON ROSES.

This has assuredly reached its zenith this season. It began early and continued late; in fact, still—September 28—abounds. It has refused to be sulphured or showered off, and hence it is still plentiful with us. Begotten of red rust, which has also been most virulent, or running abreast of it, the mildew has in many cases stripped the Roses bare of leaves and arrested the development or lowered the quality of their blooms. The fact that it has not yet been showered off or yielded to the solvent or cleansing powers of the rains is strong proof alike of its persistency and potency. For, as a rule, mildews that abound on Roses in the early summer dissolve or disappear at the touch of autumnal rains. They are either washed off or grown out of the Roses, as the longer, cooler nights of autumn cool the feverish heat of Rose growth and moderate the express speed with which that ill-matched pair, hurry and weakness, endeavour to develop flowers. But this season it seems as if mildew were to abide with us to the very end of the growing season. Assuredly at this late period were it now to leave our Roses there is no time left for them to recoup themselves. Leafless, and not a few of them shootless, one trembles to think of their speedily encountering the winter, all unprepared for battling successfully against its sudden changes and probably severe cold. Sulphur in all its forms has proved powerless to arrest, kill, or brush off the mildew this season. The most telling check to the ravages of the mildew consisted of quicklime applied in heavy doses when the leaves were wet with rain, dew, or overhead syringing; and in these cases the check seemed to arise from the quantity applied rather than from the chemical or other effects of the lime. The Roses looked like dusty millers after their lime dressings, the mildew being overborne, and perhaps mechanically subdued, by the sheer mass of the heavy lime dressing. The mildew plague of this season has been no respecter of persons—that is, classes of Roses. As a rule, it is so to a very large extent. The more rough and hirsute the leaves and stems, the more do Roses suffer from mildew. But this season the smooth Teas, and even such robust and anti-mildew Roses as Gloire de Dijon, have been as white with mildew as the most miffy Perpetuals. Still, amid the impartial and almost universal reign of mildew over the Rose, one variety has stood forth as almost wholly proof against it. That variety is the smooth-leaved, robust-growing, profuse-blooming Homère. Next to this variety, the one that has suffered least from mildew is the fine old Bourbon Souvenir de la Malmaison, also a very robust growing smooth-leaved Rose. But this, the Gloire de Dijon and its near allies, are almost as smooth-leaved as either of these, though not quite so shiny. Further, the Glory types mostly escape, and this year it is coated over thickly with mildew alike on warm walls and in beds and borders. All forms and ages of the Glory seem also to have suffered with almost equal severity. As to remedies, can the fungologists instruct or guide us to these? Can the germs of mildew survive the winter on bark or bough, or in or on the earth? The reply to this question may lead to various means of warring against mildew in the dead season, such as early pruning, the speedy and severe reduction of the tops of Roses by the reduction of all weakly and worthless shoots, the baring of the collar of the plants down to the roots, and the smearing of every portion of the Rose left with a mixture of half and half of quicklime and sulphur. This might destroy the germs of mildew and red rust, as well as assuredly cleanse the Roses of Moss, Lichen, maggots, aphides, or other vegetable parasites or insect pests. Then, lest mildew germs should survive in the soil, the surface of this should be removed bodily clear away from the Roses, and the latter top-dressed with maiden loam or good manures. Should this not be practicable, the old soil could be burned and returned to the Roses, as, so far as is known, fire destroys the germs of all fungoid pests, and burnt earth is found to be one of the very best dressings for Roses. Further, as the mildew has rendered Rose plants abnormally tender as well as weak, it will be wise to protect them more heavily as well as earlier than usual. Teas and Noisettes denuded of their foliage and deprived of the stamina incident to healthy growth will need skilful and liberal top protection, as well as stem and branch clearing and root culture and feeding, to bring them up to their normal vigour in floriferousness next season. D. T. F.

Wasps.—"D. T. F." would make his communication about wasps more interesting by stating the locality from which he writes. Here we have no wasps. In spring and early summer queens abounded. It was a common occurrence to catch twenty or thirty a day; now not a wasp is to be seen, nor has a single nest been found. It is curious, however, that, though unlike "D. T. F." we have no wasps, we have any amount of blue-bottle flies, and the same, I hear, is the case in Devonshire. House flies are not at all plentiful. A hard dry winter is most favourable for the queen wasps. If warm weather comes in March and wakens them up, they come out before there is any proper food for them, and they are starved. This is my impression, and the late Mr. Darwin agreed with me. This year the long and severe winter kept them in winter quarters till late, and so they abounded; but a very cold and wet May followed and they perished by starvation.—A. R., *Windermere.*

—— Here in the spring we killed over 100 queens. I never remember seeing so many, and when moving some heaps of rubbish in the latter part of June we found a nest just forming containing about twenty cells and some of the larvæ just forming, while some were only just visible, but since that time I do not remember having seen one solitary wasp. Last year we had them in thousands; I destroyed six nests within a radius of 100 yards of our vineries. Blue-bottles have been very troublesome, but the east winds of the last few days seem to have driven them away. —Alfred Gardner, *Broadwater Hall, Worthing.*

Tar paint.—I would strongly advise "M." to use the black varnish advertised in the gardening papers, and thereby avoid the trouble of making up any mixture of tar and paraffin. Common tar is, I find, going out of fashion, as the black varnish is quite as durable and can be used exactly in the same way as paint. It does not require boiling, but is laid on as taken from the cask. In cold weather it may be necessary to warm it a little to make it work more freely, though even this precaution is not, I am told, indispensable. For the future I shall use no more tar.—J. C. B.

Schubertia grandiflora.—This is a beautiful white-flowered stove climber, which appears to have been introduced about forty years ago, figured in the magazines, and a good deal written about at the time, and then allowed to drop out of cultivation; at all events, we never saw or heard of living plants of it till a correspondent sent us, a few days ago, a flower and leaf of "a climber which had grown 20 feet or more in length, and had on the last 10 feet clusters of white flowers, about six in a cluster, looking before opening like a bunch of Filberts." This plant proves to be the Schubertia above referred to, but whilst apparently the same species as that introduced in 1811, the flower sent to us for identification is at least twice as large as any in the figures of the earlier plant. One of these figures will be found in the *Botanical Magazine*, t. 3891, under the name of Physianthus auricomus (golden-haired), and another in the *Botanical Register*, xxxii., t. 21, where it is called S. graveolens. For garden purposes our correspondent's plant might well be kept out of the company of the form figured in these two works, which is vastly inferior to the flower before us now. And yet it is stated of this smaller variety that "it was not inferior to Stephanotis as a flowering plant, whilst the flowers are larger and at least as fragrant." The Royal Horticultural Society awarded this smaller-flowered form a Banksian medal in 1845. We do not think the Schubertia is quite equal to Stephanotis in respect to fragrance or purity of whiteness, but it is nevertheless a beautiful plant, and apparently easily grown and flowered. Here is a short description of S. grandiflora: Stem woody, twining, covered with yellow hairs; leaves obovate, pointed, undulate, 5 inches long, 2½ inches broad, light green, softly pubescent; flowers on axillary peduncles, about six in a cluster on each peduncle; calyx of five brownish green sepals three-quarters of an inch long; corolla 2 inches long, 2½ inches across, and in shape and substance like that of Stephanotis; in colour it is a soft creamy white, becoming primrose-yellow with age; fragrance very powerful and heavy, not unlike the scent of Gardenia flowers. We learn that the blooms of the Schubertia last a long time in perfection. The genus belongs to the Asclepiad Order, and is sister to Physianthus. Our correspondent obtained his plant from seeds imported from the Argentine Republic.—W.

Names of plants.—*J. T.*—Adiantum Capillus-veneris, apparently the Algerian form.——*J. Morgan.*—1, Rondeletia speciosa ignea; 2, Posoqueria longiflora; 3, Asclepias curassavica; 4, Diplacus glutinosus; 5, Lælia Dayana; 6, Pleione lagenaria.——*E. H. K.*—Alstrœmeria aurantiaca var.——*A. C. Bartholomew.*—Schubertia grandiflora.——*R.*—Sedum purpurascens.——*J. G. Cattley.*—Next week.——*H. Archer-Hind.*—Aster (Biotia) corymbosus, Ait. (=Aster cordifolius, Michx.), but not the plant recognised by Asa Gray as A. cordifolius; an old Linnean name; a plant nearly allied to Shorti, Drummondi, and sagittifolius.——*W. E.*—Aster dumosus.——*B. B.*—Cephalanthera rubra.——*Tahiti.*—Crocus tessellatus; Pear is Williams' Bon Chrétien.——*Miss C. Mangles.*—Zephyranthes candida.——*Tenby.*—1, Solanum sp.; send better specimen, with information as to the country whence it was obtained; 2, Rudbeckia amplexicaulis.——*Jessamine.*—Narthecium ossifragum (Bog Asphodel).——*X. Y. Z.*—1, Aster Novæ-angliæ roseus; 2, A. longifolius formosus; 3, Galatella dracunculoides; 4, A. horizontalis; 5, Polygonum Brunonis.——*D. D.*—Yellow flower, Deudrobium chrysanthum, Sarcanthus sp.; name next week.——*R. W.*—Angræcum pellucidum.

Names of fruits.—*S. K. T.*—Plum, Peach; Apple, Downton; Pear—1, Green Achan; 2, not known.——*Anon.*—4, Williams' Bon Chrétien; other not known.——*G. Smith.*—1, Emperor Alexander; 2, not recognised; 3, Manks Codlin.——*J. Fotheringham.*—*a*, Winter Strawberry; *b*, Tower of Glamis; *c*, Hawthornden.——*Two Apples, without any letter, numbered 6 and 7.*—6, Brabant Bellefleur; 7, Beauty of Kent.

BOOKS RECEIVED.

"Shooting on Moor and Marsh, and Shooting in Field and Covert." Badminton Library. Longmans, Green & Co.

"Mary's Meadow, and Letters from a Little Garden." By J. H. Ewing. Society for Promoting Christian Knowledge.

WOODS & FORESTS.

FORESTRY NOTES.

Future management of our woods.—If the nation will not appoint a school for the education of our woodmen, landlords and owners of woods can still help themselves and improve matters. They can, if they choose, place the care of their woods in better hands. Gardening never was more depressed than at present. Reduction is the order of the day in many establishments, and nowhere more so than in the garden, throwing many good men out of places altogether or reducing their salaries. Why not, therefore, employ such men as foresters? or, what would be better for both parties, as foresters and gardeners combined? Unless in the drudgery of woodcraft and perhaps a trifling inexperience in valuing and disposing of timber—things that can be learned in a very short while—a gardener's education fits him for the duties of woodman as well as gardener. The culture of trees is as much in his way as the culture of fruits, vegetables, or flowers. In fact, he has practically in times past performed some of the most important duties of the forester, for in almost all establishments it is he who propagates and nurses all new subjects intended for the woods, and in many other ways assists by his advice and work in planting and management. There are good foresters, of course, who have been bred to the business and who are a credit to it, but they are the exception, for the general run of woodmen—masters, foremen, and men—are far behind the gardener in practical and theoretical knowledge. The best proof of this exists in the fact that forestry as a craft is practically destitute of a periodical literature of its own, and has few books comparatively, while gardening is abundantly supplied with both. Woodmen do not read, have no records, and I believe I am within the mark in stating that it has been found all but impossible to sustain a paper devoted to forestry alone, so little encouragement has any venture of the kind received either in England or Scotland. But let the two be combined, or place our woods under the care of trained horticulturists, and you at once lift forestry into a higher level, and give it a chance it never has had before. The burden of the evidence given before Sir John Lubbock's committee all went to prove that our British woods were mismanaged, and that the cause was the ignorance of agents and their subordinates employed to look after them. Here, then, is a class of men (gardeners) qualified for the task; why not employ them? It is not a new idea. There are not a few gardeners employed as woodmen, and, so far as I am aware, the plan has been always found perfectly successful.

Norway poles, how grown.—I examined and measured some of a pile of these the other day. They were about 30 feet long, and in that length the quarter girth top and bottom varied from about 1¼ inches and 2 inches, that is to say, the poles did not taper more than that from end to end. The cause of this, it was plain to see, had been the crowded condition of the forests in which the poles grew, thereby preventing the trees from carrying more than just a top of branches—perhaps extending to a quarter of the tree's length. They could not be produced any other way. Where Spruce trees are thin on the ground they carry all their branches down to the ground, and are consequently much more tapering and crowded with knots that are deep seated, rendering the timber partly useless for many purposes. In the Norway poles the lower branches had long ago disappeared. The fault of mostly all the Firs in English and Scotch woods is that they are too thin on the ground. On one extensive estate I am acquainted with in Scotland, where the woods were at one time proverbial for their "good management," the Spruce trees were so severely thinned out, that they, in almost every case, carried their branches to the bottom, and so regularly that I have seen the wood-boys amuse themselves by climbing to the tops of the highest trees and sliding down over the branches to the ground. We shall never produce good Larch, Spruce, or any kind of Fir poles in this way. We have excellent examples of the effects of the two modes of culture here. In one plantation on an exposed hillside, where the Larches grow thinly among rather stunted Oaks of the same age, they carry most of their branches, and are consequently thick at the base of their trunks, which, however, taper like a carrot to the top and are full of knots. This Larch the collieries will not use, because it is too thick at one end and too small at the other. Elsewhere Larch of the same age drawn up in consequence of having been crowded and never having more than just a top of branches is exactly of the shape of the Norway poles, not being very thick at the base nor very small at the top, but carrying their girth evenly throughout a length of from 40 feet to 70 feet. Another instructive example of their culture grows at the margin of the park in the shape of a Larch some eighty years of age still carrying its bottom branches 20 feet long or more—very thick limbs indeed. The tree is a very rough specimen and big, but as it is a good plank could not be sawn out of it, because of the numerous deep-rooted knots caused by the branches. Like the others mentioned, it tapers greatly also. A contrast to this tree are the other members of the same group growing inside the wood and which have never carried anything but top branches. Some of these are bare now up to nearly a height of 40 feet, and are clean, straight, of uniform girth, with no sign of knots, the lower branches having long ago fallen off and their places grown over.

Comparative bulk of trees.—Of some examples of standing timber reckoned the other day, I find the Spanish Chestnut tops the list, one here, about eighty or ninety years of age, having about 170 feet of timber in its three limbs and larger branches. Beech of the same age or perhaps a little older contains about the same, the branches having plenty of room, the measure being in the trunk chiefly. Larch eighty or ninety years of age have 60 feet or 70 feet in them. Scotch Fir and Spruce have both less than the Larch considerably, though of the same age; and the Oak has the least measure of the deciduous examples mentioned. The Beech is a much faster grower than is generally supposed, and with the increasing market for timber in this country it is one of the trees to plant where it will grow. Good trees fetch a little less price than Oak at present, but much depends upon bulk and quality of the timber. It must not be forgotten, however, that the Beech is much the fastest grower of the two.

Good examples of Corsican Fir.—These, I am told, are to be found at Alnwick Castle, Northumberland, where trees with 60 feet of timber in them have been felled and the quality proved. I wonder if the authorities there could furnish you with any information on the subject. Y.

My Scotch Firs, of from 60 to 100 years old, and generally in a healthy state, are dying from the attacks of an insect. I send you herewith a twig and piece of the bark to show how it works, and would be glad to know if any steps can be taken to stop such serious ravages.—W. H. M., *Dalbeattie*.

*** Your Firs are attacked by the Pine beetle (Hylurgus piniperda), which is, unfortunately, a very common pest. When trees are of the size that yours are it is almost, if not quite, impossible to do anything to kill the insects, but much good may be done by removing all stumps, felled timber, broken branches, &c., in which the females might lay their eggs, and by at once cutting down any trees which are showing signs of want of vigour or which have been partially uprooted by storms. I believe it is seldom, if ever, the case that thoroughly healthy trees are attacked.—G. S. S.

OAK PLANTATIONS.

The difference between Oak plantations and those of Larch or other Firs is, that the Firs are swept away at a single cutting, while the Oak is gradually exploited. The nature and rate of growth of the two classes of wood will at once suggest the reason why this should be. This gradual system of cutting Oak makes the management of the woods or plantations a more intricate business than the mere dealing with a given acreage of Larch or other similar wood, and the greater variation in size and form of the Oak adds to the difficulty. In most Oak woods and plantations, too, there is generally more or less underwood, which is very seldom to be met with in the other class of plantation. There are many ways, however, in which the periodical cuttings may be disposed of, and the particular method chosen which best adapts itself to the surrounding circumstances.

Selling trees and underwood together in the winter is a plan which takes all expense and further trouble off the vendor at once, but it must be for each to judge for himself as to its merits when the whole bearings of the system have been looked at. Whether the sale is effected by auction or private treaty does not greatly alter the preliminary work to be done or the information which is necessary to gain as to the value of the produce. Before, however, the sale of the underwood and trees in a single lot is attempted, it will be well to be satisfied that there are buyers who deal with both branches, as the timber and underwood trades are essentially distinct, although the two are sometimes combined in the person of one individual. In setting out an area for selling in this way as the wood stands, it will obviously be necessary, first of all, to be satisfied as to the acreage, in order to fix the worth of the underwood, and then to select and value the proportion of timber which has to be cut. In practice with standing wood this is in nine cases out of ten an unpleasant and difficult task, and is therefore, as a rule, performed in a perfunctory manner, and generally leads to the buyer getting the best of the bargain, as the dimensions of the trees are not readily seen, and their relative positions with respect to each other is to a great extent guesswork. To obviate this, even if it is deemed best to sell both the underwood and trees standing, the transaction may be divided into two, the underwood being dealt with first and the thinning and sale of the trees as soon as this is cut down. In this way the size, character, and position of each tree may be at once seen, and a difficult operation reduced to one of ease and comparative certainty. In going over trees in this way the matter of marking must lie to a great extent with the operator, but I prefer, if possible, to have the marks upon the trees which have to be felled, and not upon those which are to be left. When the proportion intended to remain is very small in relation to the number to be thrown, it may be a small saving of labour to mark the least in bulk, but as the operator should visit each tree to ascertain its contents and value, the labour cannot amount to much.

The cutting of the underwood by the vendor and arranging it in drifts of uniform width and ascertained lengths, and selling the trees which it is necessary to fell as they stand, is another plan which is sometimes adopted. This is chiefly the case where there are woodmen on the place for whom work must be found in winter. At first sight it may be thought that if the men are employed to cut the underwood, that there can be no advantage in allowing the buyer to take the trees as they grow. On large estates, where sales of wood are not confined to a fixed time annually, this is true; but in places where the sale of the underwood takes place during the winter or early in the spring, and there is little or nothing but the thinnings from the area from which it has been cut to come into market during the ensuing season, it is often a matter of policy to close the whole business at once, by selling the Oaks as they stand, and allowing the merchant to fell and remove them at barking time. But, as it has been said, where the

amount of timber is enough for a subsequent sale and the woodmen have to be found employment, it may be better to do the work of felling and barking and dispose of the trees at per cubic foot. At any rate, from these general rules there should not be much difficulty in working out a plan to answer to individual circumstances and requirements. One thing about it is perfectly clear, and that is, when there is underwood, this must, either by the underwood merchant or the owner, be cut and laid before anything can be done in the matter of tree-felling; and, further, that to do the work carefully and well, even the operation of selecting and marking the trees should be deferred until the underwood is felled, to allow free movement amongst the trees and a clear view of the character and positions of the trees with respect to each other. On the whole, as the businesses are quite distinct, even if both transactions are concluded with the same person, I look upon it as more satisfactory to make the sale of underwood and of timber trees separate and independent bargains.

D. J. Yeo.

EXTINCTION OF ASH TREES.

There is one good point about our American friends in forestry matters, and that is, they never seem loth to cry out about the entire destruction of certain of their species of trees within a given time, although the event seems to recede as we approach it. It may be pardonable, therefore, although I possess a good deal of optimism in relation to forestry matters in general, to again point out that the Ash and the Sycamore as timber trees will soon be things of the past. I know there is nothing at all new in this assertion, and the Sycamore, useful and ornamental though it be, could probably be better spared of the two. I am quite familiar with the reasons given why the Ash is not more planted, and why, where it exists, it is so assiduously felled, but in the face of it all it is a matter of regret that such an indispensable tree should be allowed to become practically extinct. The remedy I take to be that of raising in plantations either by itself or with Oak. If this is done, the objection of the roots impoverishing the soil when grown round fields, and the objection some have to the appearance of the tree, would be quite overcome. Ash plantations and Ash alone are not often met with, but if the tree is to be preserved from practical extinction some such plan of growing must be tried. For aught I know, there is no reason why Sycamore should not be grown in the same way. So much having been said with apparently so little practical result makes the iteration of such views a little discouraging, but the facts speak for themselves, however ignored. Sentimentally, one would deplore the loss of these trees, but, practically, the extinction of the Ash means a greater inconvenience than can be seen on the moment. It is true that a proportion of Ash is brought into this country from abroad, but this is not a sufficient reply to the question, and we have no guarantee, even if the quality of the wood were equally good, that the supply is inexhaustible. The use of the Ash dates, I suppose, from almost pre-historic times, but never probably was the rate of consumption equal to that of the present moment. Little or no planting and rapid consumption when taken together cannot go on for ever. At the lowest calculation half a century must elapse before trees planted now can reach a size large enough for many uses for which they are required, and as events are marching it seems a puzzle how the existing supplies can be made to last so long. The fashion of planting Larch—a very useful wood in its way—suddenly attained a great height, presumably on account of its novelty, and one would like to see something in a smaller way occur with the Ash and Sycamore—the latter, perhaps, to a fourth the extent of the Ash. In matters agricultural the Ash is the chief wood. Mowers, reapers, ploughs, harrows, wagons, and, in fact, almost every implement of the farm contain more or less of English Ash, and it is only when the supply is gone that its real utility will be seen. J.

CIRCULAR AND BAND SAWS.

The circular saw and its appendages above all others is the most essential machine used in connection with British wood. The saw, worked by mere manual force, has done much in the past and is doing good work now, but it can hardly be classed under the head of a machine. To the circular saw, then, must be accorded the premier place, and this no doubt on account of its comparative strength and simplicity. There are other saws, however, which are well suited for cutting up own home-grown woods, and one occupying an honourable place in the list is the band saw. On the other side of the Atlantic this style of saw has been developed in a way which is hardly dreamt of here, and is capable of cutting up very large logs. In a few cases in this country some large machines of the band saw type have been laid down, but it is the smaller forms with which we have more to do. These are now made extremely portable, and require a very small power to drive them. The saw or web, running on two or three wheels according to the construction of the machine, is necessarily very thin and flexible, and not capable of standing the rough usage to which a circular saw is sometimes subjected; but with care and judgment it is a tool which will perform a surprising amount of work thoroughly well and with a very small amount of wear and tear; indeed, we know machines which are used for cutting up home-grown hardwoods to a thickness of 5 inches or 6 inches merely actuated by manual power in the manner of a chaff machine, a handle being fixed to the periphery of one of the wheels or pulleys upon which the saw runs. This is the most rudimentary form in which the power can be applied, and is not to be recommended beyond trifling uses, as it is laborious and not economical. The quality of the work, however, is quite as good as if the machine was driven in any other way. A better plan, and one which may often be available, is to supply the motive power by means of the horse gearing, which is generally attached to a place of any size for chaff cutting and other work of the same class. This power is, of course, equally capable of being applied to the circular saw, but the thinness of the blade of the band saw makes the cutting a much more easy task. A step beyond this is, of course, when steam is to be had, but with this comes the point where the utility of the band and the circular saws approximate, as with a sufficient power the ease and rapidity of using the latter is at its maximum. It is to the smaller resources that the band saw so well adapts itself, and with material of not too large dimensions there is scarcely any limit to what it will do. Even the somewhat rough work of sawing off fire logs is a thing which a horse-power driven band saw would be able to do, providing the wood was not of such a nature as to subject it to sudden jerks and strains. Small Oak logs, if not too dry and knotty, Elm logs, Ash or Beech, could easily enough be reduced to any desired lengths. It may be mentioned, however, that for cutting such pieces longitudinally the power of the band saw is not suitable, or rather its construction, as from the way the table is usually made it would be inconvenient to support very long lengths. For the type of saw to which we are referring, logs of some 6 inches in diameter would be large enough to cut transversely. One great use of the band saw is that of sawing in curved lines, as the narrowness of its blade makes it easy to direct the wood in any required direction, providing, of course, it is not too sudden and acute. With the ordinary narrow frame saw, worked by manual power, the saw is made to follow upon the wood the direction marked out upon it. With the band saw the operation is just the reverse, as the wood, though marked in the same manner, is brought to the saw, *i.e.*, the saw itself is always running in the same position, and the wood is advanced upon it. The same, of course, is true of the circular saw, but with this the wood must be advanced in a direct line, whilst with the band saw the direction may be varied to right or left at pleasure.

Boring for fence posts and similar purposes is work which consumes a lot of time when done by hand, and when a large quantity is required some appliance to expedite the work is almost a necessity. This may be supplied by means of an auger attached to the shaft or spindle of the machine. This perhaps is more frequently done with circular than with band-saw machines, on account of speed, but there is no reason why it should not be applied to the latter for such work as is contemplated in this paper. D. J. Y.

Quality of Scotch Fir timber.—That there are two descriptions of timber in this country is undoubted. One is red in the grain and resinous; the other white, woolly, and not so resinous, with annual rings larger, indicating a quicker growth; the produce of P. montana and sylvestris respectively There is no doubt but that certain soils will alter and modify the character of the timber, but the two varieties grown on the same soil will exhibit these characteristics. But the quality of Scotch Fir timber is not of so much importance, except for home estate use, at the present day, as so much is used for temporary purposes, in which the quality of the timber is of little consequence.—J. S. R.

Gathering Fir cones for stock.—It is now a well-established fact that stunted and decrepit specimens are prone to produce cones more abundantly than vigorous healthy trees. I am not in a position to say whether the nurserymen in Scotland, who raise such enormous numbers of seedling Pines, gather their seeds from such trees or not; but should this be really the case, it would be well for planters and for those nurserymen who purchase quantities of one-year-old seedlings from northern growers to enquire into the matter. That stunted Pine trees bear cones freely cannot be questioned; but that they are more prolific than fine old full-grown trees, no one really acquainted with the Pine would maintain. This is an important question for landed proprietors and those interested in the commercial value of timber trees.—Old Forester.

The Black Birch (Betula nigra).—This is a close-grained, handsome wood, and can be easily stained to resemble Walnut exactly. It is just as easy to work, and is suitable for nearly, if not all, the purposes to which Walnut is at present applied. Birch is much the same colour as Cherry, but the latter wood is now scarce, and consequently dear. When properly stained it is almost impossible to distinguish the difference between it and Walnut, as it is susceptible of a beautiful polish, equal to any wood now used in the manufacture of furniture. In the forests throughout Ontario Birch grows in abundance, especially if the land be not boggy. There is a great difference in the wood of different sections. Where the land is high and dry the wood is firm and clear, but if the land is low and wet the wood has a tendency to be soft and of a bluish colour. In all the northern regions it can be found in great abundance, and as the tree grows to such a size, but little trouble is found in procuring a large quantity. The forests of the Manitoulin Islands abound with it, as well as those of the Peterborough and Haliburton districts. The Muskoka district also contains a plentiful supply.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

NAMING AND CLASSIFYING ROSES.

So beset with difficulties is this matter, that even the above title hardly expresses my meaning; the naming of Roses is simple enough. The difficulty is arranging them into classes, each distinguished by some prominent and constant characteristic, and to find names fairly descriptive of the classes so formed. Our present arrangements may be fairly described as not only confusing, but uncertain and incomprehensible. The net results of not a few of our current high-sounding phrases are little more or better than a series of sounds signifying little or nothing. For example, who shall say what the term Hybrid Perpetual means? Assuredly it will not bear its natural interpretation, that of Roses that grow or bloom in perpetuity, for the majority of them bloom but once a year, and mayhap yield a stray bloom occasionally in addition. Could perversion of words or misrepresentation of facts go further? Hardly, unless by some freak of fancy or of fortune someone were to dub the old Damask Roses Perpetuals in virtue of their being among the longest lived Roses we possess. Such a name for this hardy old class would have a more substantial basis of fact to rest upon than our Hybrid Perpetuals, not a few of which in many situations are approximating to the character of annuals, biennials, or triennials. Length of life is a more substantial basis of classification than an assumed character for growing and flowering, which has little or no existence in fact. But it is much easier to condemn existing names and classifications than to devise better ones. Still, the first step towards improved arrangements must be the abolition of those that are wholly misleading and radically faulty, such as the calling of Roses, which in the mass make but one growth and yield but one harvest of bloom a year, Perpetuals or Hybrid Perpetuals. Nor must the system of classifying Roses by the countries from whence they come be adhered to. Chinese, Indian, Persian, for instance, may mean much, little or nothing, according to time, modes of culture, purity to original types, &c. For instance, China Rose had a definite meaning once, but who shall define its meaning now so as to be understood by the public at large? And as to botanical species, they are a deep well of varying mysteries, that, by much mixing and many uncertainties, have grown into a veritable bottomless slough of despond to common capacities. It seems physically impossible to make botanical species of Roses the basis of any practically useful nomenclature or classification that shall be understood by rosarians. For, as Lindley wrote nearly seventy years ago, "There are no limits to the species; it is impossible to give them rigorous definitions." The same distinguished botanist says with truth, the genus Rosa is easy to define, and a tyro finds no difficulty in recognising it. The case is quite otherwise with the species; precision now gives place to vagueness, and the alleged points of distinction break down almost at the first trial. This exactly agrees with the testimony of Mr. Wm. Hewett in THE GARDEN (p. 267), "that although the botanical classification and history of the Rose are very interesting, they fail to throw much light on the question of their classification or nomenclature." Hence, I also agree with this writer that a mere practical garden classification is about as much as we shall be able to obtain. Mr. Hewett also seems to have seized upon the two most vital points—if, indeed, there be two—as the bases of his classification and naming of classes for practical purposes, viz., the character of the plant and the number of times it blooms in an ordinary season in the open air—that is, without the shelter of glass or the stimulus of artificial heat.

As to the two characters of shrubs and climbers, probably bushes would be a better title than shrubs, as it conveys a more distinct meaning, though not a few Roses become either one or the other according to circumstances of culture or training; such, for example, as Gloire de Dijon and Homère, which may be grown into nice spreading bushes or run up walls or trees to heights of from 5 feet to 15 feet, at the option of the cultivator. Again, Coupe d'Hébé and Charles Lawson form fine bushes and equally magnificent climbers if only aided by a rich border and a high wall, though neither would be termed climbers in the sense in which the Banksian or Dundee Rambler merit that character.

Still, on the whole, climbing and non-climbing are words that would fairly describe large classes of Roses. How far such subdivisions of subordinate value as prickly and prickless, hairy and smooth-leaved, those bearing their flowers singly or in trusses—might be used to determine or distinguish classes, it is not possible to determine. For example, the prickles of Roses, while differing widely in structure and character from proper spines, differ almost to infinity from each other; while we have one or two species of Rose that are without thorns—viz., the Banksians. To those conversant with this branch of our subject it might seem possible to base a tolerably sound system of classification on the varying lengths, forms, characters, and even colours of Rose prickles. During the dormant season, these and the size, character, and colour of the shoots are almost our only possible means of identification.

But doubtless the number of times a Rose may be reasonably expected to bloom in the open air during one season forms the most valuable basis for a mere garden, as distinguished from a botanical or historical, classification. And probably we can hardly make a better start in the direction of such than by adopting Mr. Hewett's threefold division of Roses into annual, periodical, and ever-blooming Roses. Of course by carrying this threefold division through the two classes of climbing and bush Roses, we will have six classes in all. But as very few climbing Roses properly so called are more than annual bloomers, perhaps these could be included among the annual, and thus all Roses could be included in the three classes of annual, twice-blooming, and ever-blooming Roses. It may be suggested that twice-blooming would be at once more definite and more correct than periodic blooming. All Roses that in a normal state in the open air bloomed more than once could be classed among the twice, while those that bloomed oftener than twice a year would be called ever-blooming. However scientifically faulty and flimsy such a classification would be, it would really prove of high practical and commercial value, and would deliver us from those gross impostures of so-called Hybrid Perpetual Roses, the great majority of which are but annual bloomers, and hardly any of which, unless it be the two that have but a slender claim to be considered Hybrid Perpetuals, viz., La France and Boule de Neige, would rank in our new class of perpetual bloomers.

Mr. Hewett is entitled to our warmest thanks for grappling with this difficult subject, which is one eminently worthy the attention not only of the horticultural societies of America, but of our own National Rose Society, which might take the useful initiative of remodelling their list of best exhibition and garden Roses on the new basis of once, twice, thrice-blooming varieties, those that bloom thrice or oftener receiving the honoured title of ever-blooming. HORTUS.

STAYING PROPERTIES OF ROSES.

THIS subject is of so much practical importance, and the principles that govern it are so little understood, that at the risk of being again criticised somewhat severely by "T. W. G." and others I venture to return to it. In the present state of our knowledge, however, as to the effect of feeding on staying power, it will ill become any writer whose sole object is the elucidation of truth to go beyond the problematic mode of statement so severely handled by "T. W. G." True, he has totally abandoned the language of doubt and advanced into the regions of absolute certainty in such sentences as the following: "In practice it is found that the blooms that stand best are those that are grown on the richest and best soil, with plenty of manure and copious supplies of weak liquid manure when the buds are swelling, and it is only when exhibitors have learnt to produce by these means the strong growth that can carry first-rate flowers, that they can ensure their blooms withstanding successfully the ordeal of long journeys to and from shows." It is seldom one reads so many positives in a single sentence as in this. As a rule, it will be found safe to thread one's way cautiously through such a difficult subject as the staying properties of Roses, and how far this may be effected by dietary and culture than to ride rough-shod through the whole matter on the high level of strong assertion. A brief analysis of the foregoing sentence, however, proves that, however positive it may seem, it is, after all, fully as vague and uncertain under critical examination as the "possibly," "it seems," &c., so severely condemned by its writer. For example, what constitutes "the richest and best soils" for Roses? How much is "plenty of manure?" What is "weak liquid manure water?" How much in gallons is a "copious supply?" and at what stage of the "bud swelling" process should the copious supply be given to change the swelling buds into model blooms that will go anywhere and last long enough without flagging or flushing to sweep off any number of first prizes?

Positively, "T. W. G." and other writers of the same school may be rather surprised to learn that some of those most conversant with the latest knowledge of root formation and function, and the true system as regards the manufacture and conveyance of food, are disposed to doubt whether much or any of the manures offered to swelling buds is in time to greatly influence the size or quality of bloom developed from them. Again, is it so unusually true as to have grown up into the region of absolute truth that strong growths alone can carry first-rate flowers? My experience is that, barring accidents, they may be always made to reproduce their like—that is, shoots of equal or greater strength. But there are so many objections to the rule, that strong growth alone can carry first-rate flowers as to totally upset the rule as reliable.

Other assertions abound throughout this article; as, for example, that "the already too high rate of mortality among Roses might be raised through starvation." The last word is "T. W. G.'s" strong definition of my advocacy of a moderate regimen for Roses. But, to let that pass, we have not an atom of proof, direct or indirect, of any Roses having been starved to death; whereas there are

comparatively few gardens in which visible signs may not be seen of their having been less over-fed into conditions of growth and tenderness as to result in disease and death. Besides, the growing mortality among Roses began with, and has run abreast of, over-feeding. More than that, it may almost be affirmed that the richer the soil and the more manure added the higher the rate of mortality. I still prefer my comparison of a healthy Rose tree and its products to an athlete, to "T. W. G.'s," of a fat beast for a Christmas show. No animal suffers so soon or so much from change and deprivation as these pampered, petted monsters of obesity. And so with Rose blooms, I still contend that blooms suddenly cut off from a full—over-full—larder are the likeliest to fade or lose colour, unless their wants can be supplied afterwards. This after-supply may be within reach of the grower and exhibitor of the future, when strengthening mixtures may become as common for keeping up the staying properties of cut blooms as they are for maintaining the stamina of fat beasts at shows.

We have further illustrations of the indefiniteness of "T. W. G.'s" positivism in the closing sentence of his first paragraph, in which he writes of the limited area of his good Rose soil from the richest soil beds only producing fat flowers that may be relied on, while the sandy soils, made up as well as could be managed, produced flowers that, however beautiful at the time of cutting, do not under trying circumstances stand.

Taking the statement as it stands, it affords strong confirmation of my views against over-feeding. For from anything that appears to the contrary, no manure was added to the good Rose soil from the richest soil beds, or whatever that may mean, on which the best staying Roses were grown. Nor is it by any means clear that the Rose had more or richer food from this orthodox Rose soil from the richest soil beds than from that of a more sandy character "made up as well as could be managed." Most practical rosarians would interpret the latter phrase thus: "A very heavy dressing of rich strong manure," and thus accepting the natural interpretation of the phrase, "the making up of sandy soil for Roses as well as could be managed," it follows almost as a matter of certainty that the Roses grown on the sandy soil were more abundantly fed than those grown on the good Rose soil from the richest soil beds. My remnant of doubt or uncertainty on the matter vanishes as we take into consideration the following among other facts. Sandy soils decompose manures and convert their constituents into plant food more rapidly than most others. The mechanical texture of a compound of sandy soils and manures is most favourable to the rapid multiplication of feeding roots. Given a superabundance of suitable and palatable food in closest proximity to abnormal numbers of hungry open mouths, and all the conditions of a large consumption are fulfilled, and this, as I have shown, is exactly what happens to Roses on sandy soils largely made up of, and liberally enriched with, manure. Hence I contend the Roses grown on sandy soils are overfed, not starved out of their staying properties, and, further, that "T. W. G.'s" case in point and matter of practice so confidently advanced to prove the contrary, but clenches my argument and renders its logic of facts the more clear and irresistible; that argument may be succinctly stated thus, that over-feeding, whether of man or Roses, results in a loss of physical stamina, and it is a mere truism to add that such a loss lessens the force and duration of the staying properties of either. This is a very different thing from advocating what I am already virtually accused of doing, anything that could be correctly described "as raising the already too high rate of mortality among Roses through starvation." There is many a means of good culture and grand results to be found between gross feeding and penurious starving, and my contention is that the likeliest methods of lengthening the lives of our Rose bushes, and adding to the force and durability of the staying properties of their blossom, will be found in the adoption of, and rigid adhesion to, one of those means. D. T. F.

ROSES IN POTS.

Some useful hints on the culture of Roses may be found in an article published in the "Rosarian's Year-Book" for 1880 by Dr. Bennet, entitled "Winter Roses on the Genoese Riviera." During his residence in the south of France Dr. Bennet has evidently studied carefully the peculiarities of the Rose, especially during the autumn and winter months. Most cultivators are aware that Roses in pots, or other deciduous plants, may be rested by keeping the soil dry during summer, and that they may be pruned, started again, and induced to flower in the late autumn and winter months. From the middle of October to the middle of January is a period during which well-formed and handsome Roses and Rose-buds are scarce. After stating in the article just alluded to that the Rose "flourishes in all regions and climates from St. Petersburg to Calcutta," Dr. Bennet has the following pertinent remarks regarding resting: "In cold climates the Rose gets the rest that most plants require. Through cold and frost it loses its leaves, and the branches hang as if life had departed from them, to revive, however, under the first warm breath of spring, bursting into buds, leaves, and branches with energy renewed by the winter's rest. In warm, dry, arid, rocky regions, most plants get their rest in a different way. The absence of rain for months together, combined with a burning sun, dry up the ground so that it can afford no moisture to the plants which it bears; active vegetation ceases, and in this way a rest is obtained, often extending over many months, although the heat is very great. Such is the case with most of the plants that grow on the north shores of the Mediterranean. They get their rest from heat and drought, while those of most northern regions get theirs from cold and frost. Generally speaking, northern plants that rest from cold die if long exposed to heat and drought. The Rose, however, is an exception. It rests in the north of Europe through cold and frost; it rests in the Genoese Riviera through heat and drought, and in either case with equal facility, without its health or vigour being in any way impaired." These last sentences deserve attention from those who wish to successfully cultivate Roses in pots, *i.e.*, obtain the largest quantity of good blooms from their plants. A Rose show in November would be something new, but it is not more difficult to get good Roses in that month than it is to exhibit such beautiful zonal Pelargoniums as we are accustomed to see at Chrysanthemum exhibitions in London and elsewhere. The right thing is to give the plants a season of rest; in fact, to imitate the conditions so well described by Dr. Bennet, who states that "after nearly three months' rest pruning is begun in the first fortnight in September."

The hybrids are the first pruned, as they are the most difficult to flower. The young wood is cut back to three or four buds in the case of Tea Roses, but not so far back in that of the hybrids; the flowering commences after the first rains, and goes on throughout the winter, more or less freely, until the middle of January. The winter temperature of the Genoese Riviera, as registered by Dr. Bennet, is as follows, viz.: November, min. 49·2°, max. 60·1°; December, min. 44·2°, max. 55·1°; January, min. 42·8°, max. 53°; and February, min. 43·5°, max. 55·7°. These temperatures can easily be maintained in light, well-ventilated houses in this country, and for the rest all that is required is good cultivation. If there is any difficulty to face, it is want of sunshine, and that is one over which the cultivator can have no control. In many cases failure to grow Roses well in pots results from want of attention to their cultural requirements. Tea Roses are by far the best for pot culture. I like plants on their own roots better than budded or grafted ones. The seedling Brier is perhaps the best stock for Tea Roses. It might be best to work weakly varieties on it, and keep the more vigorous ones on their own roots. The best Rose growers keep their Tea Roses under glass all the year round, and this affords an excellent opportunity to rest them after they have made their season of growth and have flowered well. The Riviera Roses, which produce flowers so freely in autumn, flower also abundantly in May. By the middle of June all is over, and the period of rest has arrived.

Careful potting forms an essential part of successful culture, both in the case of large specimens and small yearling plants. The staple material in potting should be good yellow loam, say four parts, and to this add one of peat, one of leaf-mould, and one of decayed manure; if necessary, some sand. Crushed bones are excellent mixed with the potting soil, also some pounded charcoal. Have the pots well washed, and use good clean drainage, consisting of broken pots; we prevent the potting soil from mixing with the drainage by placing over it some tough fibre, from which most of the clayey particles have been shaken. One serious error in culture is the not uncommon one of placing the plants in pots that are too large for them; better by far err in an opposite direction. A well-flowered Rose bush can be cultivated in a 7-inch pot, and in that size the plants will remain in good growing and flowering condition for twelve months, but at the end of that time they will require repotting; before doing so the roots should be disentangled a little, the drainage worked out from the bottom with a pointed stick, and also some of the old soil. A pot 9 inches in diameter would be the best in which to re-pot—rather smaller than larger. The compost should be pressed in rather firmly, and if the operation is carefully performed, the plants will sustain no check whatever. Roses may be repotted when in full leaf, and it is better to repot them after they have been pruned and started into growth than when they are at rest. I am alluding now to plants that are resting in summer; by being kept dry in winter they may be potted at any time while at rest. Repotting during their summer rest would excite them into growth before their time. Success can only be attained by maintaining free and continuous growth; any check from want of water at the roots, from too much of it, or from a sudden change of temperature, would inflict one or more of the ills to which Rose-life is heir, especially when under pot culture. Very seldom, indeed, can they be successfully carried through the various stages of growth up to the flowering period without one or more attacks from green fly. For this I can only recommend the old specific, viz., tobacco smoke, two or three fumigations with which will clear the plants from this pest. Flowers of sulphur, dusted on the leaves in a dry state, is the best remedy for mildew. Sulphur dissolved in water and painted on heated pipes will also destroy it. If the plants flag when in full growth from want of water, and this happens more than once, the check will tell upon them. On the other hand, if the roots are gorged with too much water, the points of the thicker young roots will get killed, the leaves will become sickly-looking, and many of them will drop off; the happy medium experience will indicate. When at rest very little water is needed—just enough, indeed, to keep the soil from becoming dust-dry. J. Douglas.

Three good autumn plants.—It would be difficult to match the following trio when seen at their best, viz., Belladonna Lily (Amaryllis Belladonna), Tritonia or Crocosma aurea, and Schizostylis coccinea. That these are most beautiful everybody knows, or should know, and we fear a good many also know that in some gardens and localities they are very disappointing. Give the Amaryllis a place in a border against a south wall, the wall to be that of a stove or some heated structure, and it is perfectly happy, sending up in September its tall scapes with clusters of large, beautiful, trumpet-shaped rose and white flowers. Treated thus, the Belladonna is every gardener's plant, but, so far as we have seen, it is useless trying to grow it in England unless a wall such as is here described is available. The Tritonia requires only a warm sunny border, where the soil is light, but not dry. Here it will grow like a weed, spreading very rapidly, and in autumn throwing up flower-scapes in abundance. The bright orange of the flowers has a particularly telling effect among autumn-tinted plants. Schizostylis is happiest in a strong loamy soil, but it must be kept watered in dry weather, and in

midsummer the assistance of manure of some kind is a great assistance to the growth. All three plants have been, and still are, in fine display at Kew. The Schizostylis flowers latest of the three, its bright crimson flowers continuing in beauty even in frosty weather.

NOTES OF THE WEEK.

Hedychium Gardnerianum.—This plant is admirably adapted for open borders. In the summer-time, especially in somewhat sheltered positions, not only is its foliage very ornamental, but its bright yellow flowers are deliciously fragrant. We recently saw it blooming freely in the gardens of Mr. Holland, The Brooklands, Tooting Common.

Nicotiana affinis.—This deservedly popular plant is just now in great beauty in Mr. Holland's garden at Tooting. It is planted where shrubs keep the sun off it until after mid-day, and in that position its large pure white fragrant flowers remain open during the greater portion of the day; whilst in more open situations the flowers close early, and do not open again till after sunset.

Marie Louise Violets.—I send you a bunch of Marie Louise Violets. Our plants are very good this season, and are now yielding quantities of flowers in the open border. I am looking forward to many rich gatherings from them after they are placed in their winter quarters, which will be in the course of a week or ten days.—J. Crawford, *Coddington Hall, Newark-on-Trent.*

*** Excellent flowers of this fine Violet.—Ed.

Solanum jasminoides.—I was pleased to see in The Garden (p. 274) a note in praise of this useful old climbing plant. With me it thrives better in the open air than it does under glass. We have one planted against a south wall covering a space of 10 feet by 8 feet; it is now bearing a profusion of bloom, and will continue to do so until frost sets in. The plant in question was planted out seven years ago, and the only protection we give it is to place a little dry Bracken among the branches in winter.—T. B. Field, *Stanley Hall, Bridgnorth.*

Boltonia asteroides.—In his new "American Flora" Dr. Asa Gray has dropped the name glastifolia, so well known in connection with this plant in gardens, and substituted that of B. asteroides. Another plant also well known, Boltonia decurrens, has been made a variety of the above. Bæria coronaria has been substituted for Hymenoxys californica and Shortia californica, an annual of rare merit. Aster æstivus has been placed under longifolius, A. fragilis under vimineus, Harpæcarpus madarioides under Madia filipes, and Brachyactis ciliata under Aster angustus.—D.

Autumn Crocuses.—These look well flowering on turf. C. nudiflorus is a species well adapted for this purpose, as its unusually long tube bears the flowers well up above the Grass. It has already been successfully naturalised in many localities in the midland counties, and, indeed, should be planted far and wide wherever space on an undisturbed field or lawn can be had. It begins to flower in September when the Meadow Saffrons (Colchicums) are at their best, and, in mild seasons, continues on until the middle or even the end of October. The flowers, which are rich, unstriped, bluish-purple, contrast strikingly with the pretty orange stigmas. C. speciosus, which has a wide geographical distribution, is also a free-flowering species, and one well adapted for the purpose just indicated. It increases with great rapidity by means of numerous small bulbils which form at the base of the corms, and which are not long in arriving at a flowering stage. Mixed with nudiflorus, it is very effective, the colour being distinct and the feathering fantastic. The flowers, which are large, are bright lilac, and have three distinct purple veins proceeding from the base to the summit of the segments. From these also proceed a network of other veins covering the entire outer surface of the flowers. C. pulchellus, a species nearly allied to the above, though equally handsome in its way, seems rather miffy, and not at all adapted for this purpose; indeed, it seems hard to keep unless specially cared for. C. medius comes next. It is a little in the way of C. nudiflorus, inasmuch as it has self-coloured flowers; it, however, belongs to the reticulate section, having a strong reticulated fibre over the corm. The segments of the flower are bright purple, marked on the inside with six or seven purple lines a short distance from the throat; the stigmas, which are much and finely divided, are bright scarlet. The flowers are shorter than those of nudiflorus, and are produced a little later in the season. Others, a few of which might be utilised in the same way were they plentiful, are C. iridiflorus, a most peculiar and interesting species; Parkinson's byzantinus; C. Boryi, white; C. hadriaticus, white; cancellatus and its varieties; and the many forms of sativus, longiflorus, Clusii, and ochroleucus.

Scirpus Holoschœnus var. Linnæi.—This very distinct variety—for so at least it must be considered in gardens—is decidedly ornamental. In the Cambridge Botanic Garden it forms a graceful and even elegant specimen about 5 feet in height. The stems are curved, polished, and of a deep green colour. The flowers, which are produced in dense globular spikelets, add to the ornamental character of the plant. It grows in a dry bed, and does not appear to suffer in the least from drought.

Hieracium villosum.—So ornamental a plant as this is could hardly have been expected among Hawkweeds. It is of good habit, neither weedy nor coarse, and is certainly worth growing. It is very different in appearance from other cultivated species. The leaves are tufted, about 7 inches long, obovate, and covered with long hairs which form a thin pile a quarter of an inch deep. The stems reach a height of about 18 inches, and bear pale golden flower-heads about 2 inches across. It is flowering in the Cambridge collection.

Nemesia versicolor var. compacta.—This is decidedly one of the neatest and prettiest of all annuals. A quantity of it in the herbaceous ground at Cambridge is exceedingly attractive just now on account of the multitudes of white and bluish flowers which it is bearing, and which slightly resemble those of a Linaria. The habit of this variety is erect, and it grows about a foot high; the stems are square, the leaves opposite, lanceolate and toothed, and the flowers are in terminal racemes. It is a native of the Cape, but may be sown out of doors in spring.

Highgate Woods.—A movement is on foot with the view to secure the woodland known as Churchyard Bottom Wood, Highgate, for the use and recreation of the public. This wood is fifty-two acres in extent, and is represented as one of the finest pieces of woodland in England; it is separated only from the wood lately given to the Corporation by a public road, and the price asked for it by the Ecclesiastical Commissioners is £25,000. The acquisition of this wood as an open space would be a fitting complement to the one already made public; the two would form a noble and unique recreation ground for the whole of the northern portion of the metropolis.

Sternbergia angustifolia.—I send you herewith flowers of Parkinson's Winter Daffodil, the narrow-leaved form, viz., S. angustifolia, a very free-blooming plant. I have a large bed, consisting of 1500 bulbs, against a south wall, planted two years since, and at noon it is a sight to see just now. Every bulb carries three blooms, and more are coming forward. "Cut in the bud," as "Veronica" would say, and put in water, the bloom holds good in a cool room for four or five weeks.—W. B. Hartland.

*** The flowers of this narrow-leaved species are, we think, brighter in colour and larger in size than those of the ordinary S. lutea.—Ed.

Mistletoe is well grown at Streatham Lodge, in Surrey, one pyramid Apple tree, in particular, some 7 feet high and about 6 feet through, being a dense mass of it from top to bottom and laden with berries. The Apple tree thus smothered by the parasite does not bear any fruit, but this loss is compensated for by the ornamental character of the Mistletoe. Those who wish to introduce Mistletoe into their gardens should devote an Apple tree specially to it. The berries from which it is to be grown should be gathered in March or April—not earlier, or success may be doubtful; earlier in the season the berries are not ripe. The branches on which they are to be placed should be from three to four years old. Selecting a clear bit of bark on the upper side of the branch, rub the berries on it, and they will be found to adhere to it. Blackbirds and thrushes are very partial to them; therefore trees thus operated on should be netted. After a lapse of some three months the seeds will be seen to have thrown out sucker-like claws, when all danger from birds will be at an end, and the young plants will after that rapidly increase in size. Young Apple trees with Mistletoe established on them may also be bought in some nurseries.

Physostegia virginiana and imbricata, so called, are two plants, about the names of which there is considerable confusion. For the first of the two, P. virginiana is the proper name, but both are frequently met with under those of Dracocephalum speciosum, virginianum, lancifolium, variegatum, and Physostegia purpurea and coccinea, and possibly others. Its height in the larger forms is from 3 feet to 4 feet; in the smaller, 1 foot or 2 feet, usually terminating with a simple unbranched spike, sometimes, however, with several panicled spikes. P. virginiana var. speciosa includes imbricata, a figure of which appeared in the *Botanical Magazine*, tab. 3386, also Dracocephalum speciosum (Sweet, &c.). This is distinguished from the above by its tall, robust habit from 6 feet to 8 feet high. Its leaves are lanceolate, very acutely serrated, and the spikes dense and panicled; both are purple or rose-coloured.

Kniphofia (Tritoma) corallina.—This comparatively new hybrid or seedling is a very fine addition to the genus on account of its neat habit, brilliant colour, and long period during which it flowers. In the Cambridge Botanic Garden it was about the first to bloom this year, and it is likely also to be the latest. It far surpasses K. Macowani, from which it was raised, and is easily distinguished from it by having no clear yellow colour on the lower side of the flowers. It is much deeper in colour altogether than Macowani; the bells or tubes are longer and more slender, and the limb of the perianth appears to be more spreading. The buds are red or reddish instead of being greenish, as in the parent. In habit this plant is an improvement upon K. Macowani, as the leaves, instead of growing almost rigidly erect, are spreading and make a better specimen. Its height is about 5 feet, and it produces a large number of scapes.

Aster Bigelowi.—I send you flowers of this Aster, which appears to me to be amongst the best of the perennial kinds. The flowers are from seed sown in slight heat in the spring and planted in the open ground in May. Some of the plants bear flowers of a lighter tint than that of the blooms sent, but the majority are of a good violet colour. The plant is vigorous, but I am not able to say whether or not it will withstand a severe winter, although it is described as hardy. Its height is 3 feet.—Thos. Laxton, *Girtford, Beds.*

*** Aster Bigelowi, also known as A. Townshendi, is one of the very finest of its race. It has pale green leaves, stem clasping, and coarsely toothed. The flowers, which are borne in large corymbose heads, are uncommonly handsome. The ray florets are violet purple, and the disc orange-yellow. A really grand Aster, and one which should displace many of less worth now grown in gardens.—Ed.

Gloriosa superba.—This fine old climber is now in great beauty at Park Hill, Streatham. It has tuberous roots, and when vigorous attains a height of from 6 feet to 12 feet, producing numerous branches and tendrils, by means of which the plant in its wild state is enabled to climb, and support itself. The flowers, which are produced freely, are large and showy; the petals are long and reflexed in such a way that all the points meet. The lower portion of the flowers is bright orange, the upper part brilliant red. Gloriosas should be grown in a mixture of loam, leaf-mould, peat, good decomposed manure, and sharp sand in about equal parts. The tubers should be started into growth in spring in small pots, and placed in a warm, moist atmosphere. When they need a shift, place them at once in their flowering pots, and when the roots begin to work

freely into the new soil, the temperature of an intermediate house will suit them admirably. As the growth decays in autumn gradually withhold water, and after the stems and leaves are dead the tubers should be taken up, stored in dry sand, and kept in a cool place until the following spring.

Nerines.—I herewith send you blooms of ten varieties of Nerine, all distinct with the exception of N. atro-sanguinea. These, with the spike of Fothergilli major sent three weeks ago, make eleven varieties which have bloomed here this season.—E. Peters, *Somerset Terrace, Guernsey.*

*** The blooms received from Mr. Peters consisted of the following, viz.: N. excellens—Flowers large, petals long and narrow, crisp at the edges, colour soft carmine, with a central line of a deeper colour in each segment. N. atro-sanguinea—Flowers short, very open; petals recurved, not undulating, deep blood-red. N. pulchella—Flowers large, open, petals recurved, crisp on the edges, rosy pink with a bright carmine line on each petal. N. pudica—Pure white, petals not reflexed nor undulated, each petal streaked in the centre with flesh. N. Fothergilli—Flowers bright scarlet, open, petals reflexed to the ovary and narrow, stamens scarlet and very long. N. Planti—Flowers open, reflexed, much resembling those of Fothergilli except in colour, which is intense crimson; stamens very long, crimson. N. elegans cærulea—Flowers large, petals recurving at the tips, centre carmine broadly bordered with violet. N. carminata—Flowers recurved, but not so much as in those of Fothergilli. N. Fairy—Flowers cup-shaped, slightly recurved at the tips, pure rosy pink. N. rosea crispa—Flowers small and open, petals undulated and in colour soft rose.—Ed.

A TRIO OF GUNNERAS.

In the tastefully planted grounds at Bowden Hall, the seat of Mr. T. D. Burchell, four miles from Gloucester, two unusually fine plants of Gunnera manicata and one of G. scabra are now growing most luxuriantly. The sites for these handsome specimens, which are not too close to each other, are well chosen on the margin of a closely-mown lawn, dipping away from the terrace garden to a small lake. Although within a few yards of the water, the roots are several feet above it, and the charmingly broken ground which skirts the Cotswold Hills being decidedly oolitic, one would hardly expect these marsh or bog plants to attain such large dimensions. Mr. Burchell, who is a great lover of fine-foliaged plants, has, however, made satisfactory provision for the roots, and, judging from the strength of the foliage, there exists but little doubt that they have gone down to the water line, as very little, if any, is given to them from above. A fine clump of G. scabra stands in the centre, and measures some 14 feet in diameter, the tallest leaves, on 4-foot stems, being fully 4 feet across. Some 20 yards away, on either side, this grand mass is flanked by enormous plants of a variety which Mr. Burchell calls G. manicata. All the stems start from a common centre, like Rhubarb, but none are quite upright; consequently, these 7-foot petioles, carrying perfect rugose leaves 4 feet or 5 feet across, form graceful masses nearly 6 feet in height and 18 feet through. In the centre of the plant which I measured I observed starting apparently from the crown, and at an angle of about 45°, drawing towards the sun, a very remarkable hirsute stem, whose office, I suppose, is the production of flowers and seeds; but, judging from the lateness of the season, I am doubtful if any of them would open. It is said in "Sub-tropical Gardening," "The inflorescence is more remarkable than the leaves. The little flowers and seeds are seated densely on conical, fleshy masses a few inches long, and these in their turn being seated as densely as they can be packed on a thick stem, the whole has the appearance of a compound cone 2 feet high, very heavy, and perhaps the oddest looking thing ever seen in the way of fructification." It is also said, "It is not difficult to obtain, and may be raised from seed, although this is a slow way. It should be planted in some isolated spot, and not, as a rule, in the 'flower garden proper,' as it must not be disturbed after being planted, and would associate badly with the ordinary occupants of the parterre. The plant cannot have too much sun or warmth, but makes little progress if its huge leaves are torn by storms." Whether or not Mr. Burchell has studied this useful book I did not ascertain, but certain it is that he has hit off the management of Gunneras to a nicety, for every leaf on both varieties was perfect.

Speaking of the plants at Kew, Mr. B. says they met its wants very cleverly by building a little bank of turf around it, so as to admit of its absorbing a thorough dose of water now and then, while in winter it was protected with dry leaves and a piece of tarpaulin. His own plants in a wet peat bog received less care, for one was grown in deep rich soil, with the crown raised well above the level, and the whole protected under a couple of barrowloads of leaf-mould; the other was left exposed and not allowed any particularly good soil. Both plants survived the severest winters, but the protected and well-fed one grew much the larger. The Bowden plants have a quantity of dry tree leaves packed about the crowns sometimes during the autumn, but I did not gather that they were treated to the luxury of sheets of tarpaulin; neither have they the benefit of a warm soil or climate. With these facts for our guide, surely there are few gardens of any extent in which lovers of noble foliage plants may not find a suitable spot for the Gunneras. W. Coleman.

Eastnor Castle, Ledbury.

WHITE FLOWERS FOR AUTUMN.

The constant demand for white flowers at all times of the year, but especially in autumn, renders it of the highest importance that cultivators should have a constant succession of them. None of those mentioned below require much artificial heat, and precedence is given to such as are quite hardy. Some of the old-fashioned border plants come out in quite an improved form when accorded liberal culture. A real gem in this way at present finely in flower is the white Japan Anemone, which has stems from 5 feet to 6 feet high, crowned with innumerable clear white flowers. It does best when well established, and should be top-dressed with manure in winter. Dahlia Constance, belonging to the white Cactus class, is a grand autumnal flower; blooms of it have lately been invaluable for harvest festivals. There is also a small clear white fancy or Pompon kind called Guiding Star which is useful for similar purposes. Asters of the Victoria kind sown late are invaluable in a cut state; when planted near a wall they are easily protected from storms of wind and rain that damage autumn flowers more than frost. Chrysanthemums, such as Madame Desgrange, are capable of yielding a long succession of clear white flowers; cuttings taken off now will flower in July next, while those taken off in spring will keep up a supply until early show kinds are ready to take their place. Pyrethrum uliginosum ought to be in every garden. It is of strong growth, and well repays liberal culture; where this is accorded the blooms grow large in size, and are produced by hundreds on stems from 6 feet to 7 feet high. We lift its roots and divide them every alternate year, giving it at the same time fresh soil. Eupatorium odoratum produces feathery white flowers in great abundance; old plants of it cut down close in spring like Pelargoniums, and grown out of doors until the blossoms are ready to expand and then put into a greenhouse, are very ornamental. Begonia miniata is also a useful plant for furnishing cut flowers now. It is easily increased from seed or from cuttings struck in gentle heat in spring, and if grown on in cold frames during summer it will now be in full bloom, and if in a little heat it will keep flowering for a long time. Abutilon Boule de Neige is such a capital all-the-year-round bloomer that it must not be omitted from any list of autumn flowers. We generally set our old plants of it out of doors in summer after their long spell of winter and spring blooming, and take them under glass in September, when they are literally covered with bloom. Pelargoniums, especially double whites, are most useful autumnal flowers, *i.e.*, if rested in summer, the blooms pinched off, and the soil moderately dry. Thus treated and placed under glass they will flower freely in autumn, and their blooms will be much more pure in colour than those from outdoor plants. J. G.

Hants.

MOTHS CAUGHT IN FLOWERS.

I promised to reply again to Mr. R. H. Wade in reference to this subject. It appears that it is by no means uncommon for moths to be caught in the flowers of Physianthus; indeed, I imagine it must constantly be the case wherever the plant flowers in such a position that large moths can gain access to it. One observer, writing on this subject in the *Entomologist's Monthly Magazine* in 1878, says: "This plant is one of the most deadly moth-traps I know. Every day I find from two to eight humming-bird moths caught by the proboscis; they appear to die in about ten minutes. I often find other insects dead in the flowers." It does not seem by any means the rule that the insects caught in the blossoms die so quickly; for another person, in a note on this insect, says: "As a rule the moths were alive the morning after their capture. I have released as many as eighteen Plusia gammas from one plant in a morning." By many persons this habit of capturing insects is supposed to facilitate the fertilisation of the flowers in some way, but how this is I do not understand. Surrounding the style and ovaries are five plates; the edges of these plates where they meet one another are produced outwards into a kind of flange. The only way in which a moth can obtain the nectar of the flowers is by inserting its proboscis between the flanges of two adjoining plates, as the entrance to the nectaries is just beneath them. If the moths were able (as perhaps in many cases they are) to withdraw their probosces, they would most likely dislodge the pollen masses, which are placed one behind the edges of each plate, and are connected together in pairs by a filament and a gland, which is just above the crack between the flanges of the plates. But if the moth be unable to withdraw its proboscis from between the flanges, I do not see how the pollen masses would be removed, or what benefit the plant derives from the moth being caught. The flowers of the Evening Primrose (Œnothera) are said to catch moths at times. G. S. S.

SHORT NOTES.—VARIOUS.

Early Peaches.—Very early Peaches are seldom of good quality. Hale's Early is by far the best of them. Early Beatrice and Early Louise are bad, very bad. Early Albert is the best of that class, but quite a fortnight later than either Beatrice or Louise.—W.

Schuberti a grandiflora.—Might I add to last week's note on this plant (p. 326) that the seed was raised and the plant grown in an ordinary greenhouse? The plant has now about twenty blooms open or on the point of opening. It is growing in a pot.—B.

Lonchocarpus Barteri.—Allow me to make a slight correction in the latter part of the paragraph relating to this plant in The Garden (p. 307), where it is stated that an allied or African species yields Yomba indigo from its flowers. This should have been Yoruba indigo, which is obtained from the leaves like ordinary indigo, and not from the flowers. It is not clearly known what species yields this indigo, but it is supposed to be Lonchocarpus cyanescens.—John R. Jackson, *Curator, Museums, Royal Gardens, Kew.*

RECLAMATION OF SAND-WASTES.

At the late Sanitary Congress at York, Dr. Poore read a paper on this subject, from which the following are extracts. They relate to what was effected by Bremontier in fixing blowing sands on the Landes or Moorlands that skirt the Bay of Biscay between the mouths of the Adour and Gironde. Bremontier recognised the fact that the best protection for a bank against the fury of the elements is to plant it. A loose heap of earth is liable (no matter how huge it may be) to be washed or blown away. If, however, the bank be planted, the roots of the trees and plants hold the soil together, and the spreading branches and leaves form at the same time a protection from the fury of wind and water. It is true that even planted hills and banks may suffer severely in times of exceptional storm, but the storm once past, the silent forces of Nature commence at once the work of reconstruction. This spring I was astonished at finding, close to Biarritz and within a few yards of the sea, a very flourishing crop of Peas which had been sown in the sand without, apparently, the admixture of any manurial matter. They were protected from sea-winds by hurdling made of Gorse, and enjoyed an ample exposure to the sun, and thus bid fair to yield a good return in due time. The Pea is a plant that roots very deeply, and the roots doubtless found moisture and nourishment at a great depth below the surface. For fixing blowing sands, however, something more permanent than Peas is necessary, and Bremontier resolved to try Pinus maritima, a Pine known to flourish in sandy soils near the coast. It is nearly related to the Pinaster, and in habit and size resembles the Scotch Fir. Bremontier made his first sowings of the seeds of P. maritima in the year 1789. I wonder what the dull-minded peasant thought of this enthusiast who went forth to do battle with the mighty ocean and still mightier wind, armed only with a few handfuls of Pine seeds. These were sown mixed with seeds of common Broom, and the sowings were made in a direction at right angles to the prevailing wind. A screen of hurdles made of Gorse or of planks deeply driven into the sand was placed on the windward side of the seed-ground, and the seed-ground itself was thatched with Pine branches and other suitable material. At the end of the first year the Broom would be 9 inches or 10 inches high and the Pine saplings only 2 inches or 3 inches, and thus the tender little saplings were nursed and protected by the plants of Broom. In half-a-dozen years or so the Brooms had reached their full growth, but the Pines continued to grow, and, in course of time, overtopping the Brooms smothered their nurses, and being themselves judiciously thinned and pruned, grew into fine trees able to resist the fury of the elements, sending their long tap-roots and laterals in all directions through the sand dunes, and causing them to become year by year a stronger and stronger protection to the inland wastes instead of a dangerous menace. The Pinus maritima has proved to be a very profitable tree for this purpose, and within twenty or twenty-five years of sowing it began to yield a return. The timber is of very moderate quality, but is largely used for packing cases, railway sleepers, and for fire-wood. In some places clearings have been made in the forest and vineyards planted, and I need scarcely state that the most valuable vineyards in the world are on the southern bank of the Gironde on the very fringe of the Pine woods which I have been describing. There has been a good deal of talk of late about the reclamation of waste lands in this country, and the opinion of some seems to be that worthless soil presents a glorious opportunity of wasting money. These are questions concerning which I cannot speak, but it seems certain that the problem of reclamation must differ with the circumstances of soil and situation, and that it is far more easy to do the wrong thing than the right. The first thing necessary is to find a Bremontier to show the way. We shall want a Bremontier to show us the way out of the pestilential quagmire which we Londoners are making by dint of large expenditure in the estuary of the Thames. We want a genius and enthusiast who will do for the bogs of Ireland what this great Frenchman did for the Landes of Gascony.

Leucanthemum atratum. From a photograph taken in Mr. Loder's garden, Floore, Weedon, in August. Engraved for The Garden.

Tree roots in flower borders.—"D. T. F.'s" advice to plant Sweet Peas, Clematises, and even trellised Roses at the back of a border of flowers instead of Yew or Holly would not answer where the object is to shelter flowers from north-east and east gales. In such a case hardy shrubs or trees not less than 5 feet in height are wanted. What shrubs or trees would best suit such a situation? A 3 feet high hedge would be of no use. I want a good, strong belt or thin hedge of hardy Evergreens, moderate in price and of rapid growth. Can 4-feet or 5-feet Hollies be planted in October or November with hopes of success? The flower borders face due south and south-east, but are exposed to north-east gales from a mountain range at the back, so that some shade and shelter are needful, especially as the soil is dry and limestony.—Querist.

Flower Garden.

LEUCANTHEMUM ATRATUM.

Leucanthemums, Pyrethrums, and Chrysanthemums have, by the latest authorities, been merged into one genus, viz., Chrysanthemum. On the Continent, however, the three genera are still maintained, and it may be well for English readers who are in correspondence with foreign growers to still bear in mind the old names. Foreign botanists seem to consider that there is ample material for three distinct genera, and the section to which the annexed illustration belongs is still kept up as Leucanthemum atratum, the name Chrysanthemum being confined to annual species, and that of Pyrethrum to P. Parthenium, corymbosum, &c. In whatever light their amalgamation may be taken, there can at least be no two opinions regarding their usefulness as garden plants, whether for beds, borders, or rock-work. They should, however, be grown in masses, a solitary plant in a border of any of these Daisies giving but an imperfect idea of their real worth. The different kinds seem to vary very much, even in a wild state, and more so when cultivated. Indeed, it is often puzzling to know where to refer the extreme forms with which one meets in old gardens; especially is this the case with L. latifolium and L. maximum, in which there is a good deal of Aster Novi-Belgii character. Both are indispensable autumn-flowering plants, coming in, as they do, after the annual Chrysanthemums are past their best, and nothing but P. uliginosum could give us anything approaching the distinct character which we find in the Ox-eye Daisies.

L. arcticum.—This is a useful plant for the rockery, where, if allowed plenty of room, it yields a large amount of charming flowers early in the season. These, if permitted to remain on the plant, change from white to a pinkish colour, and often, especially in wet weather, to a dirty grey colour. It never grows more than a foot high or so, and may be readily increased by means of underground stems. The leaves, which are deeply pinnatifid, are Fern-like and pretty even without the flowers. It is a useful plant for covering dry banks, &c., making a fine groundwork for the stronger kinds of bulbs that thrive in dry positions.

L. atratum, of which the annexed is a representation, is said to have been introduced about 1775, and yet it is by no means common in gardens. It grows from 1 foot to 2 feet high, and makes a

charming plant for the rock garden. It produces large flowers of a much purer white than that of any of the others, and the rays generally overlap one another. It is a plant which looks well in masses, and is well worth attention. It comes from Styria, Tyrol, and elsewhere, and flowers well on into the autumn.

L. latifolium.—Extreme forms of this have much broader leaves than those of L. maximum; the serratures, too, are much sharper, and latifolium comes into flower a fortnight or so later than maximum. The leaves are often 2 inches across and blunt at the point; those on the stem are shorter than the others, but not much narrower. It is said to grow from 8 feet to 10 feet high in its wild habitat, but in gardens the largest we have seen measured between 6 feet and 7 feet in height. It makes a handsome border plant, and its flowers, which last until frost comes, are useful in a cut state. It is a native of Portugal.

L. maximum.—This is a handsome species, and useful alike for the rockery and border. When well treated it produces white flowers, which often measure 4 inches or 5 inches in diameter. It forms, being spreading in habit, a large tuft, and seems to do best when annually pulled to pieces late in autumn. The leaves are smaller than those of latifolium, and the plant is usually much dwarfer. It is a native of the Pyrenees.

Others, such as sibiricum, vulgare, pallens, montanum, &c., if generally cultivated, would add much to the beauty of our gardens in autumn.

K.

CLIMBERS FOR WALLS.

I saw the other day the front of a house completely covered with Veitch's Virginian Creeper. A faint bronzy tint was just making its appearance round the edges of the leaves, as an indication of the glorious metallic lustre which the plant assumes later in the season. Near it another house was covered with the common Virginian Creeper, which looked also exceedingly pretty. In real grandeur, however, no plant used for this purpose can rival the Exmouth Magnolia. In sheltered situations, south or west of London, it always does well. Roses and Clematises are beautiful on walls, as everybody knows, and Glycine or Wistaria sinensis in spring has but few equals where a considerable space has to be covered; but it is bare and gaunt in winter. For winter effects, the Pyracantha and Cotoneaster Simonsi and microphylla are bright and cheerful. They are slow growers at first; but, when well established, they cover a house front rapidly. Near where I am writing are several houses whose fronts are covered with the Pyracantha, and in winter, when the plants are laden with brightly coloured berries, the effect is snug and cheerful. Two evergreen plants, well adapted for covering a considerable space, will be found in Escallonia macrantha and Garrya elliptica, both strikingly effective, especially in autumn and winter. The Escallonia has very handsome foliage of a deep glossy green, and its flowers, which are freely produced on the ends of the young shoots in autumn, are of a bright rose colour. The flowers, when cut, are useful for bouquet making. The Garrya is covered in autumn and winter with long drooping catkins, which give the plant a singular and interesting appearance, and a whole house front covered with either of these plants is sure to attract attention. Then, for special situations, the white Jessamine, Stauntonia latifolia, and blue Passion-flower are worthy of being brought into prominence. The Honeysuckles, too, are a numerous family, all sweet and pretty, either on wall or bower. Ceanothus azureus, in a warm, southern aspect, sometimes does so well as to induce one to wish there were more of it and its relatives to be met with; but, rightly or wrongly, there is a feeling among planters that the family is a delicate one. A house covered with Ivy always has a cosy appearance suggestive of warmth. Among green Ivies, Emerald Gem is the brightest. Its small neat foliage is placed compactly on the stems, and its name is suggestive and appropriate. It is less rampant than the common Irish Ivy, but superior to it as a wall or border plant. Several of the variegated Ivies are very effective; but in planting climbers, if we wish them to do their work quickly and well, the borders should have some preparation. The soil should be deepened and manured, in order to give the plants a start, and they should have the walls to themselves from the beginning if they are to make rapid progress. E. Hobday.

NEW FRENCH HARDY HYBRID GLADIOLI.

Having again grown for comparison with older varieties during the summer now drawing to a close the set of fifteen new varieties of the above named beautiful and most easily managed hybrids raised and sent out by M. Lemoine, of Nancy, I am in hopes that the notes taken as to the respective merits and beauties of each variety as it opened may be of some interest to those of your readers who admire these flowers, and may also serve as a guide to them as to what varieties to add to their collections when the season of replanting comes round, as it will do now in from a month to six weeks' time. I may premise that one variety, named Lamartine, which will be fully described in its order of opening, stands forth pre-eminent above all the others for the size and beauty of its handsome flowers, taking place in the front rank with Victor Hugo and W. E. Gumbleton as quite the three finest varieties of the whole set.

Etoile opened its first flower on July 24, and is a fine tall grower with large cream-coloured flowers, faintly flushed with red on the outside, and most distinctly and beautifully blotched on the lower petals with quite a novel shade of orange-carmine. This is quite a lovely variety.

Atlas opened its first flower on July 26. This is a variety with flowers of a dingy and somewhat washy shade of colour, and though figured on the raiser's coloured plate, is certainly not worth growing.

Charles Henry opened its first bloom on July 26. This is a tall and slender growing variety of much distinctness of colour and great beauty, with medium sized flowers of a clear light shade of scarlet, the lower petals being of a deeper shade, each of them distinctly streaked with gold.

Lamartine opened its first flower on July 30. This is a fine robust grower, with a tall and branching flower-stem, bearing large and fully-sized flowers of a pleasing shade of light salmon-rose colour, heavily marked with rosy carmine on a yellow ground in the lower petals. One of the finest of all.

L'Orient opened its first bloom on July 30. This is a rather dwarf-growing variety, with fair-sized tubular flowers of a somewhat dull shade of pale yellow faintly washed with rose colour, and with a deep purple blotch on the lower petals.

Le Sphinx opened its first bloom on August 1. This is a medium-sized variety, with light vermilion flowers heavily blotched with deep purple on the lower petals, and with a golden spot in the centre of each blotch.

Sceptre d'Or opened its first bloom on August 2. This is a variety of medium height, with rather small flowers of a pretty clear shade of sulphur-yellow, with a well-defined maroon blotch on each of the two lower petals.

La Tour d'Auvergne opened its first flower on August 3. This is a variety with medium-sized flowers of a dull shade of purplish red, and is of but little beauty or merit.

President Grevy opened its first bloom on August 5. This is a charming variety, of medium height and with freely-branching flower-spikes and medium-sized, well-opened flowers of a most pleasing shade of deep, clear rose colour, prettily and distinctly washed with creamy yellow on the lower petals.

Turenne opened its first bloom on August 10, and is a variety of medium height of growth and medium-sized flowers of a light shade of purplish red; the two lower petals are velvety maroon on their inner half, the remainder being clear canary-yellow edged with light red.

Voltaire opened its first bloom on August 12, and is a medium-sized flower of a pleasing shade of light rose colour, clearly and distinctly blotched with creamy yellow on the lower petals, each blotch having a maroon eye in its centre. This is a very pretty variety.

Etendard opened its first flower on August 22, and is a medium-sized, well-opened flower of a pleasing shade of light orange-red; the three lower petals are clear canary yellow, distinctly edged with light red, and with a carmine blotch on each of them. This is an exceedingly pretty variety.

Milne Edwards opened its first bloom on August 14, and is a comparatively worthless variety with flowers of a dull shade of red, and carmine blotches on the lower petals.

General Chanzy opened its first bloom on August 24, and is a vigorous growing variety with good sized, well-opened flowers of a pleasing shade of light red, blotched with carmine on the lower petals.

Ceres opened its first bloom on September 4, and is a medium sized flower of a rather dull shade of light red; the three lower petals are clear canary yellow edged with light red, and distinctly blotched with carmine. W. E. Gumbleton.

Belgrove, Queenstown, Ireland.

SINGLE DAHLIAS.

In "T. W. G.'s" exhaustive article on single Dahlias (pp. 297, 298) one of their chief weaknesses for decorative purposes is concealed, viz., the fragility of the individual flowers, while double or semi-double Dahlias, or such flowers as the true Cactus, will last a week, a fortnight, or even more. Hardly are vases or baskets filled with single Dahlias than the falling petals begin to litter the tables or rooms. This may be partially avoided by cutting the blooms before they are fully expanded. But at best and longest, single Dahlia blooms are short-lived and evanescent compared with double or composite ones, and this fleeting character tells heavily against single Dahlias for decorative purposes indoors. In the garden the numbers and constant succession of blooms compensate for their evanescence, provided always the faded flowers are not allowed to ripen seed. When and where this is the case, and especially when seed ripening and a dry hot season run abreast of each other, the brilliancy of beds and borders of single Dahlias is apt to be eclipsed in a full crop of very prosy and uninteresting seed-pods. With the latter picked off, however, few ornamental plants run through the later half of the season with more credit decoratively than single Dahlias. "T. W. G." is also deserving of the best thanks of all their admirers (and who is not?) for his praiseworthy efforts to raise the character of the plants and improve the quality of their blooms. Mere stature, coarseness of habit, size of leaf or bloom are points to be discouraged, not fostered, in single Dahlias. Weakly stems that allow the blooms to droop, instead of striking the observer's eye, are, I may say, comparatively worthless for decorative purposes, either in the garden or the house. The due proportion of ray-floret to disc is also a matter of very considerable importance, and will turn the attention of hybridisers in a direction likely to lead to most successful results in the raising of new and improved varieties. Already it is generally found that the smaller the blooms in reason, the more useful and the more lasting. As to the form of single Dahlias, probably the less formal the better for merely decorative purposes. We have long had an excess of circles and semispheres among Dahlias and other composite flowers; hence, however useful for mere exhibition perfectly circular single Dahlias formed of broad petals with rounded edges, lying flat and overlapping each other, may be, yet for effect in beds and borders ragged-looking, star-shaped quilled flowers are far more striking.

In a word, the Cactus Dahlia, rather than Paragon, is, for mere decoration, a better model of form and a higher standard of excellence; and the next great step in Dahlias for the embellishment of gardens and dwelling-houses is the production of the true Cactus form in fact as well as in name in all the colours found among Dahlias. At present, notwithstanding names, we can hardly be said to possess more than one Dahlia of this superbly useful class for decorative purposes.

The Cactus Dahlia can hardly be said to have more than one fault, and that would be accounted a merit in most others. It is so set upon keeping up a constant succession of bloom, that long before one set of flowers is fully expanded they are partially hidden by the leaves, shootlets, and buds of their successors, which rise several inches above them, and so on and on in succession throughout the growing season. The striking flowers are thus partially at times almost wholly concealed before they are fully developed. This tendency in no way detracts from the value of the blooms for cutting, though it seriously detracts from the decorative value of the Cactus Dahlia in beds or borders. It would, therefore, be an improvement if this upward successional growth could be checked or modified by hybridisation or cross-breeding. Meanwhile, something can be done in both directions by culture. For example, it is found that old tubers do not conceal the blooms so much as spring-rooted cuttings. Neither is the reason of the difference far to seek, as the former bloom more freely and grow less vigourously than the latter, and hence the difference in decorative value between old and young Cactus Dahlias in beds or borders. Poor soil is also preferable to rich for this Dahlia, and for exactly the same reason, as it checks luxuriance and fosters floriferousness. As to other points regarding the raising of seedlings, selection and separation of different strains, &c., "T. W. G.'s" remarks are so reliable and exhaustive, as to leave little or nothing to be added thereto. HORTUS.

Anemones.—The exceedingly short period of time which Anemone roots left in the ground all the summer need for rest is well evidenced in the fact that mine were without foliage only six weeks, and that some were carrying flowers as early as the middle of September. Generally the plants have made strong foliage and growth, and promise to bloom freely for some time whilst the weather is open. Thus, we get from them quite ten months of foliage and certainly eight months duration of flower production. As some who have light soils complain that they cannot induce Anemones to thrive well, perhaps they would find that leaving the tubers in the soil all the year through would conduce to floriferousness, and if a dressing of well-rotted manure was added in the summer there can be little doubt that the result would be satisfactory.—A. D.

Tritoma Rooperi.—Mr. Gumbleton appears, from his remarks (p. 314), to be unacquainted with the origin of this fine and very distinct species. If he will turn to the only volume of *Garden Companion* (p. 113), published by Orr & Co. in 1852, he will find the original figure of it from the imported plant flowered in the winter season by the Rev. T. Rooper, of Brighton, the plant having been sent from Kaffraria by his son, Captain E. Rooper. Mr. Rooper stated that it had subsequently bloomed in the open garden, and was in that case of a much higher colour than the specimen sent to me for illustration. We have the plant growing here as originally given to me by Mr. Rooper, and find it hardy with a slight protection of fibre or ashes, blooming in the early summer months. "W. J. G.'s" description of his plants as being 6 feet high does not at all correspond with the stature of ours, which are remarkably dense and stocky as to the recurved foliage, with the flower-stems 2 feet to 3 feet high, never exceeding the latter height.—T. MOORE, *Chelsea*.

Sunflowers.—I have read with much interest Mr. Cornhill's remarks (p. 299) on Sunflowers, but I trust you will allow me to uphold my favourite, the Miniature. I procured seed of it last summer, but the plants raised from it were very poor, and it was with difficulty I saved a few seeds. This year I have been well repaid, for we have over forty plants, none of which exceed 4 feet in height. They are very bushy, and literally covered with flowers 3¼ inches in diameter, and quite round. There is only one plant which has the florets a little curled or ragged, so they are perfection for cutting, and last well in water. The foliage of mine is very pretty, bright, not woolly; the leaves are small, scarcely exceeding 2 inches in length. As regards tardiness of flowering, ours have been in bloom since the beginning of July, and show no signs of ceasing. They were sown in March in a cool frame, and then planted in not over-rich soil. I am saving plenty of seeds of it this year. We have some plants which my gardener thinks must be a cross between the Miniature and the ordinary Sunflower. They have grown some 6 feet high, and have lovely blooms with dark centres about 6 inches across. They, too, are early and continuous bloomers, and are a great acquisition. They are very shy as regards seeding.—ANNETTE S. WAKEFIELD, *Uxbridge*.

NOTES ON HARDY PLANTS.

Helianthus orgyalis.—Among the hundreds of herbaceous plants which we possess this perennial Sunflower stands out in bold relief, being both tall and graceful. If it were associated with fine-foliaged plants, and in good positions, many of us would see this plant in a new light. With me it accidentally happens to be growing behind a small clump of Aster acris now in flower, and the Aster, not being more than 2½ feet high, effectually puts out of sight the naked parts of the Sunflower stems. By noting such chance arrangements of plants one is often able to plant more effectively than they otherwise could do. What could be better than a line or central specimen of this Helianthus, fronted or run round with one or two rows of the brightest and dwarfest of the Michaelmas Daisies?

Festuca punctoria.—Somehow this short, sharp-pointed Grass had a good name given it, and quickly got into numerous trade lists, but a more rubbishy plant was never taken within a garden gate: it is quite destitute of beauty, and that is not all, for if planted as an edging to narrow walks, its sharp points are most annoying. This Grass belongs to a class of plants which do harm to the cause of hardy flower culture; one disappointment is longer remembered than ten successes.

Azalea (Loiseleuria) procumbens.—This is now past its flowering period, but the young growth at this season, so ruddy, is nearly as effective as its minute and spare flowers. It is a most desirable dwarf shrub for rockwork. It rarely grows more than 2 inches high, but is dense and spreading in habit. Though a British species, few alpines, perhaps, suffer so much as this under cultivation. I find it to be safest to handle when the roots are quite active, and successfully cultivated specimens, which have not stood without being lifted for say three or four years, may be divided nearly any time like a tuft of Milkwort. Such stock is invariably well furnished with silky fibre well up to the leafy parts; this is not the case with scraggy wild specimens, which have often bare and very hard wood between the top and ground surface. Such material I have dealt with during the period of growth, and have succeeded better with it than when at rest. The scraggy wood should be put well down into narrow, but deep pots, only leaving the green tips exposed. Ram hard with peat and sand to the pot side, half plunge in moist sand, and scatter lawn croppings over the plants to protect the young shoots. When well established let them be fully exposed to sunshine; the more the better. Under this treatment I have rarely lost a division, and good wood is formed during the same summer. When once such pieces get into good root action the plants grow very fast, and, as already stated, further propagation is easily effected at almost any time. A peaty soil made heavy and solid with clean sand and firm planting are essential, as also are plenty of sunshine and a fair amount of moisture. The latter is partly secured by the nature of the compost, and even more surely if the roots are set close to big sandstones.

Œnothera lobata.—Though there are two important distinctions between this and taraxacifolia, both plants are often mistaken one for the other; besides having a less deeply cut leaf, this kind has yellow flowers, and is only of annual duration. Taraxacifolia has much larger white flowers, and though but an indifferent perennial, it proves to be one under favourable conditions as to soil. Notwithstanding the superiority of taraxacifolia, this pretty kind, with its dwarf and compact habit, should not be neglected. Its flowers are very numerous, commencing when the plants are but six or eight weeks old and continuing in succession till severe frosts set in. It is one of those annuals which should have a place in every garden, so verdant and gay does it remain to the last.

Linaria Cymbalaria maxima.—A friend kindly sent me a glowing description of this, and as it was further described as a giant Ivy-leaved Snapdragon in a trade list, I ventured to get a plant of it, and I was in no way surprised to find that this nomenclature had been applied to no new thing. What actually came was Linaria pallida. It may not be much amiss to have a Toad-flax called a Snapdragon, but it is amusing, if not misleading, to hear a Toad-flax of from 3 inches to 6 inches in stature and producing flowers half-an-inch in diameter—the longest measurement—being described as a giant Ivy-leaved Snapdragon. Linaria pallida is very different from the smooth-leaved creeping Cymbalaria. In every part except the flower it is a much smaller plant, and its roots run terribly about and soon become objectionable among plants of its own stature.

Cortusa pubens.—Not only is this small species a fast grower, but if, after the first flowers have faded, the plants are shaken out and placed in fresh rich soil, even when severely divided they will bloom quite freely again in September. Plants consisting of a few crowns are now beautifully in flower, and, sweetly pretty as they looked in the spring-time, they are even more welcome in autumn. It is astonishing, too, with what vigour they grow after being placed during the warm season in fresh soil.

Gentiana Pneumonanthe.—This pretty native Gentian never fails to flower under treatment implying anything but much care. In fact, with the exception of a little special sort of peat being given it, it may be said to do well both in pots and in the open border with most ordinary attention. Given a little sticky peat which can hardly ever become dry, and a flat position, which further secures the needful moisture, and you have done all that is necessary. The neat habit of the plant, and the large, high-coloured, long-tubed flowers are such as ought to secure for this Gentian a place in even the choicest collections.

Senecio argenteus grown in poor soil is not more than 6 inches or 8 inches high. For so dwarf a plant the leaves are somewhat large; they are deeply cut and variously contorted, so as to render a good-sized plant of it a pretty object, especially on rockwork and among dark stones. Thus situated, its silvery or white foliage stands out in pleasing relief, and the plant has the further merit of not showing dirt-splashes. The way to keep it, not only in good shape, but both vigorous and well clad with foliage down to the surface of the soil, is to raise cuttings during summer, winter them in a cold frame, and plant them out in spring, or, if well rooted as early as September, it will be as well to set them in their permanent quarters. Such young plants are quite safe, while old ones are apt to die off.

Crocus Fleisheri.—Again this lovely early autumn Crocus is in flower, and although I have but one small potful of it in a sheltered corner, it attracts one by its perfume, which is like that of Violets. When well expanded the flowers measure from 3 inches to 4 inches across. The outer divisions of the perianth are of good substance, somewhat acute, and boat-shaped, and, like the inner ones, mauve-purple slightly feathered with darker lines. The stigma has three deep divisions, and each division is further subdivided at least thrice. The filaments largely overlap the three inner perianth divisions, which for several days remain closed in the form of a tube—the prettiest stage in the development of the flower. The three long

anthers are orange-yellow, but not much seen, owing to the closeness of the inner portion of the flower. In order, if possible, to lengthen the period of bloom of this pretty Crocus, I take the pot into the shade during powerful sunshine, and shortly after it has been moved it is interesting to watch the flowers close, which they do by a twist-like action. The closed flowers are very large and inflated, and hardly less beautiful than when open, being of the same colour outside and inside.

Polygonum vaccinifolium.—This is certainly one of the most useful of rock plants. Though it has a fast-spreading habit, it may at least for a season be allowed to run freely amongst other choice things. For that short period it would hardly do them any harm, and its pretty little rosy spikes, rising above the slender prostrate stems, and little Box-like leaves would be sure to be appreciated. The flowers are numerously produced, too, even by young plants, and it is astonishing what an amount of cut bloom may be obtained from one or two roots. Its hardiness is beyond question, and it will grow pretty nearly anywhere or in any kind of soil.

P. cuspidatum.—This is an annoying plant in borders on account of its sending up suckers where they are not wanted, and spreading abroad its strangling roots to the detriment of their neighbours. All this is, however, compensated by the appearance of specimens of it at the present time. Ours are from 8 feet to 10 feet high, and have grand laterals arching in all directions and furnished with big, deep green, heart-shaped leaves arranged in most symmetrical order; issuing, too, from the axil of each leaf are pretty little clusters of creamy white flowers, scented like Elder flowers. Seen in this form, one forgets past troubles which the plant may have given. I saw the other day a bouquet of Roses dressed with the creamy white spikes of this giant Knotweed, and the effect was very beautiful. The flowers do not last long, but they keep good for a day or two, and I know nothing else that can take their place, especially in autumn.

Chelones.—These, in Yorkshire, are now at their best, and their rigid, bush-like habit shows off the terminal clusters of flowers to advantage. Lyoni is not only a very hardy kind, but one of the most showy, and obliqua and its white variety are also well adapted for border decoration. They come into blossom when flowers are getting scarce, and the foliage in no small measure helps to set off the flowers to good advantage. These, like Phloxes, are all the better for being divided occasionally, though Lyoni, which, with me, has been left undisturbed for at least six years, is not only in perfect health, but one of the handsomest of hardy plants in flower at the present time.

Aster acris.—This is one of the earliest to flower amongst the Michaelmas Daisies. Individually the blossoms are not good, either as regards colour or form, but they are produced in sufficient numbers to be effective; though not more than 1½ inches across, and the ray florets both narrow and straggling, they are arranged in huge clusters, each measuring some 18 inches in diameter. The ray flowerets are bright lavender and the disc greenish yellow. The plant itself seldom grows more than 3 feet in height.

Aster ptarmicoides.—This comparatively new comer must, one would think, take rank amongst our Michaelmas Daisies as a distinct white variety. Plants of it well grown and of good size are most effective, and nowhere more so than when in close quarters with plants of its own family. The white may not be very pure, but it is the whitest Aster with which I am acquainted, and fortunately the stature of the plant admits of its being placed in a front row where the somewhat small flowers can be seen to advantage. The flowers, too, are more durable than those of some kinds, and although I mentioned just now that acris was the earliest, it is certainly not earlier than this white sort. It improves if divided and given fresh soil every year. But as the flowers look best on large plants, a compromise may be effected by setting the divisions in bold groups of not less than half-a-dozen and as many inches asunder.

Centaurea alpina.—This is a late blooming plant, and its flowers are unusual in colour, *i.e.*, for the genus, being lemon-yellow. They measure about 2 inches across, and seem to be well adapted for personal adornment and for bouquets consisting of the choicest flowers. They are arranged in heads borne singly on slender stems 2 feet high, and the plant is very spare in the way of foliage, which, generally speaking, resembles that of an Ash, and it is slightly spinous. This Centaurea has proved to be hardy, and will doubtless become one of the finest of autumn flowers. So far as I see, it likes a dry situation, plants of it in dry soil having thriven best with me. J. W.

BEDDING AND BOUQUET DAHLIAS.

The question as to the duration of Dahlia blooms was replied to the other day by the statement that all depended upon the season, but that fine show flowers may often be found as late as the middle of October. It may be that in consequence of the greater rainfall and cooler temperature of Michaelmas-time, show Dahlia blooms come a trifle coarse, but even that may to some extent be due to lack of attention after the show season is over. As to the duration of bloom and general character of the flowers of the bedding and bouquet kinds, there can be little doubt that both improve as the autumn deepens, as is evidenced at the Slough Nursery, where the show of flowers of these sections of the Dahlia was, even directly after a heavy thunderstorm but a few days since, almost marvellous, presenting a sight which even the finest stands of bunches of blooms at any show fail to convey. The big plants standing in long rows perfectly even in height, according to sort, and literally covered with flowers, give far better notions of their fitness for bedding or for the production of flowers for cutting purposes than can any formal exhibition of blooms. Bedding Dahlias of the present day do not materially differ from bouquet Dahlias in habit or character of flower. As a rule, the flowers are rather larger, but hardly less perfect in form; indeed, it would be difficult to find in any section a more perfect or beautiful flower than is the soft primrose Flora Macdonald, which reaches a height of 3 feet. It is really a lovely kind, but its blooms are about one-third larger than are those of a good bouquet Dahlia. A fine companion kind for height is Carl Mendel, bright rich crimson and having a capital habit; and a very pleasing foil to both is found in Lucinda, peach shaded with rose, a charming kind. The best yellow is Cloth of Gold, pure bright yellow, and medium height. Mont Blanc is the best white, very free and effective; and the best scarlet is Rising Sun, also of moderate height. The three first named kinds planted in the centre of a big bed, with the other three alternated round them, would make indeed an effective mass of bloom. But whilst the bedders are so good, they are a much more restricted class than are the bouquet forms, of which there are many, and others still come in yearly. Though the blooms of these are smaller, they are wonderfully perfect in form, and whether of self-colour or tipped or mottled, are very beautiful, and so enduring as to prove most valuable to all charged with decorative work. The following selection of these made from the plants as seen in bloom may be relied upon as the best, viz., Professor Bergeat, rosy crimson; Little Duchess, white, with crimson edges; Countess von Sternberg, yellow, white tipped, exceedingly pretty; Hedwig Polwig, orange-scarlet, white tipped; Nemesis, dark maroon, sometimes white tipped; Cupid, white suffused with rose; Butterfly, orange, heavily tipped with claret, a charming flower; Brilliant, Gem, and Isabel, all diverse shaded scarlet selfs; White Aster and Lady Blanche, distinct pure whites; Hilda, primrose, rosy lilac tip; Prince of Liliputians, rich deep maroon; and E. F. Jungker, amber-tinted, very free. This is a selection of fifteen kinds, from which, if well grown, it will always be possible to select a dozen bunches of diversely coloured blooms which cannot be excelled. A. D.

GLADIOLUS CULTURE AT CAMBRIDGE.

There seems to be somewhat of a revival in the cultivation of this beautiful autumn flower, and it is the hope of increasing the interest in it that I would like now, as the season is at hand for purchasing bulbs, to draw attention to it; the symptoms of this revival that have especially struck me were the increased number of exhibitors at the Crystal Palace Show in September. This increased number of exhibitors was not due to any excessive share of the prize list allotted to them; there were only two classes, one for nurserymen—although called open, it was one in which an amateur could not very well compete, and one of small amount for amateurs. In the former there were four competitors, all new to the Palace, and two of them made large and excellent exhibits—Messrs. Burrell, of Howe House Nurseries, Cambridge, and Messrs. Harkness, of Bedale, in Yorkshire. It will thus be seen that the two exhibitors who have in previous years so largely contributed to the exhibition with their magnificent stands were absent—Messrs. Kelway, of Langport, Somerset, and Messrs. Campbell, of Gourock, N.B.; had they been present, it would have been the finest exhibition of Gladioli ever held; as it was, the two exhibits which gained the first and second prizes (Mr. Burrell's and Mr. Harkness's) were remarkable for their excellence, as the first exhibits these growers had ever put up in the metropolis. I am desirous of drawing attention to the former, as I believe it indicates quite a fresh departure in Gladioli-growing and raising in this country. Mr. Burrell lives at Cambridge, a locality, I imagine, peculiarly adapted for the cultivation of this flower. I have often thought that the neighbourhood of Spalding, where many bulbs are cultivated, especially Snowdrops, would be a very suitable locality, and one friend there who grew them was loud in his praises of the manner in which they succeeded. Cambridge seems even better adapted; the rainfall is about the lowest in England, the autumns are especially dry, and there is good loamy soil; these are three conditions in which it assimilates a good deal to Fontainebleau, and make it better even than Somersetshire with its mild and soft climate, where the rainfall is 10 inches higher and the autumns are wet. Mr. Burrell has started with these advantages, and he is not, like some who have opportunities and do not know how to make use of them, content with cultivating the named varieties; he has gone in for raising seedlings and has been most careful in hybridising, selecting such flowers as he believed would be most suitable for obtaining fine flowers and gaining a good deal of experience as he has proceeded with his work. He has found that some kinds would never do as seed-bearing plants, as they never, whether naturally or artificially hybridised, produce seed; but as some of them, such as Baroness Burdett Coutts and Mabel, are good flowers, their pollen is used for other sorts; the result has been the obtaining of a very fine strain of flowers which, from what I have already seen of them, are likely quite to equal the French flowers; indeed, comparing some of his with the French novelties of last season, I must give the preference to the English flowers.

I have had the opportunity of seeing some of his spikes, and have now before me half-a-dozen. Of course, it is hardly to be expected that at this season the flowers should be as good as those cut earlier in the season, but these have the characteristics which mark all the flowers that I have seen of his raising; the flowers are all so closely placed together as to make the spike very dense. I have no doubt that this is in some measure due to the character of the soil. I gather this from my own experience. The same varieties planted in the lighter soil in my garden do not come with nearly so dense a spike as those planted in the

heavier soil. It seems to me that the footstalk of each flower not being so strong, instead of slanting upright, is apt to hang about, and this makes the spike loose. Of course, one naturally defective in this respect will not much improve under any treatment, but I do not think a flower ought to be discarded if only it has been grown on light soil.

Of the half-dozen spikes which are now before me, No. 1 is of a very peculiar shade of apricot, deeper in tone than Abricoté, creamy white in the centre. No. 2 is a remarkably striking flower, a very bright pink with broad white lines in the centre of the petals, and a very dense creamy white spot in the lower petal, edged with pink; it is in character like Caméleon, only of a different colour: the spike is perfect, the flowers lying as close to one another as possible, and ten flowers being open at one time. No. 3 is a flower very similar in character, a somewhat lighter shade of pink, and with a crimson feathering in the centre of the white bloteh; it is equally dense in the spike. No. 4 is a delicate lilac-white, with very little marking of any kind. No. 5 a good white. No. 6 is another pink-coloured flower, somewhat in the style of No. 3. These have been gathered from small bulbs, and probably will be larger another year.

There is certainly something very peculiar about the Gladiolus. I have just taken up a corm of a French variety called Pasquin. It gave a good spike, but soon afterwards showed symptoms of decay; it was now quite gone, and on taking it up I found that the flowering corm which had been formed on the top of that which had been planted was small, and with a good many specks upon it, denoting disease. The old corm had not rotted, and from it was shooting out what appears to be a strong healthy shoot, while another is starting from the new corm. There were no fleshy roots, but only hard, wiry ones. I have now potted it, and am anxious to see what will be the result. I am sure the more one studies any class of flowers, be it Roses, Auriculas, Tulips, or Gladioli, the more will idiosyncrasies be discovered, and the more varied will be the treatment to which they are subjected, and the more likely is success to be obtained.

DELTA.

Clematis graveolens.—Some time ago Colonel Stuart-Wortley described the flowering of this Clematis in America, and kindly offered some seed which he had gathered to anyone who would apply. I received a few from him which readily germinated in a pot, and for two years I kept a plant of it during winter in my window, as I had no other glass protection. Last year, however, it was planted out-of-doors against my bay window and remained there all the winter. In spring it grew away vigorously, competing with a dark purple Jackmanni. This outstripped it at first, and covered the mullions of the window with its purple blooms. Graveolens steadily followed, creeping up between the stems, and before the last flower died away it saw the first one of graveolens looking into its face, as much as to say, "I have caught you at last." Since then it has been master of the situation and blooming freely. Its flowers are not very showy, being of a dull yellow on solitary stems. But after they drop the bearded styles of the fruit lengthen out and form a silvery tuft which is quite as effective as the flowers. With this I enclose a few specimens of the flowers and fruit just gathered above my window, in order to show that the offers of spare seed occasionally made in THE GARDEN are not unappreciated. I need hardly add that if these seeds ripen, I shall be happy to return the compliment to anyone who will apply.—R. JNO. G. READ, 10, *Marlborough Road, Bedford Park, W.*

Anagallis cærulea.—I have frequently found the blue Pimpernel during the past summer in this district, and always in company with A. arvensis. The plants noticed by Mr. Inchbald (p. 284) were smaller than the scarlet Pimpernel. With the exception of colour I have been unable to detect any difference between the two plants, viz., cærulea and arvensis, growing in this neighbourhood. For what reason it has received specific rank one cannot understand. Hooker, in "Student's Flora," records it as a variety of A. arvensis, although I noticed at Kew lately that it was labelled as Anagallis cærulea without any reference to the type, A. arvensis. This summer some seed of Anagallis indica, received from a well-known seedsman, turned out to be A. cærulea, and after a careful examination no difference could be detected between our native cærulea and the so called A. indica. A. arvensis is said to have a very wide distribution, extending to the Himalayas. Is it possible that seeds could have been collected there of the blue variety? The only record of A. indica I can find is in Johnson's "Gardener's Dictionary," where it is stated to be a native of Nepaul and introduced in 1824.—JOHN W. ODELL, *Barrow Point, Pinner.*

The One-blade (Smilacina bifolia) on rock wall at Munstead. Engraved from a photograph for THE GARDEN.

THE ONE-BLADE.

(SMILACINA BIFOLIA.)

A VALUABLE and beautiful little plant when rightly placed; not often seen in gardens, and though its beauty is of the modest kind, it never fails to attract attention in the blooming season. Its right use is as a carpeting plant in shady places, but care must be taken that it does not over-run choice plants, for it increases quickly, and the roots form dense matted masses that easily choke other plants. It is also charming in chinks of rockwork, as shown in the engraving, and is a suitable companion to groups of Ferns.

HARDY FLOWERS FOR MASSING.

SIX YEARS ago we planted a circular bed, 25 feet in diameter, with the white Japanese Anemone. The soil had been deeply trenched and manured before planting, and it has had a heavy top-dressing of rich manure every season since. The growth of both foliage and flowers has, therefore, been very strong. Late though the season was this year, the first flowers opened about the end of July, and a succession will be kept up till November unless autumn frosts should be very severe. The flowers do not last long in a cut state, but there are always so many of them, we can "cut and come again," as the saying is. The white and red varieties do not appear to thrive well together in the same bed, and if in direct contact in a border one or the other seems to disappear—usually the red. In contrast with the white Anemone, Tritoma Uvaria, or Torch Lily, has a striking effect. This also requires liberal treatment when growing and in a dense mass. It should have a liberal supply of water in dry weather during the growing season and liquid manure is also beneficial. Grandis and flavescens are good Torch Lilies. Hardy Fuchsias in a sheltered part of the lawn can hardly be equalled as regards grace and beauty. Corallina makes a very effective bed. Riceartoni and an old kind named gracilis are also very ornamental. For making a striking group in a sheltered place springing out of the Grass few things are superior to Polygonum cuspidatum. Plants of this sort take some time to get established, and some patience is needed if one has to rely upon young specimens; but once get a single plant well established in the right situation, and every year it will improve. We have a larger kind named P. sachalinense, but though of larger growth (the shoots are over 10 feet high) it is not so effective as cuspidatum. The family of Knotweeds for the most part has underground stems, and therefore if encouraged soon covers a large space. The Pampas Grass, either in groups or as a single specimen, is one of the most effective of autumn-flowering plants, and this season it is in fine condition, though I think I have seen finer spikes. A dressing of manure is a great help to this Grass, and the spring when the annual trimming takes place is a good time to apply it. That is also the best season in which to propagate it, and which should be by division. This plant always associates well with water, but it is apt to suffer from cold if planted in too damp a situation. Hollyhocks are certainly not surpassed by any other plant for making a good bold mass. I do not say that they should be placed just beneath the windows, but they should stand within view in some distant part of the grounds, against a background of shrubs. They have gone back a little in public favour of late years because it was thought they could not be grown in consequence of some mysterious disease which attacked and destroyed the leaves. But good cultivation will, I apprehend, banish this fungus or, rather, keep it at bay. All large-leaved plants bearing long heavy spikes of flowers need a good deal of support. Give good food and the water required, and the fungus will not do much harm. One of the most useful plants we have in blossom now is Pyrethrum uliginosum; in appearance it is like a very large form of the common Ox-eye Daisy, and a good mass of it makes a good display, even better than that made by the white Anemone against a background of Evergreens. This also requires time to become really effective. I purchased a little plant of it in a small pot six years ago, and every year since it gets better, extending itself by means of underground stems. Among plants of dwarfer growth there are the Star-worts or Asters, Lobelia syphilitica and fulgens. The last named is not quite hardy, but it makes a most effective autumn bed, and the larger it is the better. Syphilitica is a useful old plant, not very showy, but refined looking. I remember

beds of it in the old time as far as my memory extends. Lythrum roseum superbum has a graceful habit and is distinct in colour. It has done well planted thinly over a bed of Golden Tom Thumb Tropæolum, which has been selected for several years from cuttings, and which so treated makes a very effective bed, very useful where Calceolarias are untrustworthy. The Lythrum requires a rich, moist soil.

Among autumn-flowering bulbs, Colchicums will shortly be very effective. The slender dark green leaves of the Sternbergia lutea, too, are covering the ground on a south border, and will by-and-by be succeeded by golden flowers, and the larger the masses of them the more effective they are. E. H.

FRUIT GARDEN.

APPEARANCE *v.* QUALITY IN FRUIT.

A good deal has recently appeared in The Garden about Strawberries, good and indifferent, and it will, I think, be admitted that the subject is one deserving discussion, not only as regards Strawberries, but equally so with respect to other fruits, as at present there is evidently an inclination on the part of those who buy the fruit which they use, and also on that of many who grow their own fruit, to be led more by appearance than by quality. No one is likely to urge that appearance should go for nothing, but to allow that which is pleasing to the eye to take precedence of that which is gratifying to the palate is a mistake. To state the matter fairly, it may be said that the properties essential to fruit consist in its being good in quality and fair to the eye, the former being of more importance than the latter. Nevertheless, as has just been said, the latter now carries more weight than it deserves. In proof of this, it is only necessary to point to the big-berried, fine-looking Grape Gros Colmar, which, despite the way in which it has been condemned as being worthless, is so far preferred, that from the time it comes in it commands a price varying from a third to double that which good Black Hamburghs fetch, though the latter, as everyone knows, are better to eat than the variety in question. In the last week of September the retail price in London of English-grown Hamburghs, jet-black and in good condition, was 2s. 6d. per pound, whilst Gros Colmars, no better finished, were 5s. Doubtless there are some who confine the selection of the Grapes and other fruits which they grow to varieties that are best to eat; but it is clear that the majority who use Grapes, yet do not grow them, give preference to appearance rather than quality.

As to Pines, their cultivation by those who grow for sale alone is almost given up, for the obvious reason that the price which they fetch will not pay, and in many private gardens their growth has also been discontinued, and with the majority of those who still continue to cultivate them, the best sorts, viz., The Queen and Black Jamaica, have, to a great extent, given place to the Smooth Cayenne, which, it is needless to say, even in its best form, is a long way behind the other varieties named.

Of Plums there has this season been all but an unprecedented crop, affording plenty of varieties to choose from, all sorts alike appearing to have borne heavily, including the best flavoured kinds that are often more or less shyer bearers than the hardy prolific varieties. In their case the biggest sorts have sold the best. Pond's Seedling, although usually classed as only a cooking variety, has out-sold all others that found their way in quantity to market, including the proverbially unequalled Green Gage. Ordinary kinds, as is well known, have been scarcely worth gathering, yet the fine-looking Pond's Seedling has been selling in the leading West-end shops at 1s. 6d. per basket, containing ten or twelve. Even where this variety has found its way on to the costermongers' barrows in the streets, it has sold for double the price that other sorts equal to it in all but appearance have fetched.

In the case of Strawberries, of which proportionately more people grow their own than of most fruits, there are comparatively few who make flavour the first essential in determining the varieties they cultivate. The old variety Keen's Seedling is rarely met with, yet for flavour it stands a long way ahead of four-fifths of the sorts that find favour with growers, and though the fruit is not so large as that of many of the newer kinds, it makes up in quantity what it lacks in size, so as to nearly equal the larger-fruited varieties in the aggregate weight of crop which it produces.

Some of the very best Pears, unsurpassed for the quality of their flesh and unequalled in flavour, are now generally being displaced by large, coarser kinds, that are inferior in every way except size. The mistaken preference given to fine-looking kinds of Pears before others of better quality is not alone confined to the public who buy them, but a like disposition is as often as otherwise apparent in those who grow their own, as is evidenced by the extent to which the large coarser varieties are planted as compared with the smaller, but better sorts. The inference to be drawn from this state of matters is obvious; those who grow fruit for sale, like the producers of other commodities, find it necessary to meet the tastes and requirements of the consumers; consequently it is tolerably certain that henceforward the market growers will still further direct their attention to the cultivation of kinds that are large and fine-looking, leaving the edible properties as a second consideration. But to adopt this line in private gardens is a mistake, especially in the case of such fruits as Pears or Apples, that require considerable time after the trees are planted before they arrive at a state to give much return. T. B.

COLOUR IN GRAPES.

Allow me to say, in answer to "Hortus" (p. 287), that while admitting several things which he states, and which in no way affects my contention on this subject, I have never found an exception to the rule that "colour is sure to be found in conjunction with high flavour and other good qualities." I can conceive of circumstances in which Red Hamburghs might be better than Black Hamburghs grown on another soil and situation, but what I mean is that under equal conditions the blackest coloured Hamburghs are always the best, provided they are ripe. I have never known an exception to this; has "Hortus?" I remember years ago at one of the Manchester shows there was a dispute amongst the judges as to which of two lots of Black Hamburghs the prize should be awarded to, the contest being between a pair of beautiful Black Hamburghs, good and well coloured, but rather sour, and another pair of equally good bunches that were very red, but ripe and sweet. I forget now how the matter was decided, but I tasted both lots at the request of one of the judges, and there could be no doubt that the blackest coloured were the finest, only they were not ripe. At that time, however, Red *v.* Black Hamburghs was a subject discussed, and the two parties appeared to be more anxious than anything else to give effect to their views on the subject, apart from the actual merits of the case, and so it generally is. I, however, once saw finely coloured Black Hamburghs and very red ones on the same Vine, but on different limbs—one of which had been too heavily cropped—and the red ones were worse in flavour by a great deal than the black ones and not so firm-fleshed. have seen the same or a similar thing often.

If "Hortus" "has eaten green Muscats more richly vinous than golden ones," and if by this expression he simply means better flavoured, then all I have to say is he has had an experience no one else ever had, and when he comes across such a phenomenon again I hope he will let some one else see and taste the Grapes, for I for one decline to believe in anything of the kind without proof. As to people preferring Grizzly Frontignans to Black Hamburghs, that is another matter, and entirely irrelevant here. I prefer Frontignans myself, but my experience is that the Grizzlies that have the deepest colour are always the best flavoured, and I have seen them of all shades from a dirty green to the colour of Red Hamburghs. That your correspondent should cite such an example at all does not say much for his grasp of the subject. The people whom "Hortus" knew who chose watery green Muscats to golden fleshy ones must have had a palate out of its normal condition, like dogs with rabies, that chew anything but their proper food. The idea is too absurd for criticism. As to Melons, Apples, Pears, Plums, Peaches, and Nectarines, I maintain that each in its way is much better when highly coloured, and I deny "Hortus's" assertion that "but little importance" is attached to colour in their case by cultivators. There is just one point on which "Hortus" and I seem agreed, viz., that "wrong-thinking often seems endowed with a vitality equal to right," but it is only seeming; and, so far as I have seen, wrong-thinking is soon discovered wherever any test exists by which to try it, as in the case of green or red *v.* golden or black Grapes, which I venture to say "Hortus" will never be able to show together to prove his case. Chef.

Damsons.—Than these, when true, there are no better Plums for preserving, but three parts of the Plums which are sold in the markets for Damsons are not of that sort. The true Damson is oblong, thick at the point and tapering to the footstalk, and has a delicious flavour peculiarly its own. But the majority of the Damsons of the fruit shops and market stalls are round or nearly so, and have no particular flavour—indeed, either cooked or raw, they are most insipid. We have a few of the true Damson here, but unfortunately they rarely bear a full crop. If I was buying them to preserve I would have a sample submitted for trial, and the round black flavourless specimens would be rejected as useless or nearly so.—J. Muir.

Peaches at Ditton Park.—When I called to see the Peach trees at Ditton Park, Slough, a few days since, I found all the trees cleared of fruit, except those of the Salwey, of which there were three carrying several hundreds of fruits, the best just colouring. Mr. Lindsay said of this late kind, "I have had it really good by the middle of October in some seasons and utterly useless in others. This season, without doubt, most of the fruits will ripen. Of course, the trees are on a south wall and in the best positions. As to the general crop, it has been immense, some 2000 fruits having been disposed of, whilst great quantities have been consumed at home or dispersed abroad as presents. The trees are many, and present a sight rare to witness in these days of indifferent outdoor Peach culture. Apricots also do finely here great trees, twenty years old, covering big wall areas, and perfect throughout. The soil is very good, but not rich, and is seldom fed by strong manures; indeed leaf soil seems to be the chief garden fertiliser. Then there is no considerable cutting and slashing, miscalled pruning; all possible wood is preserved and the best carefully utilised. In planting, the trees receive in each case a bottom of rubble and rough turf for drainage, so that the roots, let the weather be what it may, always rest upon a dry base. Here the trees get practically no protection, for none is at disposal, and in that respect they seem to repay the lack of care much more thoroughly than do myriads of trees coddled up for weeks during

the spring with coverings of the most expensive and elaborate kind. Mr. Lindsay is one of the old school of Peach growers. Perhaps the ways of the old school are largely forgotten, or have not been learned by younger men.—A. D.

WATERING FRUIT TREES IN SEPTEMBER.

Possibly "J. J. H.'s" remarks on this subject (p. 287) were written some weeks before they were printed (September 25), and, if so, they might then have been safe and useful. But so late in the growing season any watering of the roots of wall trees, such, for example, as Peaches or Pears, is not only unnecessary, but likely to prove injurious. Our climate, on the whole, is rather too moist than too dry for such trees, and late watering is likely to foster late growth, one of the greatest enemies to the well-doing of trees in our climate. Nor must the dry state of the roots of our fruit trees in winter be accepted as proof that they have not had sufficient water for their well-being. Possibly, almost certainly, the natural condition of the roots is one of semi-dryness at all periods of the year, and more especially during the resting period. In a thickly-planted artificial or natural forest the soil is so full of roots and so hard as to be well nigh water-proof. The major portion of the rainfall runs off them; and possibly one of the most fruitful causes of failure among our superior fruits is the looseness and permeability to water of the borders in which they are grown. Some of the most fruitful gardens and orchards are posted on the sides of hills; and doubtless these owe much of their fertility to the necessarily dry state of their roots.

"J. G. W." and others disposed to follow his advice would be wise to bear in mind that the soil in our climate is far more likely to be too wet than too dry for the free appropriation of food by the roots. Plant-food is but seldom sealed up from the roots by drought, while it is very often washed out or sealed in by water. Dryness is a relative term, and it has yet to be proved that the deeper roots of our fruit trees are easily robbed of their food, or hindered from appropriating it by the dryness of the earth in our fruit tree borders.

As to watering earlier in the season, much depends on the character of the base of our borders, their depth and composition, as also the rainfall of the district or season and the weight of crop.

But, writing generally, surface mulching is far preferable to watering such fruit trees as Peaches and choice Pears in the open air in our climate. It is certain that quality may often be watered out of wall fruits, and if size is acquired at the expense of quality, the consumer is a heavy loser by it; for he mostly loses twice—thus he gives more labour or money for the large fruit, while, measured by quality, it may not be worth half as much as the smaller. There is also a third loss often due to undue feeding or copious waterings in the open air—the trees are forced into greater grossness, and this results in greater tenderness, shorter life, and more uncertain fruitfulness. D. T. F.

Morello Cherries on north walls.—No kind of stone fruit succeeds so well on a north wall as Morello Cherries. Failure with them on this aspect is almost unknown, owing, doubtless, to their not blooming until the weather has become genial. Apart, too, from their cropping heavily, they also keep well on a north wall. At the present time, September 22, we have still a quantity of Morello Cherries hanging on a north wall tree in good condition; and where a succession of fruit is valued, trees on this aspect form a useful continuation of the crop of Cherries which we commenced to gather early in August from a tree on a west aspect.—J. Muir, *Margam, Port Talbot.*

The Musch-Musch and Kaisha Apricots.—"J. C. C." renders a useful service to cultivators by calling attention in a recent number of The Garden to the merits of the Musch-Musch Apricot. He truly says it is one of the freest bearers and hardiest varieties we have. The quality is also considered by many superior to the Moor Park, the flesh being semi-transparent, rich, and tender. I have not found it proof, however, against that greatest weakness of Apricots—branch perishing. This, however, is an affair of locality more than variety possibly, and it is pleasing to find that the Musch-Musch is free from it under "J. C. C.'s" care. Varieties proof against this evil would be hailed as boons of special value. For quality, however, the Musch-Musch and all other Apricots I know must retire before Kaisha. This is a smallish variety of citron colour and that semi-transparent flesh that almost invariably ensures high quality. In this case the sign is verified by delicious, juicy, aromatic flesh of the richest quality. The fruit is smaller than that of the Musch-Musch, and the tree is most prolific and fairly hardy, though not specially so.—Hortus.

GRAPE CULTURE IN THE RAINFALL.

It is stated in The Garden of Sept. 25 (p. 286) that "in Lancashire and Westmoreland, where the rainfall is heavy, Black Hamburgh Grapes wanting in colour are much less frequently met with than where the rainfall is less," and the conclusion is arrived at "that the roots in the drier districts do not get enough of water in the shape of rain," &c., and this text being satisfactorily accepted by the writer, he goes on supporting it accordingly. Now, it is not the first time the idea has been broached that the best coloured Grapes are produced in the wettest parts of England and Scotland, but I for one do not believe it, and it is to be regretted that any such notion should be taken for granted without sufficient proof of its correctness, because it can only do harm. Neither at shows nor in gardens up and down the country has it been shown that the best coloured Grapes come from districts with the heaviest rainfall; on the contrary, the facts, so far as they have been ascertained, point to the opposite conclusion. There is a very decided difference in the amount of rainfall on the east and west coasts of Great Britain, the east and south-east coasts being much the driest, and it was there the vineyards flourished in England, when there were any, and where the Grape comes to the greatest perfection now. On the Continent also, Grapes of the best quality are said to be produced in shallow soils among the rocks in those countries where the rainfall is less than with us considerably; indeed, it is supposed and said the heavy rainfall of the British Isles is almost the only obstacle to Grape culture out of doors, because it means less sunlight, less heat, and general climatic conditions inimical to Grape culture. These being the climatic conditions of Lancashire and Westmoreland, the statement, therefore, comes with all the force of a revelation to cultivators that these two counties, and, as a matter of course, the whole of the dripping west coast, produce the best coloured Grapes, and not only that, but that they are "much" the best districts for colouring Hamburghs. Good and well-coloured Grapes used to come from Castle Kennedy, where the climate is moist enough; but Mr. Fowler attributed his success not to the wet climate, but to the means taken to counteract its effects by thoroughly aërated borders inside and out that he could keep as dry above and below as he wished. I believe, also, that his pupil, Mr. Johnstone, of Glamis, made his borders in the same way; here the rainfall is not particularly heavy, and the finish of his Grapes has been one of the most notable and constant qualities about them. There is a great difference as regards rainfall between the climate of Glasgow and that of Edinburgh, the first being wet and the other dry, but no one has recorded the fact that west country Grapes are the best coloured; on the contrary, the East Lothian and Midlothian Grapes have, so far as I have seen or heard, always had the best of it, and the same thing applies to England generally. The counties of Durham and East Yorkshire are amongst the driest in England, and their record of Grape culture is amongst the best. I think it probable enough that the great difference between the west and east coast rainfalls will make a difference to Grape culture, but if ever the subject comes to be investigated, I have little doubt that quite the opposite of "T. B.'s" assertion will be proved. At all events, it is safe to say that at present not a scrap of data exists to prove that the Grapes are best coloured in the wettest counties. Of course, every good cultivator advocates sufficient water for the Grape Vine, but that is quite another thing. Colour does not depend on that so much as on judicious cropping and ventilating, so as to keep the Vines in good vigour. S. W.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

Harvesting Onions.—The Onion crop is an important one in all gardens, Onions being in daily demand in every kitchen. A supply of them must, therefore, be kept up all the year round, or as nearly so as possible. Where those sown in spring are properly harvested and autumn-sown ones succeed well, Onions may be had every day in the year. Bulbs from spring-sown seed are generally ready for use in July, and they keep up the supply until the following April or May. Tender white kinds will, however, not keep long, and therefore they should be used first, but James's Keeping and Bedfordshire Champion will both remain sound for six months after being stored, and it is varieties of this stamp that should be carefully harvested now. Those with small necks always mature first and are the best bulbs; those that have very thick necks and do not ripen until the stems have been twisted and laid over do not keep well, and should be stored along with those intended for immediate use. When the bulbs are first drawn up they should be left lying on the surface of the soil until they have dried a little, then they should be moved into any open shed or airy place under cover. There they will dry quickly, and in ten days from the time they are taken in they will be ready to clean and store. In cleaning them the greater part of the stem should be twisted off and the loose outer skin rubbed away with the hands; at first they should only be laid out in a single layer, but now they may be put in a heap in any loft or shed, where they will be free from frost or damp. A place where Apples keep well will always be found suitable for Onions, and if a corner of the Apple room can be devoted to them, they will be quite safe. Many take considerable delight in roping their Onions, but this is no advantage as regards their keeping. They are conveniently got at on ropes, and they look well when properly strung, but this is all that can be said in favour of the practice.

Late Potatoes.—The stems of the majority of these have withered, and the tubers are well matured; therefore, wherever this is the case the crop should be taken up at once. One of the greatest advantages in digging Potatoes is good weather, in which to dry the tubers immediately they are dug up, and this we have just now. It is the worst of all practices to attempt to do anything with them when the soil is wet, as it adheres to them, is long in drying, and generally causes many of the tubers to decay which would otherwise remain sound. The difference between a Potato dug in the wet and one dug in dry weather is very great, and there is double the work attached to housing the former that there is in the case of the latter. The best of all conditions for the soil to be in for digging is when it falls freely to pieces and leaves the tubers clean on the surface. It is then an easy matter to distinguish diseased tubers from sound ones, and the latter can be stored very soon after digging without any danger of them failing to keep.

Globe Artichokes.—These were very late in bearing this spring, but they have done well since, and some of them, especially on heavy soil and where not checked by the drought in summer, are still producing fresh heads. Others in drier situations were soon over, but they have begun to grow again freely, and if the whole of the old

stems are cut off and the plants drenched with liquid manure, they will produce a fine crop of useful heads during this and next month.

Preserving vegetables.—Runner Beans, Globe Artichokes, Vegetable Marrows, and many other things should now be preserved for winter use, and doubtless many readers of The Garden would be glad to know the best way of doing this. It is well known that Kidney Beans are excellent in winter when salted down now, but how few know how to do them. If I may be allowed to give one recipe, it is this: Gather the pods when they are quite tender; pack them as close as they can be put into a wide-mouthed jar; fill up with a strong brine, then place a lid that will go in the jar on the top of the Beans; put a weight on the top of this to press them down, and add more Beans as they are compressed. Repeat the pressing until the jar contains a solid mass of pods and brine, then cover them over, and they will keep for twelve months or more. The jar need not be made air-tight, as it will have to be opened frequently during the winter to take Beans out, and if steeped for one or two hours in fresh water before use, they will not readily be distinguished from pods gathered at the present time.

Planting Cabbages.—The early spring Cabbage crop is always an important one, and a good deal of its success depends on the time and manner in which it is planted in autumn. If the plants are raised too early and planted out in August, they are very apt to become too large before November and to suffer severely from severe weather in winter, or to head prematurely. Too late plants, again, also suffer from hard weather and are late in being ready to cut in spring; but if plants about 5 inches in height are put out now, they will, as a rule, succeed admirably and prove remunerative. Many are in the habit of planting their autumn Cabbage on ground from which the Onion crop is cleared, and as the soil in that case is generally very rich, this practice answers well; but maggots are apt to abound in Onion ground, and therefore, before planting it with Cabbages, we always like to fork into the surface a little hot lime. This proves both an insecticide and stimulant.

Autumn-sown Onions.—These are now up and appear to be very promising, but we always find them to do best in very firm soil, and if a little soot is sprinkled along each side of the rows and the soil is trodden down firmly close to the plants it will be found that they will grow more sturdy and winter much better than those allowed to go on in any kind of loose soil. The sooting and treading may be repeated now and then during winter with both immediate and permanent advantage to the crop.

Tomatoes.—The demand for these is constantly on the increase. All market growers who have glasshouses cultivate them both late and early. They are grown extensively in all private gardens of any size, and many small garden owners who have no glass succeed very well with them in the open air. Those planted in the open in May are now ripening quantities of fruit, the quality and flavour of which is remarkably good. The fruits will not ripen everywhere on plants treated as standards or bushes in the open quarters, but if planted against a south wall they will, as a rule, ripen fruit in September and the forepart of October. Many plants in the open have, however, been put into very rich soil, and have made so much wood that they have become a great mass of leaves, and the fruit is hardly visible. Plants of this kind will never be profitable, and it is questionable if they will ever mature a fruit. If, on the other hand, they are confined to one or two stems, and the foliage is well thinned, so as to expose the fruit to sun and air, the fruit will colour beautifully, and will continue to ripen until cut off by frost. Fruit formed now will never gain any size or become useful, and it is harmful to the more advanced fruit to allow the plants to go on upwards, the best plan being to pinch the points off the shoots immediately above the fruit which is most likely to mature by the end of the season. In late districts, Tomatoes against walls may be forwarded and greatly benefited by placing a glass light over them, either in a slanting or upright position. This will concentrate the heat and keep the early frosts off, but care must be taken that they are well supplied with liquid manure at the root. It very often happens that when Tomatoes are planted out in spring some of them are left over, and these are sometimes retained. Should any of this stamp be in existence now, by giving them a shift into larger pots and placing them in a genial atmosphere, they will soon begin to grow and bloom anew, and will bear a good crop of fruit long after those which have been fruiting all summer are consigned to the rubbish heap.

Weeds.—I am often surprised at the large quantities of weeds that may be seen in some kitchen gardens, especially as it is well known that a man with a Dutch hoe would destroy some acres of them on a fine day or two. The practice of allowing a garden to become thoroughly weedy and then giving it what is supposed to be a thorough clean is bad practice, as all weeds seed very quickly both in summer and autumn, and when the seeds fall, crop after crop will follow each other for an astonishing length of time. The better way is to keep the Dutch hoe going as freely as possible during the time the surface of the soil is dry, and when rain comes it will fail to induce crops to come up which disfigure many gardens for the whole winter. There will not be many more chances this season of hoeing to kill weeds on a dry surface, and all kitchen gardens should, therefore, be hoed over from end to end now. J. Muir.

Margam.

Turnips "bolting."—Observing the remarks of "S. W." (p. 314) as to the bolting of early-sown crops, especially Turnips, and his question as to why early-sown Turnips should thus run to seed, I trust I, as an amateur, may be permitted to say that, from experience, the reason seems to me very obvious, viz., that if there is the slightest frost after Turnip seed has chipped, bolting is inevitable. My instructions, therefore, are, with early-sown Turnips when such frost occurs, at once to make a fresh sowing.—E., *Argyllshire.*

Autumn Giant Cauliflower.—Permit me to add my testimony to that of "J. G., Hants," as to the great value, commercial and otherwise, of this magnificent Cauliflower. Since our first cut of London Market we have been cutting it all the season, and have now many hundreds in different stages that will carry us through till the end of the season, supplemented, should the weather in December be open, with late cuttings of Walcheren. It is hardly possible to conceive a good supply of Cauliflowers for private families being kept up now without the substantial aid of this fine variety. It may, without exaggeration, be called the backbone of a continuous supply; whereas in many markets no other is now seen. At present the stalls and street barrows are piled up with this fine Cauliflower of enormous size and literally white as snow. Its quality, too, whether large or small, is of the highest. No doubt to have it of the largest size early sowing and planting are requisite. But it also does well for late work, and comes in quickly after early Potatoes and other crops, producing sweet crowns of from 4 inches to 6 inches across. At the present moment we have whole borders of these coming in on the heels of a large break of very large heads.—Hortus.

Vegetable Marrows still continue to fruit freely, especially where cutting off the fruits before they get large and seedy is strictly attended to. When grown for market they must be allowed to attain a good size, or they do not sell readily; but for private use they are certainly best if cut rather small, and there is not so much loss in this as many might suppose, as a few large fruits swelling off take more strength out of the plants than a number of small ones, and it is quite a matter of exhaustion that causes them to cease bearing. I find it to be a good plan to put in a few plants rather late in May or early in June, specially for a late supply, for when we get mild autumns they are most useful. During the great glut of vegetables that occurred not long since, a good many people allowed their Marrows to become overgrown and seedy. Now Marrows when ripe make a capital winter vegetable; they should be cut and hung up in a dry house or shed; if laid down, they rot. In cooking they require to be peeled and the seeds removed, when the remainder may be treated exactly the same as Turnips; in early winter no vegetable which we cultivate is more appreciated than these overgrown Marrows. During the past season we found the bush Marrow much the hardiest, but in walled-in gardens where handlights are plentiful to shelter the young growth during the cold nights of May, the long white running variety will generally continue to be the greatest favourite.—James Groom, *Gosport.*

Garden Flora.

PLATE 565.*

MARSH MARIGOLDS.

(WITH A FIGURE OF CALTHA LEPTOSEPALA.)

A small genus consisting of only five or six species, and well represented in this country by C. palustris and its many forms; with the exception of these and the American C. leptosepala, no others to our knowledge are in cultivation. In order to grow them well they require a bog or swamp, or to be planted close to the edge of a lake, or indeed, if shallow, in the water altogether. Thus treated their effect in spring is most effective.

C. leptosepala, represented in the annexed plate, is perhaps one of the rarest of the Marsh Marigolds, although probably as easy to manage as its more popular ally. As in the case of the common Caltha, this species revels in swampy places, and has a fine appearance during the early spring months. It seems to vary considerably according to locality. Plants of it from California proper have large leaves, 2 inches or 3 inches across, almost round in shape, with a deep cordate base, and nearly quite entire margins; its sepals are greenish white and long and narrow. In Rocky Mountain specimens the sepals are narrower still, and invariably bluish-tinted, though the leaves are much the same as those shown in the annexed plate, but slightly crenated. One flower to each stem appears to be the normal condition of this sort, but in robust specimens it is often supplemented by a second and smaller one, when it is said to run into biflora, an obscure plant described in De Candolle's "Prodromus," and of which we have not seen living examples. The description given of it differs little from that of leptosepala, except that it always has two flowers; C. leptosepala has large white flowers, as shown in the plate, on stems from 6 inches to 12 inches in height, and overtop the leaves. The latter are all radical and wavy margined; the stalks are channelled and broaden into wings, where they clasp at the base. Swampy places not too wet suits this plant admirably. It produces flowers freely, though never in such abundance as the common one. Its white flowers amongst ordinary plants of this class are, however, unique, and there is no reason whatever why it should not be as much grown as the yellow-flowered sorts. It forms crowns much in the same way, and may be divided and propagated late in autumn to almost any extent. We have never seen it ripen seeds in this country, though it probably produces them in warm seasons. It is found in swamps near the head of King's River, in California, at 8000 feet above the sea, also on alpine stations from New Mexico, and the Rocky Mountains to Alaska, &c.

The common Marsh Marigold (C. palustris), which inhabits moist, swampy meadows and is often found in great abundance by the sides of

* Drawn by the late Mr. Noel Humphreys in Messrs. Backhouse's nursery at York.

streams, is one of the best hardy plants we possess, though not so plentiful in gardens as it should be, seeing that it is handsomer than two-thirds of the plants which they contain. In a dry border it will not, however, yield such an abundance of bloom nor assume so robust a habit as in a wild state. Every garden does not possess a miniature lake or small stream, but even where these are wanting, a shady, damp spot behind a north wall or group of dense-growing shrubs will, with a little attention until established, suit it perfectly. It is, however, only in gardens where there is a

Flower of Marsh Marigold (Caltha palustris).

lake or rivulet that the various forms of Marsh Marigold can be made a feature. In Lapland it is said to be the first flower that blooms in spring, *i.e.*, in May. With us it is much earlier. It generally comes in with the Daffodil in March, but frequently it may be seen early in February and continues more or less in bloom throughout the spring and summer; indeed, so variable has it become under cultivation, that we have plants of it in flower now. Miller asserts that the greater and smaller Marsh Marigolds never vary either in their natural places of growth or when cultivated, but forms of this species have received no fewer than a dozen distinct names since Miller's time. In the "Student's British Flora" all the English forms are ranked under two sub-species, palustris proper, including vulgaris; Guerangeri, which is probably riparia of Don and the origin of the double-flowered Calthas of gardens. C. minor, a pretty little plant, is also included under palustris. C. radicans is by many considered to be a distinct species, not rare in gardens. Of the first of the sections just named there are two or three distinct

Double-flowered Marsh Marigold.

double forms, one belonging to minor, a handsome plant, and another called monstrosa, bearing huge bunches of beautiful golden flowers. A form recently sent out as C. purpurascens is very deceiving if purple flowers are expected, the name alluding only to the stems, which are purplish, surmounted by large, shining, golden blossoms. It is no unusual sight to see dozens of flower-hawkers collecting Marsh Marigolds on the Thames-side above Richmond early in the morning and tying them up in penny bunches. The different forms may be propagated to any extent by division or seed, which ripens in abundance. Some of the names of the synonyms are ficarioides, parnassifolia, flabellifolia, arctica, dentata, integerrima, asarifolia, &c.

THE ALYSSONS.

(WITH A FIGURE OF ALYSSUM MONTANUM.)

The Madworts, or Alyssons, constitute a large genus, numbering about ninety species, which have been at various times distributed over no fewer than ten genera. There are, perhaps, in cultivation at the present time not more than a dozen really useful kinds, and some of these indeed are so nearly allied, that half of them might be dispensed with altogether. There are a few annual species, but the majority are perennial shrubby or half-shrubby plants, procumbent in habit and for the most part evergreen. The flowers, though individually small, are produced in such dense clusters, and the latter in such numbers, as to render this class of plants quite indispensable in spring and early summer, both in the wilderness, the rockery, and the spring garden. They are of comparatively easy culture when properly situated. Propagation is effected by division and cuttings, the latter in the case of the smaller section being much the safer way. Division should only be resorted to in the case of such sorts, as A. saxatile, that are required in quantities for spring bedding; indeed, so uncertain are plants of the spinosum and argenteum set, that it is always advisable to keep young plants of them on hand, old ones often dying off in a most unaccountable way. Others not mentioned in detail are A. alpestre, nearly allied to montanum, spinosum in the way of argenteum, Wierzbecki, and olympicum, &c.

A. ARGENTEUM.—This is a compact-growing shrubby species, seldom more than a foot or so in height. It makes a charming little plant for a rockery, wedged in between boulders or on perpendicular parts, where, however, the roots can get a good depth of soil; the leaves, which are small, are lanceolate, blunt-pointed, and silvery on the under side, the upper surface being dotted with silvery grey hairs. The flowers, which are produced in dense panicles, are of a fine deep yellow, and appear in April and May. It is found on exposed rocky places in Switzerland.

A. CALYCINUM.—This, like the above, is shrubby in habit and useful in similar places. The whole plant is pubescent, being covered with adpressed stellate hairs. It grows from 6 inches to 12 inches in height, and branches from the base. The leaves are small, scattered, and blunt-pointed. The flowers, which are small and yellow, are in short racemes, and pretty in masses. Though not indigenous to this country, it is often found in cultivated fields in Southern Europe.

A. MARITIMUM.—This is the Sweet Alysson of gardens, and though perennial, it appears to be much more satisfactorily treated simply as a hardy annual. The flowers, which are small and white, are by no means showy, and indeed only worth attention on account of their fragrance. It is a good plant for covering bare spaces, banks, or tops of unsightly walls, where it will sow itself from year to year. It may be used also as a carpet plant, but in rich soil it generally grows too robust and crowds its neighbours. It is found in waste places near the seaside, but only as a plant escaped from a garden. It is a native of Southern Europe, &c. It is often called Koniga, Lobularia and Clyce.

A. MONTANUM, represented in the annexed coloured plate, is perhaps the handsomest of dwarf-growing alpine Alyssums. It is shrubby or half-shrubby in habit; the stems are profusely branched from near the base and often tufted; the leaves are ovate or obovate, hoary, and curiously embossed with little prominent points. It flowers freely about the end of April, its branches being covered with a profusion of largish pretty yellow sweet-scented blossoms. It rarely produces seed under cultivation; therefore, the only means of propagating it is by cuttings, which, if taken off early, strike freely in a cold frame. It does best in exposed rocky places in free, well-drained soil,

Yellow Rock Alysson (Alyssum saxatile).

and should be planted where the ground in winter is not too moist. It makes a charming little pot plant for a cool house in early spring. It comes from the mountainous parts of Switzerland and Austria.

A. PODOLICUM.—This charming little rockery plant is best known in gardens under its old name of Schivereckia podolica. It has small much-branched stems and grows only 3 inches or 4 inches high. Its leaves are hoary, and its small white flowers are produced in early summer in abundance. It is quite hardy and does well in a half-shady spot. It is a native of South Russia.

A. SAXATILE (Rock Madwort).—This is well known to be one of the most valuable of spring flowers, and certainly one of the easiest to grow. It is used as a spring bedder in almost every garden in the country, and, in company with Candytufts, Arabis, and Aubrietias, it makes a grand

Sweet Alysson (Alyssum maritimum).

display when few other flowers are open. This class of plant is in large demand for the wild garden, where in large masses it is most effective. We often see this plant in shady places, but in such situations it grows but indifferently. Like most other alpines, it requires a sunny exposed situation, the drier the better, and if properly placed it need not be removed for years. In

heavy, flat ground (although quite hardy when kept dry) it is often severely cut during winter, and indeed in such localities it should be renewed annually from cuttings. Besides flowering in spring, if trimmed back, it not unusually yields a second crop in autumn. It might be used with advantage for bordering shrubberies facing the south. A variety called compactum is dwarfer, neater-habited, and, if anything, a more profuse flowerer. The variety variegata, though more beautiful in foliage, is not so free as the type, which comes from Southern Europe. D.

WORK DONE IN WEEK ENDING OCT. 5.

Sept. 29 to Oct. 5.

Except a thunder-storm on the evening of the 1st inst., when we were favoured with over half an inch of rain, the weather has been fine and summer-like, quite to one's mind, both in respect of the good that a sunny autumn does to trees and vegetation generally, and as regards the great help such weather affords to get houses, pits, and frames in readiness for plant storing, &c. Pruned early Hamburgh and early Muscat Vines. We cut back close, or rather to the prominent bud that is nearest the main stem. Soon as pruned, having plenty of water power, the hose was brought into use to wash the glass, outside and in, as well as the Vines, pipes, walls, and floors. Of course the houses are now thrown wide open, and will remain so night and day, except during heavy rain and in cold, frosty weather, when they will be closed for the benefit of the Chrysanthemums, with which the houses are now being filled, as are, already, the early and second Peach houses with the same kind of plants, which positions are only equivalent to being outside, but with this advantage, that should frost come suddenly upon us, safety as to buds will be assured by closing the ventilators. All bush plants of Chrysanthemums are still in the open, and as they are wanted to flower very late they are being moved to a north aspect, and being sheltered by a high wall the first frost will not be likely to harm them. The buds of these are being thinned a little, from three to five buds being left on the Pompon varieties, and from one to three on the large-flowered kinds. All are in rather small pots, and high feeding is therefore a necessity, so that manure-water is given them daily. Put early batch of Primulas into warmth, and potted later batch, as well as Cinerarias, into their flowering-pots. Tree Carnations and Pelargoniums for winter flowering, that have been grown outside during the summer, have been afforded space in a well-ventilated pit, on to which heat will be turned as the weather gets cold and damp. All stock pots of bedding plants as struck are moved from the plunging bed to this description of pit, to well harden them off for the winter. Calceolarias and Violas are being put into the manure frames that have thus been liberated, and here they will strike and winter, with mats and litter protection in severe weather. Grapes now need looking over twice a week to cut out any bad berries there may be, and all the light and air possible is afforded to the fruit by cutting away all laterals and some of the wood that was allowed to extend during the growing season. Finding that the inside borders of two of our latest houses were drier than was expected, each has been given another and last watering for the season. A mulching of clean straw now covers the borders, and both prevents evaporation and produces a neat and cared-for effect as to the fruit. Apple and Pear gathering goes on daily; the latter needs a lot of attention and experience to house the fruit at the right time, though, as a rule, as soon as it begins to drop it is ready to gather. Pears cannot be gathered too carefully or laid on the shelves too thinly; if possible, in single layers only, which facilitates examination of the fruit as well as the prevention of decay. Except Coe's Golden Drop, all our Plums are over, and the trees have been well washed and watered. Owing to free fruiting, none of the trees have made much wood, and there is nothing to do in the way of autumn pruning in order to expose fruiting buds to the rays of the sun to get them well ripened. Thanks to the long spell of fine weather that enabled us to destroy all weeds, as well as keep pace with earthing up and the like, there has been little else to do in the kitchen garden besides clearing away old Pea haulm and decayed leaves out of the various Cabbage plots, and trenching when the weather has been sufficiently cold to admit of the latter operation being proceeded with. The flower garden, in all its branches, continues very gay, and no pains are spared to keep it in that state by timely removal of decayed flowers and leaves, and safe securing of tall plants against being injured by wind or heavy rains. With regard to the bedded-out garden, though we hope the same may not for some time be required to be put into practice, all our arrangements as to lifting tender plants are completed by putting fresh labels to all that needed it and making note of such as are likely to be required in quantity, so that if needs be all the old plants may be saved. Transplanting and planting of shrubs we have already begun, though the soil is rather dry for it, as we trench some 4 feet deep; the rains that are now due will soon penetrate it, and, meanwhile, the surface-mulching of litter we give will prevent the plants suffering from drought. Hants.

FRUITS UNDER GLASS.

Strawberries.

Pot Strawberries are still growing fast, and show but faint signs of going to rest. The earliest plants having filled their pots with roots will now require very careful watering, as too much will prolong their growth, whilst too little will cause the balls to shrink from the sides of the pots, and the roots, which should never become dry, will suffer. To prevent this and economise labour, those which usually occupy 5-inch pots may be plunged to the rims in a bed of ashes quite out in the open, where they may remain until they are wanted for forcing. Later plants in 7-inch pots must be kept free from weeds and runners, frequently moved to prevent the crock roots from striking into the ground, and sufficiently wide apart to favour a free circulation of air amongst them. Treated in this way and moderately supplied with water, the crowns of all well-advanced plants—for, after all, there is nothing like an early start—will soon begin to ripen, when they can be plunged in the open ground, free from worms, or in cold pits, according to taste, for the winter. If the latter course is pursued, the lights should only be used for protection from incessant rain and heavy falls of snow, as all the hardy varieties resent coddling, and throw up the best bloom after a period of decided rest. Moderate rain in mild weather is beneficial, and dry frost does no harm provided it is not sufficiently severe to swell the balls and burst the pots when it breaks up. In this case the pots suffer more than the plants, as a well-ripened crown will stand any reasonable amount of frost, and the pot can always be preserved by the use of a thin layer of dry Bracken. The only kinds which I find it necessary to protect more from damp than frost are Dr. Hogg and British Queen, and as these are invariably kept back for leading up to early outdoor crops, they are plunged up to the rims in leaves, and kept hardy by full exposure when heavy rain is not falling. If the general stock runs short, a few of these, every alternate row, are drawn from time to time; the others are left to root through into the leaves and ripen fruit where they stand.

Peaches.

While Peaches are still hanging in the latest house, the time again comes round for preparing the trees in the earliest for another year's forcing. Twenty years ago, pruning, cleansing, and painting, like biennial Pine potting, formed quite an event, and all hands down to the night stoker were called in to assist. But Peach forcing, like all other matters horticultural, has undergone a great change, for, what with Amsdens and Alexanders, Hale's, and half a score of other earlies, many people now start a month later and come in a month or two earlier than they used to do. They prune at midsummer, transplant and root-prune while the leaves are fresh upon the trees, and wash the dormant wood twice instead of painting once. Whether the quality of the fruit is better, consumers, who still pay high prices, should be the best judges. In my opinion it is not nearly so good, but so long as a Strawberry in March or a Peach in April and May have fair size and plenty of colour, their flavour is a matter of secondary importance. As yet I have not rooted out my Mignonnes and A Becs, Violette Hâtives and Bellegardes, and given their places to these extra early varieties, as many there are who must and will have the best, and taking time by the forelock enables one to have the best sorts, in quite as early as English grown Peaches are, worth eating. My earliest house was clear of fruit by the end of June, and the trees were at once pruned. The syringe and hose kept the foliage and roots fresh and healthy, and all border work was performed in August. Many of the old leaves are still hanging, and a touch with the old-fashioned switch would lay them low, but so long as they can hold on they must remain, whether or not they are of use to the bright silvery buds now very prominent, but not too forward to swell prematurely. Water, it is hardly necessary to say, has not been withheld, as I can endorse all that Mr. Baines said last week in his excellent article on watering Vine and Peach borders, but whenever the clouds dropped their fatness, portable lights were moved to let this best of all water into the internal borders. When the rain did not suffice the hose was at work, as the scent of a bold and profuse bloom depends entirely upon keeping the forming and maturing buds well supplied by the roots. As we do not commence forcing before November, the trees will be untied, rough cuts will be made smooth, washing and retying will be completed by the end of the present month. Future movements must stand over for another chapter; suffice it to say, the house will have full air and the roots will never feel the want of water.

Midseason houses having been branch and root-pruned, their treatment in no way differs from that accorded to the earliest, an abundance of air and plenty of water being all that they require for the present. Our third house has also been root-pruned, and, judging from the freshness of the large leaves and the bronzed shoots, there exists but little doubt that new roots, spongioles or spongelets, whichever may be proper, have taken hold of the fresh calcareous loam. This is satisfactory, for my

Latest house, which is still in fruit, the remains of a heavy crop, requires immediate attention. Some of the trees having been moved bodily in the autumn of 1884, heavy mulching and watering were all they required last year. This season and this month steel forks will glisten at their work, and fresh loam, only a small quantity, minus manure, will be given to each tree. The hose will then fill a provised basin over the balls, and fresh stable litter, for the roots are outside, will finish the border work for the season. Inside we must be active, for although we never leave a shoot that is not carrying fruit or required for the coming year, some pruning always follows the gathering of the crop. The trees are then well washed, and gentle fires by night and day are kept going until the leaves fall. An abundance of air is given every morning, and the house is closed early with dry sunheat, when that luminary favours us during the months of October and November. My latest Peaches are Walburton Late Admirable, Barrington, Prince of Wales, Gregory's Late, and Sea Eagle. The last keeps a long time in a dry Grape room after being gathered.

Vines.

A slack time in the vineries, but still the energetic gardener finds plenty of work. The renovating and top-dressing of external borders, commenced in August, should be persevered with during the continuance of fine weather, as roots

disturbed or shortened while the leaves are upon the Vines soon take to the new soil and get established by the time the stored-up sap is exhausted in the spring. Late Vines in this respect are most difficult to deal with, as a severe check before the Grapes are quite ripe might prevent them from finishing. If confined to external borders which have fallen into a bad state, the work is best left over until the sap begins to rise in the spring, but where they have a good internal border to sustain the crop, the month of October is perhaps the best for lifting and relaying the outside roots. The mistake which many young beginners make both in planting new and renovating old Vines consists in giving them too much rich compost at the outset. They make their borders too wide and too deep, and, anxious to raise the roots of old ones well up above the ground level, they not unfrequently place too much compost over them. When this happens, the Vines rarely respond to the expectation of the owner, and root-lifting is voted a failure. The theory, however, is right, but the practical part is wrong, and the best way out of the difficulty is careful forking off until the nearest surface roots are met with, when a thorough watering, if at all dry, should precede a thin top-dressing of fresh turfy compost. I lately saw a range of new vineries in which the gardener proposed making the borders 15 feet wide and 3 feet deep to start with, the Vines to be planted in December. Had he given the roots a ridge 5 feet in width and 2 feet 6 inches in depth, and planted as soon as the houses were finished six weeks ago, much expense would have been saved, a season gained, and future piecemeal additions would keep the Vines in the heyday of their vigour for the next twenty years. The veriest tyro in plant culture knows that over-potting is often fatal, and the same rule applies in making Vine borders. Better give a smaller quantity of compost, more drainage, mulching, and water, and we may hear less of imperfect setting, spotting, and shanking.

Autumn vineries.—Houses in which Hamburghs and other thin-skinned Grapes are hanging in a ripe state will now require careful ventilation, and most likely gentle fires to prevent the berries from damping or moulding. Shade, I have often pointed out, is necessary to the preservation as well as the production of that dense colour and bloom which all covet, but do not always attain; but a gradual thinning out of lateral growths must now be followed up until nothing but the main leaves remain. A free circulation of air will thus be secured, and moisture which condenses so rapidly will be prevented from settling on the berries. White Grapes generally keep better than black ones through the most trying months of October and November, simply because all lateral growths are removed early to let light into the bunches; but these as well as Hamburghs should be looked over once or twice a week for decaying berries. Should mould get in, the scissors must, of course, be employed, and a little sulphur thrown about when the pipes are warm will do no harm to the fruit or foliage. It is a good plan, as soon as watering is discontinued, to cover the borders with some dry litter or Fern for keeping down dust and absorbing moisture, also to keep the pipes warm and the houses well ventilated by day; but the heat should be shut off and the ground ventilators closed, or nearly so, when cold damp begins to rise and draw in at night.

Late houses, in which the foliage is now ripening or taking on the autumn tints, may be considered satisfactory, as the fruit in like manner will be well advanced; but where the foliage is fresh and laterals persist in growing, the fire-heat withheld in the spring must now be applied. An immense amount of fire-heat is not absolutely necessary to the colouring of late Grapes, as I have made Gros Colmar jet-black against a stone wall. But bunches intended for hanging until next May must have something more than colour; they must have staying powers, and these can only be secured by the aid of heat steadily and persistently supplied throughout the growing season. Where a given aggregate has not been given, a rush at the end of the summer will not produce the desired effect; neither will the Grapes keep fresh and plump after the leaves fall.

External borders should now be carefully examined, for this has been a season of extremes, and it is just possible the fitful falls of rain may not have reached the lower stratum, and although it is now too late to ply the hose, the usual covering should be delayed until they have become properly moistened. Inside borders, on the other hand, which have been allowed to become too dry may derive great benefit from a moderate surface watering with warm diluted liquid or guano water, but dry covering to prevent the escape of moisture should immediately follow. If laterals have been allowed to run freely, a gradual shortening back, regulated by the condition of the crop, must be followed up until the main foliage only is left, when the buds on young canes and at the base of spur shoots will become prominent, and, under the influence of light and air, form their embryo bunches and ripen properly.

Early vineries intended for starting in November should by this time be fit for pruning if this operation has not already been performed. The present mild weather is not favourable to Vines which, through spider or other causes, lost their foliage early, and some may show signs of breaking prematurely, but this predisposition must not be allowed to interfere, as the breaking of a few terminal buds sometimes sets the sap in motion, whilst bold pruning not unfrequently sets them to rest for the remainder of the season. All border work and top-dressing having been brought to a close, and a good start being half the battle, the annual washing and cleansing of Vines and houses should be efficiently performed. Clean healthy Vines may be washed twice over and slung in a horizontal position as far from the glass as may be convenient. Painting, if a hobby, may also be indulged in, but unless that worst of all pests, mealy bug, has got into the old spurs, strong soapy water should best answer the Grape-grower's purpose.

W. Coleman.

Eastnor Castle, Ledbury.

Indoor Garden.

WINTER-FLOWERING PLANTS.

Tea Roses.—Of the value of these for winter flowering there can be no doubt, yet, strange to say, they are by no means so commonly grown as one might be led to believe. Many thousand Tea Roses in pots are annually distributed by nurserymen, who can always sell them, even when other kinds of plants are a drug in the market. But what becomes of them afterwards? Great numbers perish through their owners, or those in charge of them, being under the impression that they are hardy, and will stand all manner of rough usage, this following treatment, perhaps, the very opposite in character, and a break-down is the natural result. In nurseries Tea Roses are grown quickly, as they ought to be, and any which we want to purchase we should prefer having before any severe hardening off is attempted. Our aim would then be to keep them steadily growing under glass, so as to attain a serviceable size before winter sets in; whereas those received late, shifted, and placed in an open spot till cold weather sets in, present a miserable appearance, and seldom do good service. Tea Roses for winter flowering must not be treated as hardy, nor even as greenhouse plants; they require the temperature of a moderately warm stove, or say not lower than 50°, and from 60° to 65° during the daytime. True, under good greenhouse treatment they may yield a few blooms during winter and abundance of fine blooms in spring; but, as a rule, they are much more profitable in heat, small blooms and buds especially being most in demand, and these the forced plants are constantly yielding. Those, therefore, who may have purchased nursery-raised plants, which are usually strongly rooted in 5-inch and 6 inch pots, will do well to give them a fairly liberal shift, using clean, well drained pots and a rather rich loamy compost. Light forcing houses, such as are used during summer for Cucumbers and Melons, will suit them perfectly, but, failing these, they may be set on the front stages in warm plant houses, and even in Pine stoves. They require a light, sunny position and ought not to be crowded amongst other plants. Then, if properly watered and when strongly rooted given frequent supplies of liquid manure, they will grow vigorously, every shoot formed furnishing one or more blooms, and the more these are cut the more quickly are other flowering shoots formed. The bulk of the Teas sold by nurserymen are worked, and consequently any suckers that the stock may throw up are worthless, and should be at once removed. Now, it is the suckers produced by plants on their own roots that give much the best blooms, and also serve to keep the bushes well furnished at the bottom. Hence the advisability of striking cuttings and gradually working up a stock of serviceable sized plants on their own roots, and, seeing how easily this may be accomplished, the wonder is that so few make the attempt. This season we were able to obtain clean, healthy cuttings, and struck nearly the whole that were put in. The best consist of partially matured shoots from which a bud or bloom has been cut; these taken off with a heel, dibbled in singly into 3-inch pots filled with gritty loam, will, if plunged in a gentle bottom heat and kept rather close, strike root quickly. Another plan which we find to answer quite as well is to pack the pots containing the cuttings closely in deep propagating boxes set on a bed or staging in a warm house, and covered closely with squares of glass. No bright sunshine should be allowed to reach the cuttings, nor, on the other hand, should they be shaded more than can be avoided, or the leaves will turn yellow and drop off. Cuttings when rooted must not be allowed to become badly root-bound, nor should they be transferred to a cool house, or they will become stunted and make but poor progress. This season ours were kept growing in a warm house, and were first shifted into 5-inch and 6-inch pots and finally into 8-inch and 9-inch pots, though a few may yet receive another shift. The last shift was given a fortnight ago, and already an improvement has manifested itself; the plants are breaking strongly from the base upwards. Many of them are about 2 feet high and bushy. All buds have been kept closely removed, and will be till near such time as the blooms may be required, and this practice should be observed in the case of both old and young plants all through the summer and early autumn months, as it is very unwise to weaken the plants by the production of blooms that are not needed. Our strong old plants have of necessity to be set out in the open during summer, but they make healthier growth and root more strongly into fresh soil when given a shift if kept in a light greenhouse. All should be housed before heavy or cold rains are encountered. What pruning is needed in order to keep the plants in shape is best done early in the summer, as matured growth is to be preferred for winter flowering. Very old plants, unless they can be induced to push up from the bottom, are not worth keeping; in fact, where there is room to prepare young plants and time to do the work Tea Roses are best treated as annuals. Those forced during the winter need not, however, be thrown away; on the contrary, they may be planted out against warm walls and in other sheltered positions where they will grow and bloom strongly during the same and subsequent seasons. In many forcing houses they might be planted out on old Cucumber or Melon mounds, on which, or in somewhat similar positions, they will flower abundantly without much trouble. It is starvation treatment that has to be avoided in all cases if good results are to be looked for. Green fly and mildew are the greatest enemies to Roses, both being most troublesome when the plants are grown in cold, draughty houses. Tobacco water or a decoction of soft soap and Quassia chips soon destroys the fly, and a solution of lime and flowers of sulphur used in

the syringing water effectually checks the spread of mildew. Red spider will also put in an appearance when the house is kept too dry, but what checks mildew is also destructive to red spider. The varieties which we cultivate and which will suit most places are the following, viz., Anna Ollivier, rose; Catherine Mermet, nearly the same in colour and exceptionally fine; Comtesse de Nadaillac, clear rose; Devoniensis, creamy white; Etoile de Lyon, sulphur-yellow; Grace Darling, creamy white, beautifully tinted with pink; Homer, blush; Isabella Sprunt, sulphur-yellow, very free; Madame Lambard, bright red, very good in the bud state; Marie Van Houtte, yellowish white edged with rose, very good; Niphetos, white, very fine in the bud state; Safrano, apricot, grown for its buds; Souvenir d'Elise, white with a blush centre; Sunset, rich tawny saffron, and very distinct in habit; and Souvenir d'un Ami, deep rose and a vigorous grower.

Heliotropes.—Although the blooms of these are not nearly so durable as those of various other winter-flowering plants, they are, nevertheless, much prized on account of their scent. We are growing a much larger stock of them than usual, *i.e.*, a three-light frameful instead of a one-light frame. The plants were struck at the same time as the last of those used for the flower garden, and were first potted off into 3½-inch pots and then shifted into 5-inch and 6-inch ones, in which size they will flower. They form more sturdy growth in the open than under cover, but we prefer to keep them in cold frames, transferring them from these into a warmer pit about the middle of September. The plants being stopped about three times and the bloom being kept closely pinched off, they grow to a good size; and as plenty of air has been given them, the strong healthy growth which they have made will, when introduced into a warm forcing house, produce abundance of flowering shoots, frequent cutting increasing the supply from back buds. It will thus be seen that we do not treat even these as cool greenhouse plants, nor will they do any good under cool treatment. Our Heliotropes are set on the front stage of some old houses which we have, and there, although the range is all heated to suit Bouvardias, Poinsettias, Begonias, and other heat-loving plants, the fronts are the coolest, and they also receive a fair amount of air or sufficient to check weakly growth. Being well looked after, they continue to flower from the present time till the house is wanted in April for Melons, and, besides the bloom, they will also afford abundance of cuttings. Miss Florence Nightingale is still one of the best for all purposes, but during the winter this, and also President Garfield, more approach lilac than their usual colour. The latter variety is rather more compact than Miss Nightingale, but in other respects it is of doubtful superiority. White Lady we have discarded; it is a very rank grower, and of no service for cutting, owing to the blooms fading quickly. Boule de Neige, an old and a very strong grower, succeeds remarkably well when planted out in a conservatory, or in a Peach house, vinery, or other structure where it can receive a fair amount of light; in fact, it is the only variety with which I am acquainted that blooms continuously in a comparatively cold house.

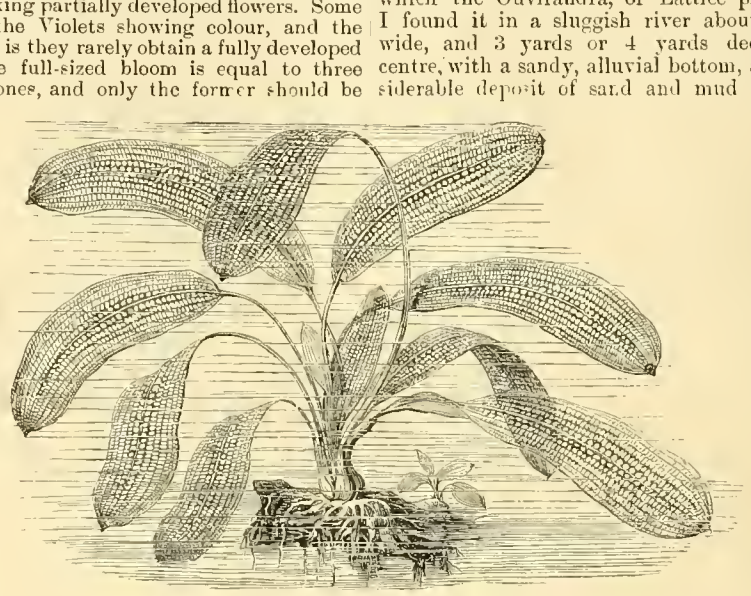
Violets.—These are much better grown without fire-heat than with it, or, if any is given, it should just be sufficient to prevent damping off or loss from severe frosts. At present there is abundance of blooms on The Czar in the open ground, but directly severe frosts occur, the supply will have to be maintained by means of plants in frames, pits, or pots. Marie Louise has become very popular. Only a few years ago Chrichel, in Dorsetshire, had almost a monopoly as regards this variety, long ranges of pits being erected almost purposely for it. Now every large garden grows it extensively, and in nearly every small garden two or more lights are devoted to it during winter. The plants being well prepared in good open ground, are, or ought to be, placed in the frames before severe frosts set in. In some few cases a little bottom-heat is given; but, as a rule, this is not needed; indeed, it may easily be injurious, and the plants are not nearly so continuous blooming under such treatment as when kept cool. The frame or pits should be partially and firmly filled with old hotbed material, on which should be put about a foot of good loamy soil. The plants being lifted with good balls about their roots and cleared of all useless runners, except those, rooted or otherwise, formed close to the parent plant, should be planted firmly and just clear of each other. If planted in loose rich soil, this encourages the production of leaves rather than bloom, while if crowded thickly together they are liable to damp off. They will also damp off badly if slightly damaged by frosts, or if kept too warm and close. They require a light airy position and ought to be near the glass, though it is possible to err in having them too close. Ours are from 6 inches to 9 inches from the glass, and will receive, now they are well established, all the air possible, the lights being drawn off whenever the weather permits. Already there is plenty of blooms, but none will be picked until those outside are crippled, and at all times we endeavour to avoid picking partially developed flowers. Some gather all the Violets showing colour, and the consequence is they rarely obtain a fully developed flower. One full-sized bloom is equal to three half-grown ones, and only the former should be gathered if an even supply is to be expected. Violets in frames, as a rule, do not need much water, but they ought not to be allowed to get very dry at the roots. Whenever severe frosts are imminent the glass ought to be covered with mats, hop-bags, or other available protecting material, and the sides and top further banked up with rough strawy litter. Violets also succeed remarkably well in pots, provided they are kept in a cool house or pit and have light, airy positions. Marie Louise is undoubtedly often confounded with New York, there being many more of the latter in cultivation than is generally supposed. Both do well in frames or pots. Comte de Brazza's White has grown very strongly this season, and we have planted six lights with it in addition to placing a number in pots. It produces fine white blooms, but, beautiful as they are, they are not so popular as the blue and lavender doubles. For wreaths and bouquets, however, the white kind is especially valuable. W. I. M.

Impatiens Sultani.—If the new Balsam (J. Hawkeri) which has such fine and deep-coloured flowers, is as floriferous as Sultani, then must it be a grand greenhouse plant. With me nothing could be more beautiful as pot plants just now than the older form. The plants are from seed sown early in the spring, and are now in 4½-inch pots. Though such ravenous feeders, yet some check to root action of this kind is needful to produce those wondrous heads of bloom now seen. When looked upon from above, the effect is singularly beautiful. As on warm days water must be given frequently, it is just as well to place the pots in saucers. Still further, it is desirable to set the pots into others a size larger, as the plants make so much growth they become top-heavy.—A. D.

THE LATTICE-LEAF PLANT.

(OUVIRANDRA FENESTRALIS.)

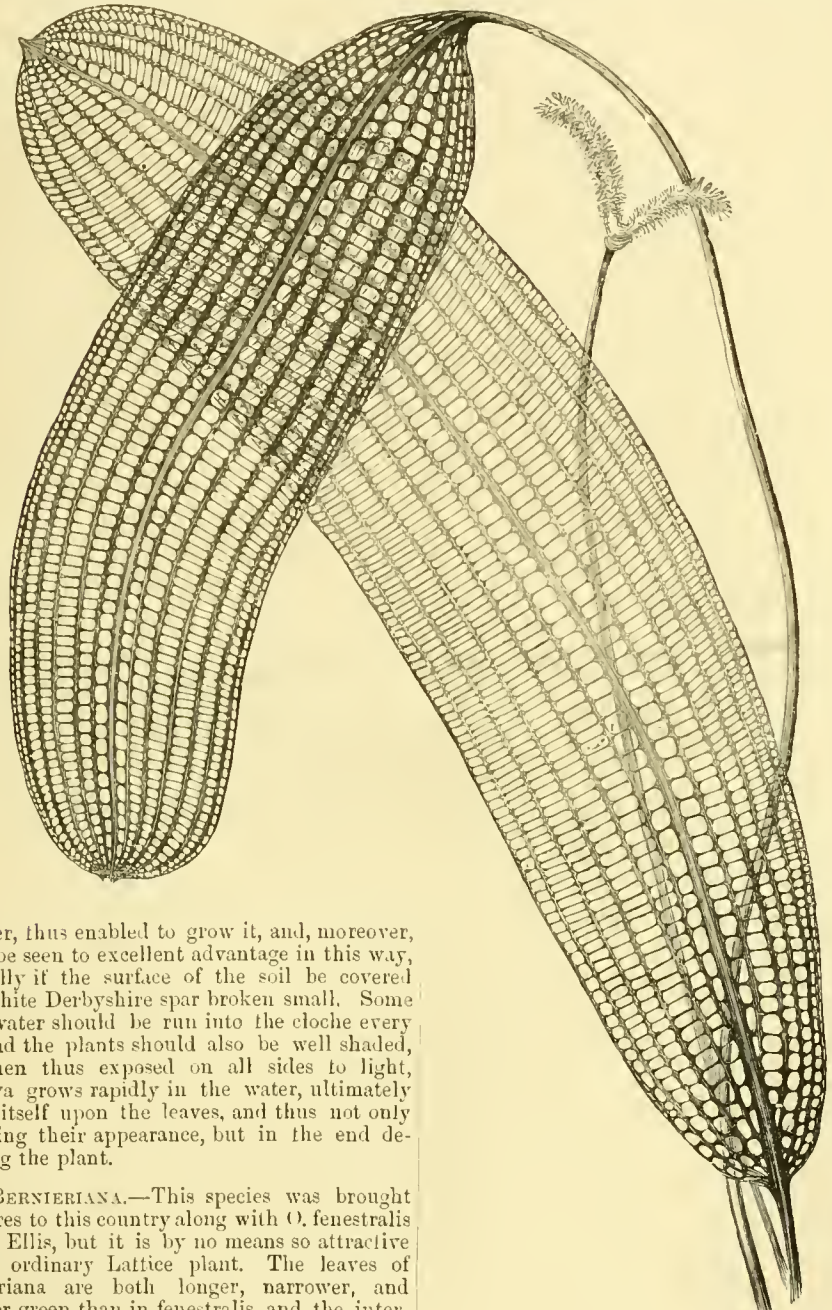
The Lattice-leaf plant, of which the annexed are illustrations, is a native of Madagascar, an island which abounds in unique forms of both vegetable and animal life. The existence of this very remarkable plant was first made known by M. Du Petit-Thouars nearly a century ago, but it was not until 1855 that living plants of it reached this country. These were brought by the late Mr. Ellis, who writes as follows concerning this singular plant in its native home: "Whilst staying at Tamatave I visited a river about eighteen miles distant to see the situation in which the Ouvirandra, or Lattice plant, grew. I found it in a sluggish river about 20 yards wide, and 3 yards or 4 yards deep in the centre, with a sandy, alluvial bottom, and a considerable deposit of sand and mud around the crowns of the plants, indicating that the deposit of soil brought down by the frequent rains from higher parts of the country formed a sort of top-dressing for the plants."



The Lattice-leaf plant as it grows under water.

The Ouvirandra grows in stiff loam or clay—usually near the margin, and about a foot under the surface. It is said to grow in places which at some seasons of the year are dry; when this occurs, the leaves all die, but the roots retain their vitality and rapidly push up new growth with the return of the rains. The native plants, according to Mr. Ellis, measure some 2 feet to 3 feet in diameter; therefore, cultivators at home seem to have been very successful with it, as we have seen plants of it in England upwards of 6 feet in diameter, and bearing hundreds of its curious-looking skeleton leaves, each measuring from 5 inches to 6 inches across. Leaves nearly as large as those just described were received by us the other day from Mr. Whittaker, Crewe Hall, who writes concerning the plant as follows: "We find its cultivation not to be at all difficult, *i.e.*, if potted in good fibry, turfy loam and peat, mixed with sharp sand and placed in a tank of clean, soft, or rain water. We keep it at a temperature of about 85° in summer and 75° in winter. The pan or dish in which it is grown is placed at a foot below the surface, and a portion of fresh water to replace what is used in the

house is added every day. Under this treatment it grows luxuriantly and flowers freely every season." Our own experience has been similar to that just quoted. We have found self-sown seedlings of it to grow very freely. We have also grown this Lattice plant in inverted cloches placed upon a stage in the stove without any bottom-heat, and consequently at a lower temperature than that just named. Under these conditions we have found it to thrive admirably, although it does not grow to so large a size as in heat. People who have no suitable tank are,



Leaves of Lattice leaf plant (half natural size).

however, thus enabled to grow it, and, moreover, it can be seen to excellent advantage in this way, especially if the surface of the soil be covered with white Derbyshire spar broken small. Some fresh water should be run into the cloche every day, and the plants should also be well shaded, for when thus exposed on all sides to light, conferva grows rapidly in the water, ultimately fixing itself upon the leaves, and thus not only impairing their appearance, but in the end destroying the plant.

O. Bernieriana.—This species was brought unawares to this country along with O. fenestralis by Mr. Ellis, but it is by no means so attractive as the ordinary Lattice plant. The leaves of Bernieriana are both longer, narrower, and brighter green than in fenestralis, and the interstices between the ribs are much smaller. It differs from fenestralis, moreover, in producing four spikes of bloom instead of two, and these are rose-coloured instead of greenish white. Judging by the greater length of its peduncles, and by their inflation about the middle, as if to give buoyancy, we should be inclined to believe this species to be a frequenter of deeper water than is usual in the case of fenestralis, notwithstanding its being found accidentally in company with that species. O. Bernieriana first flowered in Messrs. Jackson's nursery at Kingston in 1858. W. H. G.

MARKET-GROWN CHINESE PRIMROSES.

The best Chinese Primroses are generally to be found in our market-growing establishments, where myriads of plants in 4½-inch pots are so even and so admirably grown that they command admiration, and show that specialities, if Chinese Primroses merit such an appellation amongst market plants, always display more of merit than is found amongst plants where many things are attempted. No doubt very much of this perfection in cultivation is due to the fact that the market grower erects only useful houses for his plants and cares nought for appearance. Hence his plants always get plenty of light, are near the glass, and have ample air without being exposed to cold currents. Further, they are always provided with the best available soil to be obtained, and the culture, if somewhat of the high pressure sort, is certainly of the very best. Those privileged to see occasionally the fine breadths of plants found in market-growing establishments can justify this praise of the way in which at such places Chinese Primroses are grown. Of course, the private grower palliates his own lack of good culture by declaring that in all cases these things are the special objects of a market grower's enterprise, and that is quite true. Still it is very obvious that in a much smaller way the market grower's methods and work may be copied. In very many gardens there is a manifest tendency to overpot Primulas. There are few similar plants which need less average pot room than these do, for the roots are exceedingly fine and tender, and are in much danger if in soil that is sodden or sour or too much solidified. It is when these roots, permeating fine, yet free and good, soil, come into free contact with the sides of the pots that real health and strength are evolved. Thus it happens that the market grower from his 4½-inch pots produces such splendid plants full of stout firm foliage, and carrying large heads of bloom of the finest quality. Where thousands of plants are raised successive sowings are needful, not only as a matter of convenience, but also to maintain successional batches of plants over the whole winter season. In private gardens where a few scores of plants suffice for the wants of the winter it is well to sow twice at least, the first sowing being made in gentle heat about the middle of March, and the second sowing from newly-sown seed early in the month of July. The former will give fine plants for early winter and Christmas decoration, whilst the latter sowing gives plants to bloom admirably from January till April.

Of this later batch many of the best flowered plants will well repay for summer keeping after the spring bloom has been removed. If growing in 4½-inch pots they will, about the month of June, stand a shift into 6-inch pots well, or if in 3 inch pots, then into 4½-inch pots. In shifting such stock plants it is well to avoid low potting. Damping-off is not a common evil with yearling plants, but it is often found in plants that are blooming for the second time unless carefully potted. No doubt early potting has considerable value in enabling the plants to become thoroughly established and the pots well filled with roots before the winter sets in. Growing them also during the winter in a gentle heat is helpful in preventing damping, but, with all possible care, it sometimes happens to the best grown plants. It is wise, therefore, in potting to have enough of plants should any of them suffer from a very common complaint. Those preserved plants from the previous winter are most useful for early blooming; indeed, are the best to produce good specimens for the November exhibitions. It is not at all unusual to find these blooming whilst in small pots, and, as it were, prematurely producing comparatively inferior flowers, to show very fine blooms later when repotted, and enabled during the summer and autumn to make full growth. Under ordinary conditions, it is not at all difficult to raise Primula seedlings, for if sown in shallow pans in fine sandy soil, the seed being just buried and then protected by a thin covering of clean Moss or a piece of clouded glass, the seed, if good, will germinate freely in about three weeks. If sown in March, some little artificial heat is desirable, but sowings made in July may be fully trusted to the natural warmth of the season. In most cases more depends upon the quality of the seed than upon methods of raising, for really good seed will germinate under even disadvantageous conditions. As to soil for Primulas, it is generally admitted that it should be good. Composts usually have to be measured for use; hence it becomes a stereotyped method of description to insist upon two-thirds of one and one-third of another item in the compost. The phraseology is useful, inasmuch as it is clear and plainly indicates what is meant. Thus, for Chinese Primulas, a compost of two-thirds sweet turfy loam and one-third of thoroughly decayed manure from a hotbed is the

best, and with all may be mixed a sprinkling of white sharp sand to keep the compost open and light. As to the matter of firm potting or otherwise, no doubt it should be otherwise in the case of seedling plants having their first potting from the seed-pans. But with plants established in the blooming-pots rather more pressure may well be employed, for soil too light and loose soon becomes a mere sponge, through which the water passes as through a sieve. One of the secrets of the success of the market growers in obtaining such remarkable results as they do from 4½-inch pots is found in firm potting; but of course the soil is good, and so composed that it will neither bake hard when dry nor become sodden with moisture.

Although preference is shown for certain colours in Primula flowers, yet all are very pretty and acceptable. The term "washy" as once applied to some of the older hues no longer has force, as we can have plenty of reds and purples, which are not at all washy; whilst in the blush and pink hues the delicacy and beauty found in them must redeem such from a term so depreciatory. The whites are naturally the most popular, because all white flowers are so acceptable during the winter months. We get this tint in very fine form in both pale green and in dark foliage. Perhaps by reason of the contrast, the blooms on the latter always seem the purest; certainly as they age they do not flush with pink, as is so much the case with the others. This latter dark-leaved strain is probably identical with that which gives us flaked or striped flowers, for markings of that kind are found only in plants having dark foliage. The break seems to have come first from the carmine and purple selfs, because we have both these colours in the flakes. Then, in some of the seedlings from the flaked forms there was an entire absence of colouration, the blooms being pure, and this feature has been perpetuated in the strain. Mr. Cannell's Swanley White shows this feature admirably. Next the whites came the lavender-tinted flowers in diverse shades, some bluish, others reddish, but still all of one section. They are, perhaps, too wanting in decisiveness for many growers, but none the less they are exceedingly beautiful; especially so are those flowers which show clear white margins to the petals. Without exception very lovely and refined are the flesh and pink tints. Of these, Prince of Wales, having pale green foliage like the older white forms, and carminata, having reddish green leaf-stalks, are singularly beautiful. Similar sections are probably known under other names, for each seedsman seems to have his own nomenclature, but generally it will be found that they differ only in name. Red or purple shades, meaning thereby the old hue, vary from pale tinted flowers down to deep rosy magenta; really they are neither red nor purple, but contain a combination of both colours more or less. The darker ones, very rich indeed, differ only from the deeper hued Chiswick Red section in the fact that the flowers have a violet tinge, which thus materially changes the hue. The Chiswick Red section so called also gives several shades from carmine to deep, indeed almost blood-red. Really these deeper hued forms are heavy carmines; still they have no special connection with the older carmines, of which we had some beautiful forms years before the Chiswick Red strain was introduced from the Continent. However, this latter strain has done wonders in developing form and colour since it has been with us, and it seems very difficult indeed to excel the very beautiful and richly hued kinds we now have. In some directions size of bloom has been developed in a remarkable degree, but these very large flowers are objectionable to this extent, that the plants are less floriferous than others, and when one or two large flowers fall, a head of bloom is often completely spoiled.

It is worthy of note that some kinds have the green sheath so prominently developed, that they fairly force the blooms from off the truss long before they would otherwise fall; hence we often see what should be fine heads of bloom having a thin, loose appearance. The Fern-leaved section so far has in bloom given nothing which was not previously found on the old or plain-leaved plants. Still the foliage of the Fern form is very pleasing and distinctive, and merits admiration. Few winter-blooming plants are likely to maintain popularity more than Chinese Primroses, and their fairly good seeding propensities render them all the more serviceable. A. D.

WINTER-FLOWERING VIOLETS.

The time has now arrived for moving the tender double-flowered varieties of Violets from their summer quarters to frames. Frames that have been in use for Cucumbers and Melons during the past summer will now be available for Violets. Many growers of these popular flowers plant them in the soil that has been used for the preceding crop, as there is generally a little heat left in it; but I like to have a fresh start with new material, as the beds, if not re-made, get cold just at a time when warmth is most needed to keep the flowers growing; otherwise they remain dormant for a long time just when they are most required, viz, in the short dark days of winter. The frames should be set in a place sheltered from cold winds, but open to the south, so as to husband as much as possible the faint rays of the winter's sun; and with this end in view the frames should always be elevated at the back by means of extra bricks placed under them. The fermenting material in the frames need not be strong, as a violent heat is unnecessary, the main point being to secure a gentle lasting warmth, so that the roots may not get chilled. Although Violets are very hardy, they do not flower freely at mid-winter without a little aid in the way of warmth, and I have found that during severe weather it is a good plan to keep the sides of the frames well protected. Tread the fermenting material in the frames very firmly until within about 1 foot of the glass; then put in a layer of good soil; fresh loam, if possible, is best; then lift the Violets from the open ground with good balls of earth, and set them on the soil as thickly as they will stand, allowing room for the foliage to expand; then fill in with soil, and give a good soaking of water, finishing off with a layer of Cocoa fibre refuse. Keep the lights off, except during exceptionally heavy or cold rains, that might chill the soil too much; but as soon as frost sets in put the lights on the frame and cover up securely at night. Uncover, however, directly the frost is gone, and tilt the lights up at the back. If the plants have been well prepared during summer they will commence to flower in October, and continue to do so throughout the winter. Marie Louise generally flowers early, and is one of the most popular of all Violets, but for early spring the older Neapolitan, with its paler flowers and exquisite scent, is very useful, and the new double white Comte de Brazza is also well worth attention. Its long, stout foot-stalks and large flowers eminently fit it for bouquet making. The common single blue Violet, of which The Czar is still a popular kind, usually flowers very freely during winter, provided new beds of it are made every spring. In this locality they are mostly grown under the partial shade of fruit trees, that keep the sun's rays in summer from drying up the foliage, and break the cold winds of winter, for, in order to insure a supply if frost prevails for any length of time, or snow covers up the plants, it is advisable to have a portion of the stock either covered with movable frames or transferred to cold frames similar to those recommended for the double kinds. In picking Violets only pick fully blown flowers, as it is wasteful to pick half expanded buds, and there is nothing like a Violet's own leaves for garnishing the blooms. The leaves of The Czar variety are large and cup-shaped, and very dark green—just, in fact, what we want in the way of material for garnishing. J. Groom.

Gosport.

Phrynium variegatum and **P. jucundum** are two names for one plant, a very prettily variegated Maranta-like stove plant which is sure to become popular, because it is very free growing, graceful, and highly decorative. The leaves are elevated on almost erect stalks 1 foot long, the blade being about 8 inches by 3 inches wide, bright green, with broad longitudinal streaks and margins of creamy white, and with the excellent habit of drooping just sufficient to display its full beauty. The plant has been introduced and named by two nurserymen at the same time, and we have therefore to decide which of the two names is to stand. Messrs. Linden, of Ghent, published the name P. variegatum along with a figure of the plant in the *Illustration Horticole* at the beginning of this month, and as Mr. N. E. Brown, of Kew, is responsible for the name, we presume this is the one to adopt, notwithstanding that Messrs. Veitch, of Chelsea, exhibited a plant of it under the name of P. jucundum on September 11, and received a first-class certificate for it from the Royal Horticultural Society. Perhaps it is too much to expect that the horticultural committee should have been acquainted with the figure in the *Illustration Horticole* so soon after it was published, and the plant deserved the certificate, no matter what name it bore.

PROPAGATION OF PELARGONIUMS.

Pelargoniums still look well in many flower-beds, and as cuttings taken from them in autumn disfigure or reduce them greatly in many instances, propagation is often left as late in the year as possible. In other cases, and especially in cold backward localities, many Pelargoniums do not make sufficient growth by August to enable anyone to take cuttings from them during that month, and it is frequently near the end of September before the autumn propagation is effected. It is, no doubt, an advantage to do it earlier, and August is a good month for it, but it may also be done successfully now, although it entails a little more work than earlier in the season. In August, for instance, all the cuttings may be freely rooted in the open air, but now they must have the protection of a frame and glass from the first. There is one great advantage, however, secured now, and that is, matured growth. In August the wood is soft and green, and many of the cuttings are apt to decay if not properly managed, but now they are hard, and there is little danger of their damping off; in fact, late propagation has many advantages, especially in the case of those who have glass frames. In beginning to propagate, the first thing to be done is the preparation of the soil. This should be mixed up in one heap, and in sufficient quantity to fill all the pots or boxes that are required. Ordinary garden soil will do where fresh material cannot be had, and two parts of the compost should consist of this, one of light manure or leaf soil, and the other of sand. The latter should be as gritty as possible. Road-scrapings may be mixed with propagating material, but we save all our superfluous potting-shed soil throughout the summer for this purpose, and find it such a good mixture by the end of the season, that it rarely requires any addition. The whole should be well mixed, and then it is ready for use. Either pots or boxes may be employed. Tricolor and variegated Pelargoniums are generally more tender than green-leaved sorts, and it is a good plan to put the former into pots and the latter into boxes. Half-a-dozen cuttings may be inserted in a 3-inch pot, or twelve cuttings may be put in a 6-inch pot. The pots should be carefully drained and filled firmly with the mixture. When the latter is rather dry, it is well to water it thoroughly after putting it into the pots, and then allow the latter to stand for a few hours before putting in the cuttings; water again immediately the cuttings are in. Where boxes are used, a little drainage should be put in the bottom, and over that should be placed some rough pieces of soil, filling up then firmly with the mixture. The boxes may be of any convenient length and width, and about 3 inches deep. The cuttings should be put in 2 inches from each other, and a few boxes about 1 yard in length and 18 inches in width will hold some hundreds of them. I am very much in favour of the box plan, and practise it largely. As soon as the cuttings are all in, they should be placed in a frame where the lights can be put over them at night and during severe or rough weather.

No attempt should be made to shade them, as the sun will harden them, and although they may droop at first, it will do them no harm. Where a frame cannot be devoted to them, place them along the bottom of a wall, and protect them with lights. They do not require very much water at first, and should not be over-watered. They will root in three or four weeks after insertion, and as soon as frost or excessively damp weather sets in, they should have the protection of fire-heat; not, however, with the object of making them grow, but merely to preserve them. CAMBRIAN.

TREES AND SHRUBS.

TREE PLANTING IN PARKS.

SUFFICIENT attention is not directed to park planting, with a view to render the landscape scenery picturesque and varied, when marginal masses, young plantations, clumps, or groups are being formed in new parks; it is also necessary from time to time to fill up blanks in park plantations occasioned by high winds or the decay of trees, if a succession of healthy growing timber be desired throughout the country. Before selecting the subjects to form the principal masses, it is essential to have some knowledge of the trees most suitable to the various conditions of soil, geological formation and climate. As a general rule, it is the safest and perhaps the wisest plan to plant the park belts, marginal masses, and the larger clumps and groups with those trees that are found to thrive best and develop into the finest timber in the locality where the planting is intended to be carried out. Trees suitable for forming the principal masses in the park may be divided into two classes, thus: Oak, Elm, Lime, Horse and Sweet Chestnut trees, for rich loam and clay soils and somewhat sheltered sites; Beech, Sycamore, Norway Maple, and Birch trees for thin poor soils and on exposed sites. Among Conifers (though not strictly park trees) the common and other Silver Firs, the Douglas and Menzies Spruces, and Pinus austriaca, Laricio, Benthamiana, Jeffreyi, ponderosa, macrocarpa, and many other hardy and tall-growing varieties may be planted on the declivities of hills in groups amongst the marginal masses to give variety, contrast, and shelter; they can also be planted in groups to form a background to deciduous trees or prominent hills in the distance to break the hard, level, sky outline. The best and at the same time most pleasing and picturesque effect in park planting is to be produced by grouping with distinct species bold, sweeping masses of different sizes and irregular shapes, to avoid giving similarity in size and form of groups of each distinct kind of park tree, and by planting smaller groups of the newer and more beautiful varieties of each species in front of the common sorts, distributing these latter at wide and irregular distances apart from tree to tree, so as not to add a stiff and clump-like appearance to the larger masses. In a judicious arrangement of groups, ornamental trees, both dwarf and tall, should exhibit a different outline to the eye on every side; and although they should be planted at wide distances apart to allow every tree sufficient room to develop its special features of habit and foliage to the fullest extent, yet still these, when viewed at a distance, should blend into one group. Clumps of park trees are generally round or oval in shape, and mostly planted on prominent knolls. They should be composed of one distinct variety or species. Groups of dwarf trees may be advantageously used to soften down abrupt outlines of clumps. Mixed groups of fine-foliaged and flowering trees, of silvery and dark foliage, of rich autumn-tinted and the more quiet coloured, and the round-headed with the fastigiated forms, the weeping with the irregular or oblong forms, should be tastefully distributed throughout the park, advantage being taken of the undulating surface by planting the groups on the rising ground, leaving the hollows or valleys to form grassy glades. These latter may occasionally be broken when too great a breadth of Grass is visible, by planting groups of dwarf trees in the foreground. Thorns and other dwarf trees should also be planted near carriage drives, and on each side of sharp curves or park roads and drives in scattered groups of various sizes from a triplet to a score or more. These dwarf tree forms, when planted judiciously, give variety without abruptness and a more natural appearance generally to the planting. Single specimen trees of distinct and marked features should be planted on well-chosen spots, but care must be taken not to plant too many, so as to give a speckled or chessboard-like appearance to the park. The leading features to be aimed at in park planting should be variety, with distinctiveness, and a system of arrangement without formality. Conifers are only suited for park adornment at a distance from the mansion, on the sides of hills, or prominent high-lying outskirts; when planted in the foreground or in the low-lying sites of parks, either in clumps, groups, single specimens, or to form avenues, they are altogether out of character with true English park landscape planting. The only exception to this rule is the Cedar of Lebanon, which may be tolerated near a mansion, but even this only when the style of architecture is Elizabethan, Tudor, Jacobean, or of some other allied type. G.

The Sea Buckthorn (Hippophaë rhamnoides).—This forms a large spreading bush or small tree, and does well in loose sandy soil by the seashore, so well, indeed, as to be one of the most valuable of sea-side plants. It also thrives inland in almost any soil and situation. An additional feature is added in the autumn by its bright orange-coloured berries, which are borne in great profusion, and will frequently remain on for months. As seeds are readily obtainable, the Hippophaë is generally propagated in this way, but suckers can often be detached with attendant roots, which quickly form plants.—W. T.

Buerger's Evergreen Oak (Quercus Buergeri).—The list of cultivated kinds of Evergreen Oaks is not large, and this handsome species is such a desirable addition that it well merits a passing note. It forms a tree or large shrub of noble, spreading habit and free growth. The leaves are as large as those of the common Laurel, but of a deeper green, and far more effective. In form they are ovate and pointed, and leathery in texture. It is perfectly hardy, and now forms a fine feature amongst other evergreen trees in the nursery at Coombe Wood.—W.

The Carolina Poplar.—This old acquaintance, and the best of the Poplars for use as a shade tree or for its wood, has been generally known as the Black Italian Poplar—"black," because its foliage is of a deep rich green and dense; and "Italian," because, having been taken to Europe at an early date, and being easily propagated, its peculiar merits for street and road planting caused its extensive use in Italy and Germany. In many places where no fences are used, and the country is nearly bare, the lines of road are, according to the "Cultivator," rendered visible for miles by the double line of these Poplars which grow along their sides. Although the tree is usually grown from cuttings, it does not incline to throw up suckers from the roots, as most Poplars do.

Aucubas from grafts.—This is the method pursued in propagating Aucubas when standards are required. It is, however, more applicable in the case of plants for pot culture than it is for those for outdoor use. Good clean stems of the common sort make the best stocks, and these are mostly selected from the strongest of the seedlings. A. vera is the favourite berry-bearing plant, and, consequently, more of that kind are worked than of any other sort. The operation is done in spring by means of side-grafting in close, gently-heated, and well-shaded pits, and as the scions become united, the ligatures with which they are fastened are undone, and the heads of the stocks are gradually reduced. Grafting the Aucuba is a matter of no great difficulty; therefore, wax of any sort is but seldom used, although a little of it is beneficial as far as excluding wet from the incisions is concerned.

THE WEEPING WILLOW.

THE climate of England appears admirably suited to the Weeping Willow. The noble examples of it which ornament the banks of the Thames are as finely grown as any ever described in its native habitats; and they are also far more numerous than on the banks of the Euphrates, where they are becoming rare. Many of the specimens growing near the course of the Thames have attained from 50 feet to 60 feet in height, and it is said that some, in the broadest extension of the branches, measure fully 80 feet across. That the climate of Scotland is not too cold for it, is proved by the noble tree at Taymouth, in Perthshire, described by Loudon, which, when seen by him, was 70 feet high, though it had only then been planted thirty-six years. With regard to the use of the Weeping Willow in plantations, or as a single ornamental tree, Loudon observes: "The Weeping Willow spoils a landscape when injudiciously planted;" that it is not adapted for sublime effect, but better suited to the character of a pretty sylvan glade, with water; or in a villa garden, drooping over a picturesque rustic bridge. He would not introduce it in close connection with majestic ruins; such offices, he remarks, must be resigned by it in favour of "the Oak, whose dignity can fitly support such contiguity." He is doubtless entirely right in the broad principle; a plantation of Weeping Willows, for instance, would entirely destroy the effects of the glorious ravine of the Tête Noire, and of any scene of that sublime and majestic character. But in the grounds of ordinary residences, at well selected points near our park lakes, and in a hundred other situations connected with home scenery and the general characteristics of landscape gardening, it forms an element of beauty such as no other tree could supply. Even in winter its delicately drooping branchlets form a charming contrast to the more sturdy ramifications of erect-growing trees, and when they are feathered with hoarfrost, the effect is striking in the extreme, drooping as gracefully as the wings of a bird of Paradise. H.

Berberis vulgaris atropurpurea.—This is a handsome variety of the common Barberry, the foliage of which, in spring, is of a deep wine colour, passing gradually into brown, and, in autumn, becomes a purplish green. As the plant is most attractive in a young state, a means has been discovered of perpetuating the charms of its youthful foliage by cutting the stems down close to the ground every second year. This generally prevents the occurrence of flowers or fruit, but as the plant is valuable for the effect of its early foliage only, its flowers and fruit are well sacrificed to obtain it.—T. D.

SHORT NOTES.—TREES AND SHRUBS.

Quercus palustris.—As a coloured tree this Oak possesses great merit. Its young foliage contains many beautiful shades of orange and red, and this quite apart from the very rich tints assumed by it in the autumn.—T. S.

Escallonia revoluta.—This is a beautiful white-flowered shrub, and valuable on account of its blooming at this season of the year. It is one of the hardiest, if not the hardiest, of all Escallonias. In the Cambridge Botanic Garden it forms a fine bush about 7 feet high and dense in habit. The leaves are broadly obovate or nearly round, and the entire plant is hairy except the flowers. These are produced in thyrsoid racemes. It is a native of Chili.

Hardiness of the Oleander.—I believe the Oleander to be hardier than is generally supposed. I had a plant of it in a pot out-of-doors, without any protection whatever, during the winter before last, and though the branches were injured, the lower part was alive the following spring. Last winter it had the benefit of a wall, and is now healthy and has made growths this year nearly 2 feet long. Possibly in mild localities it might be worth growing against a wall.—R. J. L.

PINUS INSIGNIS IN HAMPSHIRE.

I THINK it is agreed that this is the most beautiful of all the Pines; its dense dark foliage reminds us of the plumes in the bonnets of our Scottish regiments. It is not considered by some hardy enough for our climate, and I have seen a statement that some were killed by the winter of 1880-81, and as Mr. Howitz did not include it in his comprehensive list for Ireland, I presume he did not consider it suitable. Before, however, we come to such a conclusion, it would be well to take into consideration the fact that some even of our native trees have been killed by severe winters. Many are the records of Hollies and even Furze that have been killed by severe frost. Gilbert White in his "Natural History of Selborne" in this county says of the winter of 1784: "This frost killed all the Furze and most of the Ivy; the Hollies lost their heads, and scorched alike Laurustines, Bays, Arbutuses, Cypresses, Portugal Laurels, &c." Similar were the effects of the severe winter of 1813-14. Judging from this, it is at least premature to come to a conclusion as to the hardiness of a tree from the severity of one winter. Of course it would be different if we had every year such winters as was experienced in 1854-5, 1860-1, and 1880-1. Another element to be taken into consideration is that a newly introduced plant is generally nursed with care and forced into an unnatural growth, which renders it more unfit to stand an inclement season than if less care were taken of it. As to P. insignis, more is to be feared from a heavy fall of snow than anything else, its dense foliage holding the falling flakes until broken by the weight. One under my own observation suffered severely from this cause in 1881; the leader and higher lateral branches went, and it presented such a figure that it would have been considered well to remove it altogether, so unsightly was it; it, however, made a wonderful recovery in the following year, and in the spring of 1883 it was a cone of dark green, just like a trimmed Yew, and in that year it shot out a leader over 2 feet in length. When I saw it last year another leader was nearly 1 foot long, the two giving it the appearance of a vane, and to complete the illusion, a bird was perched on the top when I looked at it, thus forming the ball; its whole height is a little under 20 feet.

The following are illustrative specimens in this county. No. 1 is at Blackmoor, Selborne, to the east of the mansion; it has a girth of 3 feet; the foliage shows signs of the severe winter of 1880-81. The soil, a moory sand on the Folkestone beds, planted in 1867, measured in 1881. No. 2 is in Woodley Lodge pleasure grounds, near Romsey; it has a girth of 7 feet 5½ inches at 4 feet up, and a sheer estimated height of 50 feet. This is a very fine specimen, in perfect health, and without a tinge of the past severe winters. Soil gravelly, with water at a depth of 4 feet or 5 feet. Subsoil the Bracklesham beds, planted in 1843, measured in 1882. No. 3 stands in front of Upton House, about two miles from Nursley Railway Station; it has a girth of 6 feet 1½ inches, and an actual height of 74 feet, a spread of branches of 22 feet, and contains 50 feet of timber. This is a magnificent tree, in vigorous health, feathered to the ground, and without a flaw in its almost perfect symmetry. The situation is high and much exposed, being only sheltered on the north and north-west by the house and a clump of Wych Elms, in fact, so exposed that a Deodar near has a struggle to maintain a decent appearance, and many other shrubs show the effects of rough winds, while the P. insignis stands unscathed, and apparently has never lost its leader. The soil is a rather peaty vegetable mould on the Bracklesham beds. I could not even guess its age, but it was a considerable tree twenty years ago; measured in May, 1884.

R. S. J.

Spiræa Thunbergi.—This is a favourite shrub with me. Several plants of it I put out in the woods are now from 4 feet to 5 feet high, and form effective bushes. It is altogether a superior deciduous shrub, and I have several plants of it in the nursery as well as those planted out in the woods, and I believe that in a few years they will be from 6 feet to 10 feet high, and as broad as high if allowed their full development. It is a very distinct and pretty Spiræa, one of the earliest to bloom, and not easily mistaken for any other variety; its small lanceolate leaves and slender twigs clothed with white Hawthorn-like flowers at once distinguish it.—G.

NOTES.

FRUITY AUTUMN.—Now and then comes a still soft day in October, when the crisp air is warmed by a genial sun, and, despite the ominous rustle of the dead brown leaves here and there, the drooping Dahlias, and the robin's song, one finds much of freshness and beauty in the garden. The Torch Lilies and Asters, and gold-rayed Lilies are yet most lovely, and Jackman's Clematis and its ruby form hang in festoons among the golden Wistaria leaves. Then, the heavy September rains have started up lots of things. I see the leaves of the Grape Hyacinths, and of the Hooped Petticoat Daffodils, and of some of the Tazetta, or bunch-flowered Narcissus, already peering above the soil. The great flowers of Colchicum speciosum are very beautiful either in the bud stage or as fully open, wine-cup like in the sun. So also the autumn Crocuses, such as C. zonatus, C. pulchellus, C. speciosus, C. Clusii, and C. nudiflorus have never been so rich and satisfying as this season. The Sunflowers and the Golden Rods (Solidago) glow golden here and there, and Gladioli of all shades yield delightful glints of colour among the varied green things among which they grow. Even the Japan Anemones and parti-coloured Gaillardias are yet in bloom along with Dahlias, the blood-coloured Lobelias, and the Phloxes, and Violas of many kinds. The latest Roses, soft flesh-coloured Souvenir de la Malmaison, are now at their best; and the seedling Primroses are beginning to blossom as a foretaste of the spring time to come.

True Egyptian Papyrus. Syrian Papyrus.

CULTIVATION *v.* STARVATION.—One of the best, if not the best, herbaceous borders I ever saw anywhere is not yet a year old from the time when everything in it was replanted. The old soil was taken out to a depth of 2 feet or 3 feet, and new compost (something like what a good gardener would prepare for his Vines or Chrysanthemums) was added, and the results to-day are as I have stated above. The various colours are massed together artistically, that is to say, thoughtfully, in irregular shaped, but perfectly orderly groups. Let us take blue, for example. In the area or space allotted to this colour, no flower of another hue is allowed to intrude, Chionodoxas or Scillas and Irises begin the overture, then Hyacinths and the finest of Bluebells, blue Anemones, or Monkshoods carry on the melody of colour into the rich chords of Iris and Violas, and then the finale is deep and rich-toned, as represented by Agapanthus and autumnal Aconites, with a background of Jackman's Clematis on the wall behind. In a word, from earliest spring to latest autumn, the blue patch is sacred to blue flowers. But this border proves that the old fetish of some gardeners (I mean the words "well established") is only a question of degree, and that it but too often really means well starved. Many plants in the border above alluded to are fully double, often treble, the height that they generally attain when well established. To see hardy flowers at their best, fresh and vigorous, we must replant them often in freshly dug or renewed soils.

THE PAPER REED OF EGYPT.—The question is, are there two species of Papyrus, as Parlatore believed? or are the Syrian, the Palestine, and the African kinds simply geographical forms of the same plant? I prefer to hold to the latter idea; but, be this as it may, the fact remains that if Parlatore's distinction of the plants be correct, then the true Papyrus, formerly grown in the Nile, has never been cultivated in our gardens, the Cyperus syriacus having done duty for it for many years. The main differences are shown in the accompanying woodcut, reproduced from vol. v., p. 504. I am glad that "Narcissa" has drawn attention to there being two forms of Papyrus, and I should like to ask any interested reader to tell us what is intended by the word "byblus" as used by Herodotus. He tells us that it was an annual plant, used in the manufacture of sandals and sails for boats, also the lower portion (? rhizome) as food, and a band of the "byblus" was sealed on the heads of the sacrificial oxen. If the Greek name of "byblos" is the same as that applied to Papyri, we have at least two words in our language derived from this paper-yielding Cyperus. The first is paper itself, from Papyrus, itself a form, original or derivative as the case may be, of the Arabic "babeer;" and secondly, Bible or book, from the Greek name for the plant, or rather its product, Papyri. It is quite possible that the Papyrus of the Nile would attain to its fullest stature in Egypt from seeds sown every year, as is inferred in Isaiah (chap. xix., 7), so that it is doubtful if it was ever really a native of Egypt after all.

GLADIOLUS SAUNDERSI.—Of all the species of Gladiolus which bloom in the autumn I think this one of the best. It is erect in habit, with soft glaucous leaves, and bears nodding flowers of a scarlet colour, having a whitish throat heavily dotted or speckled with red. It is a distinct and showy plant. I used to think the plant very

constant and fixed in its character, but a form imported direct from the Cape to the Botanic Gardens at Edinburgh is different from the original type as distributed by the late Mr. W. Wilson Saunders when at Reigate. This genus offers many attractions to the hybridiser, seeing that the seedlings flower at from twelve to eighteen months after the seed is sown. We have now some very pretty forms of Lemoine's hybrids in flower from seeds sown barely two years ago, and one or other of these Sword flowers may be had in bloom from February, when the forced "brides" come in, until December, when Gloire de Versailles is in flower in a warm greenhouse. I wish some of our plant-collecting friends at the Cape would look up all the beautiful kinds for us. Many were introduced years ago, which bloomed and were figured in the *Botanical Magazine* or other periodicals of the time and then were lost to sight, although they are yet to memory dear. Now that we know all Gladioli may be grown and forced in pots let us hope that these fine old sorts may be re-introduced to our gardens.

The great Apple Rose.—Again the great orange-red or crimson fruits of this old Rose gleam out bright and showy from among the soft glaucous oblong leaves. The tips of the shoots where the leaflets are youngest have quite a fragrant Sweet Brier-like odour, and in all its phases of growth, from earliest leafage and flowering in early summer to the rich fruitage it yields in autumn, the plant is interestingly beautiful. It is a pity that it is now so little grown, but as at least one nurseryman in Ireland has to my knowledge budded it largely on the Brier this season, one may soon see it advertised along with other lovely old single or semi-double kinds, such as Celeste, semi-single and semi-double, and many others not now often seen. The common Sweet Brier, of which a beautiful engraving from a photograph recently appeared in The Garden, is just now again showy, its attraction now being an abundance of bright red hips, which collectively glisten almost as red as a huntsman's coat in the early morning sunshine. But of all the ornamental fruited Roses there are none more distinct than Rosa rugosa, and this great old Apple-fruited Rose of Parkinson with its large soft glaucous Sweet Brier-scented leaves.

Mount Usher.—Deep down by the silvery Vartry River, and embedded among the woods and hills of Wicklow, is one of the prettiest little gardens I know. It is near to Rathnew, and surrounds a pleasant cottage which was in former days an old water mill. At all times the garden around the house is gay with hardy flowers, that is to say, from early spring to latest autumn, and just now roofs and old wall tops are aglow with Virginian Creeper; the porch is a mass of Jackman's Clematis intertwined with a golden green Wistaria which has climbed the gable above in a pretty and natural way. A vigorous mass of a form of Clematis lanuginosa, named C. Henryi, is flowering for the second time this season, and has flowers from 7 inches to 9 inches across, of a soft lavender-purple hue. Tropæolum speciosum, which has been crimson-scarlet on walls and fences alike, now bears its wreaths of berries of the richest turquoise-blue, and the "great Apple Rose" of dear old Parkinson's "Paradisus" bears its big pear-shaped hairy fruits among the soft glaucous leaves. Asters, Veronicas, Tea Roses, and Japanese Anemones are yet beautiful, with many other flowers of beauty which, if once brought hither, are not doomed to neglect nor to remain unseen. Everything beautiful is welcomed, and careful culture and a genial climate have worked wonders in this little world of flowers, many things being hardy in this sheltered spot which are not so elsewhere. Cordyline australis is quite at home in a little enclosure, with its plumy head on a stem 12 feet or more in height. There are other fine specimens; one which was wind-topped has branched out in quite a vigorous way, but the especial interest attached to the larger and older plant consists in its having seeded abundantly, and seedlings from it by the hundred are now strong and healthy plants bearing leaves a foot long or more, although only about a year old. Apart from the cosy beauty of this old mill-house garden, its surroundings are also beautiful. In the adjoining domain yclept "Rosanna," formerly occupied by Mrs. Tighe, the authoress of "Psyche" and other poems, are some fine thick-boled Yews, the fluted or netted stems of which are very characteristic. There is also a variety of Yew tree here with naturally inarched or anastomosed branches, and in the woods beneath fine Beech, Scotch Fir, and Oak; the Cherry Laurel grows 20 feet to 40 feet in height, and the branches are now heavily laden with its red or black-purple fruits. The squirrel (not a native animal) is plentifully naturalised here, and we saw one quite busy stealing Walnuts, unmindful of the dogs and the boys who now and then hunt them from tree to tree. Chestnuts and Limes are also very fine around the old house, part of which dates from the time of good Queen Bess. It is just the place in which to forget the whirl and bustle of the dusty town; one feels buried among lush-meadows through which the river winds, and when at eventide the herons come floating like great bats to fish for their suppers, and the white mists rise and stillness reigns, one feels that there is an arcadia in the world after all.

Michaelmas Daisies.—True to their appointed time, these beautiful flowers are with us once again, and their great trusses or panicles of Daisy flowers form happy hunting-grounds for fly, bee, and butterfly alike. It is nice to see a tall white-flowered kind with stems 7 feet high and as graceful as those of a Bamboo swaying about in the warm breeze and sunshine of an early October day. The robin's song and the rustle of falling leaves seem quite a fitting accompaniment for these flowers and for the patches of rain-beaten or wind-driven Colchicums and Crocuses. Like all other hardy perennials, Asters require good culture, and are never so fine as they are the first and second year after replanting. I wish Mr. W. Dod would give us the names of the twelve best kinds he grows, and I wish others would follow suit, for what is good on one soil may be better in another, and bad in a third. My own plan is to beg a piece of every good Aster I see; and as to their names, they are so intercrossed in gardens, even if not in America, that names do not mean much after all, and are rarely the same in any two gardens. Can anyone tell me how many varieties there are of Erigeron (Stenactis) speciosus? I think I know three or four, and have been told of a snow-white one which I have never seen. Just as I write I am told of a white and crimson Aster in a Dorset garden just like a Cineraria, and I mention it here in case any of our readers may have seen or possess such a variety.

The Japanese Yam.—As a graceful climber in a cool conservatory, or up a pole or stakes out of doors in mild localities on warm soils, this plant is worthy of notice. It has twining stems and glossy heart-shaped leaves, the form being emphasised or strengthened, as it were, by a bit of purple shading between the lobes of the leaf. Once well planted, it comes up year after year, and wreathes an upright stick or a festooned string very prettily. Another good plant of similar habit is the Black Briony (Tamus communis), the slender sprays of which are useful for cutting, and where the female plant is grown it yields a showy crop of glossy red berries. The Yam is, however, a nobler and more solid-looking plant, reminding one of old bronze in its graceful form and purplish green tinting. Its Latin name is Dioscorea japonica. Well planted in deep rich soil it grows to a height of 12 feet to 15 feet in a single season, and remains fresh until cut down by the first sharp frosts. In warm countries the roots are edible, and remind one of a coarse Potato, being a trifle sweeter perhaps in flavour, but yet not so sugary as is the true Sweet Potato (Dioscorea Batatas). Dioscorea japonica, if planted in a deep hole and surrounded with pure sand, is hardy even in cold localities, coming up every year in April or May. Veronica.

Orchids.

ORCHIDS LATE IN AUTUMN.

Now that we are well into October, Orchids need all the sun heat and light that we are likely to get. In the south we use shading where the glass is exposed to the direct rays of the sun up to the end of September, but very seldom indeed in October. Where it is not convenient to use scrim we daub the outer surface of the glass with "Summer Cloud," and when shading is unnecessary the "cloud" is washed off with warm water. Successful culture depends to a great extent upon the moisture maintained in the house. Many have an idea that all they have to do is to keep the paths and stages saturated with water night and day. This answers in summer, but not now. The paths and stages should be sprinkled with water in the morning, and again about four or five in the afternoon, and if the day should happen to be wet, omit the afternoon sprinkling. As the days, too, get shorter, less atmospheric moisture will be required. The cool house requires even less moisture than the warm houses, as there is less evaporation.

The temperature of the East India house should be from 65° to 70° as a minimum. Many of its occupants are in active growth, but some are resting, and it is necessary to give both the treatment which they require. We do not put water into the evaporating troughs either in this or in any of the other houses during winter, but when much artificial heat is required to keep up the temperature, more water must be sprinkled on the paths and stages. The lovely rose-scented Odontoglossum Roezli is now in mid-growth, and must not be checked either by an over-dry atmosphere or a low temperature. Little good is effected when the temperature falls below 60° at night. Saccolabiums in this house should not be encouraged to grow; on the contrary, keep them rather dry at the roots, treatment which also suits Aerides crassifolium. Numbers of Lady's Slippers are grown in the warmest house, and amongst them may be named C. superbiens (Veitchi), C. Stonei, C. Lowi, C. niveum, C. Spicerianum, and C. ciliolare, together with hybrids raised from them. The handsome C. grande we grow in the Cattleya house during summer, and take it into the warm house in winter. Its leaves sometimes become spotted and sickly-looking if the temperature is too low. Oncidium ampliatum majus likes a warm corner in this house now, as it is also making its growth. Slugs are remarkably fond of the embryo flower-spikes, and therefore must be kept in check. Phalænopsids must not now have too much water; spot and other maladies result from giving too much water at this season.

The Cattleya house should now receive its complement of plants. We have taken into it from the cool house Odontoglossum Phalænopsis and vexillarium. The first-named is suspended from the roof in teak baskets, but on the shady side of the house; the others are placed on the stage on the shady side. In a few days various Masdeval-

lias will also be taken into this house, such as M. tovarensis, M. Chimæra, and all that section, and Odontoglossums, such as O. nævium, O. cirrhosum, and a few others. The handsome Vanda cærulea will soon be in blossom; its spikes in the lightest part of the house are making rapid progress. Cattleyas whose pseudo-bulbs have grown to their full size must not have much water, but they must have enough to keep them plump. Some species, such as C. Warneri, need not have any for two or three weeks at a time, while C. Mossiæ may be watered once or twice a week. This species has not such an inveterate tendency to start into late growth as some of the others. Oncidium tigrinum is now throwing up large branching flower-spikes; it is a most useful species—beautiful when in flower, and the flowers are sweetly perfumed. It seems to do best in the cool house in summer and in the Cattleya house in winter. All Orchids in this house that have made up their flowering growths should now be kept comparatively dry at the roots. It is not safe to allow Cattleyas to become over dry; when that happens they flower weakly, and sometimes, as in the case of C. Percivaliana, the flowers do not come up at all. As the various species of Anguloa complete their growth they should likewise be kept dry at the root. Cymbidiums never ought to be quite dry, even at mid-winter. C. Lowianum may now be repotted, *i.e.*, if a shift is required. C. eburneum grows naturally in a ditch, and requires loam to grow in; C. Lowianum succeeds best treated as the others. C. Mastersi is a pretty species and valuable, as it produces flowers at mid-winter. The Cattleya house temperature ought to range from 60° to 65°.

The cool house temperature should be from 50° to 55° as a minimum until cold weather sets in; when the nights are frosty it may fall to 45° and even to 40°, but the lowest temperature is not safe for some classes of plants, although Odontoglossum crispum will do well under it. We begin to find out that many of the best Oncidiums, such as O. Marshallianum and O. macranthum, do better in a cool than in a high temperature, but the plants like to be near the glass, a position which makes all the difference in the case of many cool Orchids. In our house the various forms of Masdevallia Harryana do well on the stage, but one variety will not thrive there; the young growths continue to die off when they have grown 3 inches or 4 inches; while if suspended from the roof this does not happen. The young growths of Odontoglossum nebulosum die off in the same way on the stage, but if the pots are placed in Teak baskets and hung up near the glass, no dying off occurs. I allude, of course, to the winter season; they do not damp off in summer or in autumn. Many of the best Orchid growers repot their Odontoglossums and Masdevallias in September and October, but after the middle of the last-named month I prefer not to disturb them until after Christmas. I have generaliy recommended comparatively small pots for Odontoglossum crispum, but some good growers are now employing much larger ones than those which I have hitherto used. I saw a large house the other day entirely filled with plants of Odontoglossum crispum in large pots, and they looked healthy and well.

Green-fly has been more troublesome than usual this year, and we do not think it desirable to fumigate, as there is always some choice plant or other injured by the Tobacco smoke. The next best way is to dip the plant in soft soapy water to which has been added some Tobacco liquor. Into this we dip the plants, and then lay them on their sides for a quarter of an hour; we then dip them in clear water, or sponge the leaves with it. The right treatment for the cool house is to keep the atmosphere only moderately moist; do not overwater the plants, and admit as much air as possible. It does the plants good to have their leaves moving in the cool autumn air when the temperature outside is over 55°. We very seldom shut the hit-and-miss ventilators fixed in the front wall; they are placed so that the air passing through them comes into immediate contact with the hot-water pipes, and in its warmed state passes up amongst the plants, and as there is usually a small opening at the apex of the roof, there is constant circulation. J. Douglas.

Aerides Lawrenciæ.—We have received from Mr. E. Harvey, Aigburth, Liverpool, a remarkably fine spike of this charming Aerides, undoubtedly the finest of the genus. Individually the blooms were exceptionally fine and the colour bright. The pleasing colour of the flowers of this plant and its delicate fragrance are rendered doubly valuable by its flowering at this season of the year.

Vanda Saunderiana.—This is not only valuable as an autumn flowering Orchid, but specially noticeable for its free-flowering qualities, plants of small dimensions producing fine spikes of large and unique blooms. We have received a spike of bloom of this species from Mr. E. Harvey, Aigburth, Liverpool, bearing eight very large, finely-shaped flowers, considerably over 4 inches in diameter. This is one of the finest forms that have yet come under our notice. The upper sepal and petals are soft mauve, freely spotted at the base with crimson. The lower sepals are very large, tawny orange or nankeen yellow, profusely streaked and tessellated with crimson.

Stenia pallida.—This is a small, Batemannia-like plant, with rather thin lance-shaped leaves, 6 inches long. It has no pseudo-bulbs, and seldom more than three leaves. The flowers are produced at the base of the plant, and are solitary on short decumbent stalks; each flower is 1½ inches across, shaped like a Batemannia, and coloured pale yellow. The lip is saccate, with recurved edges, showing a few red spots. Demerara is the home of this species; we saw a plant of it in flower at Kew a few days ago. It requires tropical treatment. Except where what are called "botanical" Orchids are in favour, we do not suppose this little pale-flowered plant would be grown. S. fimbriata is a second species, with long Flag-like leaves, jointed at the base and sheathed so as to form a stem, as in Pescatorea. The flowers are on erect stalks, and the petals and sepals are reflexed, the lip being spreading, fringed around the margin and red spotted in the centre; they are larger than in S. pallida. Batemannia Beaumonti was once known as a Stenia; it has light green flowers with stripes of olive-brown, the lip being white dotted with purple. —W.

Cycnoches chlorochilum.—This is one of the strangest of a very strange-looking section of the Orchid family, namely, Stanhopiæ, which includes the genus Stanhopea and Coryanthes, Gongora, Catasetum, and Cycnoches. None of these plants are what one could call popular with Orchid growers, although most of them are tractable under cultivation, and almost every one shows a wonderfully interesting structure of flower. In Cycnoches the column is long and gracefully arched, broader at the apex, so as to look like a bird's head, and as this column rises and curves over a broad convex labellum, with wing-like petals at the side, there is in it a singular resemblance to a swan with flapping wings. C. chlorochilum should have a green lip if the name means anything, but in the flower before us the lip is of the clearest cream-yellow. The pseudo-bulbs are fleshy, the leaves ribbed and deciduous, and the flowers are larger than those of Cymbidium giganteum, the sepals being 2½ in. long by three quarters of an inch wide, the petals 3 inches long and 1 inch wide; the lip is 2½ inches by 1¼ inches and shaped exactly like a teaspoon with the concave side downwards, except that in the middle there is a curious bend and beyond this a thickened base to the column, which is 1½ inches long. There is no perceptible fragrance in this flower, which is nevertheless the most interesting Orchid we have seen for some time. It is plentiful in the Orchid market, we believe, having been recently imported in quantity from Demerara.—B.

October Orchids.—The Orchid houses at Selborne, Streatham, are now remarkably gay, especially with Lady's Slippers. Of these the most noteworthy are Cypripedium Spicerianum, the snow-white of the dorsal sepal of which is in this case tinged with violet; C. Harrisianum, in some instances bearing two flowers upon one stem, not a common occurrence; C. Schlimi, and its white variety; C. Godefroyæ, a form with comparatively few spots, which is no improvement, tending, as it does, to bring it nearer to C. concolor; C. Roezli, C. Sedeni, which appears to be almost a perpetual bloomer; and the choice and rare C. vexillarium. Associated with these were also Dendrobium Dearei, a free-blooming species, the white flowers of which are very useful in a cut state, and last long in good condition in water. There are also here charming specimens of the Indian Crocus (Pleione lagenaria) in bloom, though somewhat out of season. The old Butterfly Oncidium (O. Papilio) when well established is nearly always in bloom and always interesting. Other Oncidiums now in flower here are O. crispum and O. incurvum. Cattleya Dormanniana and Lælia præstans were likewise in good condition. Masdevallias were represented by quantities of the snow-white M. tovarensis and of M. macrura (a kind which resembles M. elephanticeps), M. bella and M. Davisi. The old-fashioned genus Stanhopea was likewise well represented by S. Wardi, at once the freest flowerer and best coloured member of its class. The singular Scuticaria Steeli was also in bloom, as were also Zygopetalum maxillare and Z. Mackayi, a very richly coloured form of the true Vanda insignis, and good examples of the blue Vanda (V. cærulea). Amongst blue Vandas was a variety of such immense size, that it certainly deserves a varietal name; the spike was carrying twelve flowers, each bloom measuring 5 inches across; the sepals and petals are large and full, being nearly 2 inches in diameter, and the colour is a good blue, with darker tessellations.—W. H. G.

COOL ORCHIDS.

Stanhopeas.—This family of Orchids received for years a large share of attention from cultivators, but as Orchids became more plentiful, Stanhopeas gradually lost favour, until now they are only to be met with in gardens in which mixed collections of plants are grown. In such gardens their quaint forms have always been appreciated. Some of the reasons assigned by Orchid growers for discarding Stanhopeas were, that they were useless for cutting, the powerful odour of their flowers precluding their admittance to the drawing-room. It was asserted, moreover, that their flowers were so fugacious, that they were useless for exhibition; but the worst fault of all belonging to them was that they were old-fashioned. Stanhopeas are, however, again beginning to find favour with Orchid growers; it has been discovered that all Orchids are not required for exhibition, nor every Orchid flower for indoor decoration, and that the perfume which Stanhopea flowers emit, although unsuited for dwelling-houses, is agreeable enough in a properly ventilated plant house. I have for many years recommended that Stanhopeas should be grown on the cool system, having found them to improve both in health and appearance under such treatment. When grown in a higher temperature, the leaves are liable to be attacked by thrips, which, if not detected early, causes them to speedily turn whitey-brown and become unsightly, but this does not occur under cool treatment. Stanhopeas bloom most freely when a few years old, and when the baskets in which they are grown have become a thorough mass of roots; therefore, I advise the use of open wire baskets for growing them in, as these do not decay so rapidly as those made of wood; hence the plants are undisturbed for a longer period than they otherwise would be, and their floriferousness is increased proportionately. It cannot be denied that the flowers of Stanhopeas are somewhat short-lived, but this a low temperature, such as that in which Odontoglossums grow, tends greatly to obviate, and when well established, flowers are produced in quick and long succession. The different kinds of Stan-

hopea resemble each other greatly in appearance, the chief differences being in their size. They are characterised by somewhat ovate, furrowed pseudo-bulbs, which bear a single (more or less stalked) plaited leaf, leathery in texture and deep green. The flower-scape proceeds from the base of the pseudo-bulb, and pushes downwards through the roots and soil, mostly issuing from the bottom of the basket; hence the necessity for suspension from the roof in the baskets, and also for having the interstices sufficiently wide to enable them to find an easy exit. As to basketing material, it should consist of rough nodules of peat and Sphagnum Moss. They should be grown, as has just been stated, in a low temperature, supplied with abundance of water, and kept well shaded; but after growth has been completed they may be exposed to more light, and during winter no water should be given them, unless they show signs of shrivelling. This, however, under ordinary circumstances in a cool atmosphere is not likely to occur. When in flower great care must be taken to avoid wetting the blooms; carefully keep the syringe from them, but let the baskets in which they are growing be thoroughly soaked a few days before the blossoms begin to open. The following will be found to form a good selection:—

S. Bucephalus.—Racemes bearing from five to six large, fragrant flowers, the ground colour of which is rich tawny-orange, spotted and blotched with blood-red; the column and lip are yellowish white, tinged with green and freckled with crimson. It blooms late in the summer and autumn, and comes from the Andean Mountains, on which it is found at 6000 feet elevation.

S. eburnea.—This is perhaps one of the best species hitherto introduced. It bears flowers which are nearly 6 inches across, spreading, and delicately fragrant. The sepals and petals are pure white; the lip is also white, and dotted and spotted near the base with purple and red. It blooms during the late summer months, and comes from the West Indian Islands.

S. guttulata.—Flowers large and spreading, some four or five being borne on each raceme; their sepals and petals are much reflexed and soft nankeen yellow in colour, over which are irregularly scattered a profusion of rich purple spots and dots; lip nearly the same colour as the other portions of the flower, but unusual in shape. The greater part of the column is round and then it becomes flat. The flowers are produced during early autumn and are very fragrant. It is a native of gloomy forests in Brazil.

S. insignis.—Raceme from six to seven-flowered in the case of vigorous plants; sepals and petals yellowish white, profusely and regularly spotted with reddish purple; lip almost white, freckled with purple, bearing a small black spot on each side near the base; column white, stained with greenish yellow. There are several varieties of this plant which differ more or less in colour; all of them bloom during the late summer and autumn months. It comes from Brazil.

S. Martiana.—This is a superb species, bearing blooms from 6 inches to 7 inches across, but the raceme is somewhat few-flowered. Sepals and petals spreading, but not much reflexed. The former yellowish white in colour, spotted with red; the latter, white, spotted and blotched with crimson. Lip short and broad, deep crimson at the base, white in front; column not stalked, white freckled with red. This is a Mexican species, which blooms during the autumn months.

S. ornatissima.—As its name implies, this species is very beautiful when in bloom. The flowers are fragrant, rich deep orange in colour, spotted with reddish crimson, and having in addition a large blotch of crimson at the base. Lip creamy white, yellow in front, and spotted with rosy crimson. It blooms during the late summer months, and is a native of Mexico.

S. radiosa.—Flowers much reflexed, sepals broad, creamy white, suffused with pale orange, deepest towards the base, and sparingly dotted with reddish orange. Petals deeper in colour and narrower than the sepals. Lip rich deep orange, sparingly dotted with red; column creamy white dotted with rose colour. It blooms during the summer months.

S. oculata.—This is, perhaps, the best known of all Stanhopeas, and is more frequently to be found under cultivation than any other. It is, however, frequently mistaken for S. insignis. The raceme in oculata is many-flowered, the individual blooms being large, reflexed, and emitting a powerful aromatic odour. Sepals and petals pale yellow or lemon colour, profusely spotted and dotted with purple. Lip bearing a deep yellow spot at the base, and two, or more large brownish black spots at the sides, which somewhat resemble "eyes"; hence its name. The variety Barkeriana would appear to be almost mid-way between this species and S. insignis. Its flowers are usually produced in early summer, but sometimes they do not appear until autumn.

S. tricornis.—This is a very distinct form, and one easily distinguished from other kinds, by its peculiarity of having a horn-like projection on the front of the lip, in addition to two side ones, which form so common a feature in members of this genus. The flowers are large, freely produced, very fragrant, and less fugacious than some others. Sepals soft yellow; petals much deeper coloured. Lip rich yellow, bearing on each side near the base an orange-yellow eye-like spot. It blooms during the summer months, and is a native of high mountains of Quito.

S. tigrina.—This is, perhaps, the best of the Stanhopeas. Its pseudo-bulbs are large, furrowed, and bear broad, massive, much-plaited, leathery, deep green leaves. Its racemes are many-flowered, and the individual blooms often measure from 7 inches to 8 inches across, and are powerfully perfumed. Sepals and petals spreading, the former much the broadest; ground colour yellow, heavily blotched and transversely barred with crimson-maroon. Lip rich orange at the base—in front creamy-yellow and white, and, together with the column, profusely dotted with rosy purple. It blooms during the late summer and autumn months.

S. Wardi.—The general appearance of this species is similar to that of insignis; raceme many-flowered and the flowers deliciously fragrant. Sepals and petals reflexed, rich deep golden-yellow, over which is scattered a profusion of crimson-purple dots. Lip paler, whitish in places, ornamented near the base on each side with two large velvety-purple spots, and freckled in front with purple. Its flowers are produced during the late summer months. Like S. tigrina, it is a native of Mexico. W. H. G.

Angræcum caudatum.—The genus Angræcum is peculiarly rich in species with flowers in which the spur is produced to an extraordinary length. A. sesquipedale is one of the most striking and best known of them. A. Scottianum is one of the rarest and most beautiful. A. Kotschyi and A. Ellisi have the prettiest little flowers with tails nearly 6 inches long; and in A. caudatum we have an equally remarkable species, the length of its flower-spur being second only to that of A. sesquipedale. It is a curious fact that all these long-spurred Angræcums are natives of Tropical Africa, the home of the ostrich and giraffe, or of Madagascar, where all sorts of strange animals and plants are said to abound. A. caudatum is now in flower at Kew, a healthy plant bearing a four-flowered spike, and by no means wanting in what is vulgarly known as beauty. In habit it is not unlike an Aerides, the leaves being strap-shaped, arched, and leathery. The raceme springs from near the base of the stem, and is zig-zag. The flowers are on pedicels 1 inch long, and when in bud, they look little, small, very long-tailed monkeys perched on the horizontal stalk. When expanded each flower has five long, narrow, reflexed green segments (sepals and petals), a pure white wavy-edged cuneate lip, the apex of which is produced into a long point, and a brown flexuous spur over 9 inches long, and as thick as whip-cord. The column is also brownish. This species is a native of Sierra Leone.—B.

Societies and Exhibitions.

CRYSTAL PALACE HARDY FRUIT SHOW.

October 6, 7, and 8.

A substantial prize list is sure to attract exhibitors to a London fruit or flower show from all parts of the country, and the Crystal Palace Company generally attracts a representative gathering of competitors to its shows, because it invariably offers good prizes. This week the annual show of hardy fruits and vegetables proved to be in no way inferior to its predecessors, and as the usual exhibition of Potatoes did not take place this year in conjunction with it, the fruit had undivided attention. Looking at the heavily-laden tables of Apples, one would scarcely suspect that the crop of these this year is generally a failure, and the high qualities, particularly that of size, seemed quite equal to the exhibits in the great Apple show at Chiswick two years ago. Exhibitors from all quarters of the country competed in the classes for Apples and Pears, and so numerous were they, that we roughly calculated that no fewer than 2000 dishes of these fruits were shown. Finer kitchen Apples could not be seen, but the coloration of the fruits this season is not so remarkable, and this, we believe, is the general observation throughout the country.

The principal and most coveted prizes were those offered for the best collections of Apples and Pears, the first prize in each class being £10. The finest collection of Apples was that shown by Messrs. Bunyard, Old Nurseries, Maidstone. This was a really grand display of fruit, such as would be difficult to beat in any season, however good the Apple crop may be. The collection numbered upwards of 130 dishes, representing as many varieties, and there was scarcely a poor dish among the whole number. The fruit was gathered chiefly from the vigorous cordons and pyramids which are such a speciality in this Kentish nursery. The kitchen Apples were of enormous size, and not a few would turn the scales on 17 ozs. or 18 ozs., particularly fruits of such weighty sorts as Warner's King, Lord Derby, Gloria Mundi, Loddington Seedling, Beauty of Kent, Lady Henniker, and Alexander. Other sorts, such as Peasgood's Nonsuch, though as much as 5 inches in diameter, were comparatively light. The collection comprised a selection of the leading kinds of both kitchen and dessert Apples. The display was rendered attractive by such high-coloured sorts as Worcester Pearmain, Early Strawberry, Duchess of Oldenburg, Alexander, Crimson Queening, Tom Putt, Cellini Pippin, and the golden and yellow fruits of Golden Noble, Lord Suffield, and Queen Caroline. Among the best dessert kinds shown were Kerry Pippin, Margil, Cox's Orange Pippin, Ribston Pippin, Golden Pippin, and American Mother Apple, and some very fine fruits of another American Apple called the Melon. The second prize of £6 was won by a Herefordshire grower, Mr. Watkins, of Withington, who had also a wonderfully fine collection, particularly remarkable for high colour. There were over a hundred dishes in the collection, and perhaps there were never exhibited finer fruits of such as Duchess of Oldenburg, Peasgood's Nonsuch, and Red Costard, a highly-coloured large, conical Apple not much known. The third and fourth collections came from Devonshire gardens, Mr. Sclater, of Heavitree, and Mr. Powell, of Powderham Castle. No fewer than ten exhibitors competed in this class.

The finest collection of Pears in the open class was that shown by Mr. Thomas's gardener (Mr. Butler) at Orchard Lane, Sittingbourne, who showed about 100 sorts, all good dishes, many particularly fine. The most prominent sorts either for large size or high colour were Pitmaston Duchess, Souvenir de Congrès, Durondeau, Duchesse d'Angoulême, Beurré Clairgeau, King Edward, Doyenné du Comice, Beurré de l'Assomption, and Conseiller de la Cour. Besides these were many other remarkable dishes, and a fine dish of Louise Bonne of Jersey was admired by everyone. A capital collection took the second prize. It was from Messrs. Rivers, of Sawbridgeworth. It contained some very large fruits, especially of Pitmaston Duchess, Magnate, and Princess, both new sorts. The other four collections

hown were good, but were not so numerous as the prize-winning lots. The finest twelve dishes of Pears in the amateurs' class was that from Mr. S. Ford, of Leonardslee, Horsham, which was excellent in every way. Large size and good colour was seen in each sort represented. The selection was King Edward, Durondeau, Uvedale's Saint Germain, Vicar of Winkfield, Beurré Clairgeau, Conseiller de la Cour, Marie Louise d'Uccle, Beurré Bosc, Duchesse d'Angoulême, Doyenné du Comice, and General Tottleben. The second best dozen Pears came from Preston Hall, Aylesford, Kent, and among them that fine-looking Pear, Brockworth Park, was shown in rare condition. There were also good dishes of those excellent Pears, Gansel's Bergamot, Beurré Superfin, Pitmaston Duchess, Beurré d'Amanlis, and Durondeau. The third collection came also from a Kentish garden, Bickley Park, Chislehurst.

The amateurs' class for Apples, twenty-four dishes and twelve dishes, were well represented, there being six collections of twenty-four sorts and nine of a dozen dishes. The judges had a good deal of difficulty in awarding the prizes in these classes, as some of the collections were so excellent. The first collection of two dozen sorts was that from Mr. Edwards, Shinghill, Hereford, who had a matchless collection. There were marvellous examples of the followiog sorts: Peasgood's Nonsuch, Bedfordshire Foundling, Potts' Seedling, Blenheim Orange, Lady Henniker, Wellington, Tower of Glamis, Cox's Pomona, Alfriston, Waltham Abbey, Gloria Mundi, Mère de Ménage, Emperor Alexander, and the Old and Red Costard. The second collection, from Mr. Ford, Horsham, was remarkable for large size and high colour, and scarcely, if at all, inferior was that from Mr. Waterman, who took the third prize. The best dozen dishes was that from Mr. Jones, Wallington Bridge, Carshalton. He had enormous fruits of Dutch Codlin, Blenheim Orange, Flower of Kent, Emperor Alexander, Wellington, Scarlet Nonpareil, and others, while the next best dozen, from Mr. Jacob, Petworth, was remarkable for the high colour of the fruits, the best dozen in this respect in the show. The sorts comprised the old Sussex Nanny, a capital dessert kind which should be more known; Lewis' Incomparable, Emperor Alexander, Cox's Orange Pippin, Cellini, Ribston Pippin, and Alfriston. There were large miscellaneous collections of fruits shown. Messrs. Veitch, Chelsea, showed a collection of 150 sorts of Apples and eighty sorts of Pears, all accurately named. Other collections were shown by Messrs. W. Paul and Son, Waltham Cross; Cheal, of Crawley; Paul, of Cheshunt; while the place was enlivened by a large display of Dahlias from Messrs. Cheal and Mr. Turner, and open-air Begonias from Messrs. Laing, Forest Hill.

Vegetables.—There were some half-a-dozen classes devoted to vegetables, including Pumpkins and Gourds. In the open classes there was one for the best exhibition of vegetables arranged for effect, £6, £4, and £3 being offered for prizes. There were three competitors, who each showed enormous quantities of vegetables arranged on slanting stages some 8 feet or 10 feet square, like the front of a greengrocer's shop. The "effect" was somewhat muddly, but the winner of the first prize did his best to display his produce to the best advantage, and it only needed a few Roses and Camellias carved out of Turnips and Beet to complete the show. We imagine that Mr. Waterman had examples, good examples, of every vegetable, salad, or herb that it is possible to get together from an October garden. He had, we should calculate, some fifty or sixty sorts in his group, and his fellow-exhibitors were not much behind him in point of numbers. In the amateurs' class for twelve dishes, there was a good display, eight collections being shown. The best, from Mr. Waite, Glenhurst, Esher, consisted of excellent dishes of Pragnell's Beet, Autumn Giant Cauliflower, New Intermediate Carrot, Prizetaker Leeks, Clarke's Red Celery, Perfection Tomato, Anglo White Spanish Onion, Wroxton Sprouts, Champion Runner Beans, Snowdrop Potato, and Student Parsnip. The second collection was unnamed, but a capital dish of Ne Plus Ultra Peas was noticeable; and in the third collection the best were May's Northaw Sprouts, Rousham Park Onion, Hackwood Park Tomato, and Moore's Cream Marrow. Among other collections conspicuous sorts were Sturdy and Ne Plus Ultra Peas, Perfection Tomato, Reading Russet Potato, Walker's Exhibition Sprouts, and Moore's Cream Marrow. There was a class for ornamental Gourds, in which two collections were shown. Mr. Osman, of Sutton, had the best, representing a full collection of all sorts, shapes, and sizes to be found among Gourds. The heaviest Gourd weighed 139 lbs, and was grown by Mr. Rodhourn, Croydon. The two next heaviest weighed respectively 119 lbs. and 101 lbs.

A list of prizes is given in our advertising columns.

GARDEN DESTROYERS.

THE WASPS AMONG THE IVY.

THE last few warm days—I am writing on October 4, and from East Anglia (see "A. R., p. 326)—have brought forth our old enemies in full force. Had the north-east wind lasted a little longer we should probably have been well rid of them for the season, but the returned warmth has endowed them with new life. It is fortunate the Ivy bloom was open to allure them from more valuable products, by its fulsome feast of not over-pure honey. The wasps for the nonce appear to prefer it to all else, and every bough and stem clad with Ivy in blossom is now filled with their presence and the loud hum and busy buzzing of their abnormal industry and activity. Scripture has it, "Go to the ant, thou sluggard; consider her ways and be wise;" but if there are any of the former about, they had better go to the Ivy-clad trees these warm October days, consider the wasps gathering honey, and learn to be busy and industrious. There is a reckless haste, a wild spirit about the wasps among the Ivy blossoms that is seldom or never reached on other feeding grounds. Whether they know that this is the last field of rich honey for the season, or whether the honey itself stimulates them to abnormal energy it may be difficult to discover, but of the fact there can be no doubt. The fact of their number and force is equally demonstrated by the abounding numbers found on Ivy at this late date, and after the quantity we have bottled off, and the fifty nests and occupants totally destroyed. On one tree, under which I stood a few minutes to-day, there must have been many thousand wasps; I was attracted by the sound from several yards off, and the whole tree and its immediate surroundings were more like a hive of bees on the swarm than aught else; only, that the bees were all wasps, or nearly so. The wasps among the Ivy are selfish monopolists, keeping all the sweets to themselves, and driving off by mere brute force of numbers all intruders on their preserve. I have often noted this on other occasions, and again to-day, that there seemed neither a honey nor a bumble bee among them. Someone has said that Ivy honey poisons wasps, which I doubt very much indeed. But it is "a consummation most devoutly to be wished," and might place us abreast on the list of privileges with those who are recording their experience from various quarters in such words as "few or no wasps."

D. T. F.

Sedums *v.* bees and butterflies.—It would be interesting to know to what variety of Sedum "D. T. F." refers when he says that bees and butterflies become stupified and poisoned while gathering honey from its flowers. We have often seen peacock butterflies basking on the bloom-heads of Sedum spectabile, but whenever we have approached them they very quickly took flight. Common hive bees, too, seem fond of the flowers of this Stonecrop, but in no case have we seen either bee or butterfly dead on or near it. In wet weather I have observed bees, as it were, drowned by the rain, but during this very fine autumn none are to be found in that state.—J. R. HALL, *Fox Warren*.

BOOKS RECEIVED.

"British Fungi." Vol. II. By the Rev. John Stevenson. Blackwood & Sons.

"Illustrated Handbook of Victoria, Australia." Colonial and Indian Exhibition, London.

OBITUARY.

THE REV. CHARLES PIERPOINT PEACH.

THE REV. C. PIERPOINT PEACH, who died recently at his vicarage at Appleton, Yorkshire, was an enthusiastic and accomplished gardener. The innate love of the beautiful was developed in his case by his early surroundings, his father being a skilful cultivator of flowers and fruits in his pretty gardens and orchards at Holme Pierpoint, in Nottinghamshire, where he passed his childhood. He had a true appreciation of all the charming grace of trees and plants and flowers, but he paid special homage to the queen of the garden, the royal Rose, and was honoured accordingly with her smiles and honours. He was also most successful in his artistic arrangement of his summer garden, and none knew better than he how to cultivate and to group the varied tints of foliage and of flower. He communicated to others the happiness which he found in horticulture by his encouragement, personal, practical, and pecuniary, of cottage gardening, and by his establishment and institution of floral societies. Whether he appeared as patron, exhibitor, or judge, he was ever full of sympathy, energy, and zeal. In other departments of art the loving heart made the able hand, and in the restoration of two churches he executed an amount of carving, both in wood and stone, which will testify for centuries his clever and laborious handiwork.

"Charley Peach" had an extensive circle of friends, and was so highly esteemed by the clergy of the diocese in which he lived, that he was elected by them as their Proctor in Convocation.

In Mr. Peach and in Mr. Nethercote, of Moulton Grange, Northamptonshire, we gardeners have lost two of the most devoted, most genial, most highly gifted of our brotherhood.

Friend after friend departs.
Who hath not lost a friend?
There is no union here of hearts
Which hath not here an end.

An end *here*, but no end hereafter—no end in "Paradise Regained" S. R. H.

Names of plants.—*C. M. Owen.*—Clematis connata (syn., C. amplexicaulis, C. velutina, C. gracilis) as near as we can make out. It is a native of temperate Himalaya, and is a large woody climber; leaflets three to seven, ovate, coarsely serrate or lobed; flowers in many-flowered panicles, sepals pubescent ontside, tomentose inside, not ribbed, filaments hairy, achenes white, silky-pubescent. You will see if this description fits your plant. You might try layering or grafting on to the roots of some other kind, or on its own roots, if they are strong enough. So far as we know, the species is not known in gardens.——*D. D.*—Sarcanthus recurvus.——*Annette S. W.*—Menziesia polifolia alba; the pink flower is M. polifolia.——*Multum.*—Tricyrtis hirta.——*Penrhos, Carnarvon.*—For Diplacus, see Mimulus.——*Mr. Fox*—Chelone obliqua.——*J. S. Cattley.*—Mespilus grandiflora, also called M. Smithi.——*J. D. Manscaven.*—Yellow Sternbergia lutea, other is Fragaria indica.——*C. J. H.*—Apparently a species of Carya; we may be able to identify it by next week.——*T. H. Archer-Hind.*—Cyrtomium caryotidium.——*F., Brighton.*—1, Dictyogramma japonica; 2, Asplenium Colensoi; 3, Cyrtomium Fortunei; 4, Polystichum, specimen insufficient.——*A Mizen.*—Apparently Père Delaux.——*Miss Dennison.*—Rosa mollis, a true species.——*Mrs. Newbolt.*—Double-flowered variety of Rosa lucida, native of United States.——*H. Kruse.*—Cattleya Loddigesi.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*H. J. R.*—Resembles Pomme de Neige or Snow Apple.——*Novice.*—Your Apple is not recognised; does not seem worth growing.——*Bodger.*—Beurré Diel.——*W. Ruse.*—1, Emperor Alexander; 2, Cox's Orange Pippin; 3, Keswick Codlin.——*R. E. Batten.*—1, Sweeney Nonpareil; 2, Brabant Bellefleur; 3, Roundway's Magnum Bonum.——*A Subscriber.*—1, Swan's Egg; 2, Bishop's Thumb.——*M. W.*—The large Pear is Beurré Bachelier; the small, Thompson's.——*W. C.*—1, Hampton's Bergamot; 2, Glou Morceau.——*T. A. Neil.*—White Buckland.——*Enquirer.*—Your Apple is not known—seems worthless.——*Igno.*—Beurre Charneuses; 2, Napoleon; 3, Van Mons Leon Leclerc; Apple, Braddick's Nonpareil——*A. Godfrey.*—Pear, apparently Williams' Bon Chretien, but too much decayed to identify clearly. Other fruits will be named next week.

WOODS & FORESTS.

THE MANAGEMENT OF WOODS.

"Yorkshireman's" remarks upon this subject are to the point. What the reason is that there are so few really competent foresters is a question requiring careful looking into. In the present day, when there is so much competition for almost any post, at the first sight it appears strange that few go in for the business of forester, except as a kind of appendage to some other branch of employment. This being the case, there is no room for wonder that much of what by courtesy is called forest management is done in a very slipshod fashion. Unsatisfactory as this is, there is little room for surprise that matters are in this position, and there is little reason to hope that any great alteration will take place in the immediate future. The real explanation of this I take to be in the fact that the prizes in the ranks of foresters are not sufficient to enlist men of more than moderate ability. When it is considered what the extent of knowledge is, both scientific and practical, required by an individual to be fairly classed as a competent forester, and, on the other hand, to what point of eminence it is possible to rise—that is, in the sense of gaining a competency—there is no room for surprise that more are not found in the field. To be anything beyond a mere woodman, the forester must possess, besides a good elementary education, a knowledge of geology and chemistry, and have considerable skill in drawing. He must be a botanist, an entomologist, and be able to apply his knowledge of these subjects in a practical manner, and be well up in the economic values of the products of which he has charge, and all for the pay of an ordinary mechanic.

From this point of view it is of little use to urge that many of the studies are in themselves recreations, as, however true it may be, when it is looked upon as the serious business of life, it assumes a very different aspect. It must not, however, be inferred from these remarks that I wish to imply that foresters as a class are badly treated by their employers, as on the whole I believe the reverse to be the case, but rather that the small chances of rising to any very high position whilst following the profession lie more in the fact that profits derivable from woodland is insufficient to admit of any great progressive increase of salary to permanent foresters.

If, then, this is the real truth about the matter—and it cannot be expected that men who see their way to more lucrative professions will qualify for such posts which from time to time become open—we are face to face with the question, whether our forests and woodlands are to remain in practically their present condition. If not, who can be got to undertake the higher branches of the work? To this the answer is, that owners themselves as a body must take a deeper interest in their woods. On the large estates where this would be impracticable the few competent foresters are in most cases found, as the salaries are naturally higher, and it is the smaller places which constitute the bulk where the imperfectly trained men are to be met with. As it has been urged, it is very improbable that these latter posts will ever be filled by men who have been very highly trained; therefore, if a change is to be effected, it must be by those who alone can give sufficient study to the subject, viz., the owners or prospective owners. If this was taken to heart, it would not be long before an appreciable difference would be seen, as to men who, from the nature of their position, will naturally have received a liberal education and be grounded in most of the subjects of which it would be necessary to have a knowledge, it would be much more easy to follow this up in a practical manner than it would be to the man who has to fight his way up from the ranks and acquire as he goes along the elementary knowledge which the other already possesses as a part of his ordinary education.—Forester.

—— I read with interest the remarks at page 327, but I cannot altogether agree with the writer. I admit that gardeners understand the rearing and nursing of young trees, but I fear that it would be a failure to attempt to put them in places which foresters ought to fill. Although a thorough gardener may possess practical or theoretical knowledge, I contend that he is unfit for a forester. A forester now-a-days ought to be a man not only possessing a knowledge of chemistry, geology, entomology, and botany, but he should possess a good knowledge of estate carpentering, land-surveying, valuing of timber trees and coppice woods, besides a thorough knowledge of saw-mill management. I do not think the man who has been brought up in a garden could grasp the subject of valuing, and other points, so soon as "Yorkshireman" imagines. Forestry is still in its infancy, but landowners are alive to the fact that their woodlands must be put under proper management. They want men who understand this, and be able to instruct practically how timber should be felled and converted. I believe a gardener would require a second apprenticeship before taking the place of a forester. Before long we shall have some young men ready to accept situations as practical and theoretical foresters. Your correspondent seems to treat the subject of valuing as of minor importance. I believe it to be of the greatest importance, as frequently we have found timber valued too high, and in some, and not a few, cases too low. Again, timber is grown for useful purposes and not for ornament only, and men are wanted who have been trained foresters and not gardeners.—Omega.

—— Much has been said and written lately about the management of woods, and also upon the establishment of a school of forestry in Britain, and many sensible suggestions have been made. Great Britain itself contains an ample forest area, with sufficient geological variation as well as of climate, that any school for the teaching of practical and scientific forestry could require. The vast extent of the royal forests and of private estates in this country affords an ample field for the study and practice of forestry in all its phases. Were the nucleus of such a school placed contiguous to some large forest, such as the New Forest, in Hampshire, a wide field would be at hand for immediate instruction, and easy excursions could be made into other parts of the country for observation, comparison, and study. There can be no doubt that a school of forestry at home is greatly required for the development of arboriculture as a science, and its intelligent practice as an art. The many examples of mismanaged woodlands scattered over the country strongly testify to the necessity for better instruction in their cultivation and management; and I hope landowners will bestir themselves to establish a school of forestry at home, which would be so much for their own advantage.—A. P.

THE AXE IN TREE-FELLING.

That the axe should be the favourite tool with woodmen is only natural, seeing that its use is a much more exhilarating occupation than the cramped position one is obliged to assume in working a saw in the operation of tree-felling. This renders it the more necessary that a proper supervision be exercised when felling is going on. In different districts the extent to which the axe is used varies, as well as it does amongst individuals. I have often had to keep a sharp eye to this when employing men in places with which I was unacquainted. This is especially so with plantations of Fir poles. In some counties the woodmen seem to be in the habit of using the axe alone for trees up to a size of 6 inches or 8 inches diameter. For very small poles to use the axe is certainly the most expeditious plan, and for anything under say 4 inches diameter at the butt there will not be enough loss of wood to give room for serious objection, but above 4 inches diameter I look upon it as a wasteful method if the trees are not sawn. Two or three blows from an axe of a man in advance will be enough to prepare these smaller trees for the men who follow with the saw, and if this double operation costs a trifle more than felling entirely by the axe, which is doubtful, it will be more than repaid by the saving in timber.

With regard to larger trees which no practical woodman in this country would ever attempt to fell with the axe alone, it is capable of being abused, both by being used too little or too much. When used too little upon trees to be felled by the saw, the trees are liable to become torn at the butt. This not unfrequently occurs. Ash and other woods of a nature susceptible of being easily split require the most care in this respect, as I have often seen a tree damaged to several times the cost of felling by the neglect of having a proper "fall;" or, in other words, owing to being insufficiently hewn on the side towards which it was intended to be thrown. On the other hand, I have seen trees hewn to such an extent before the saw was applied as to cause a serious loss through the waste of wood in chips. Properly balancing the extent to which the axe and the saw should be used in felling is a matter which requires more judgment than would on the moment appear, and, like many other operations, is a thing which can only be acquired by practice. Even this is not always enough, as particular systems of work seem to be handed down from generation to generation, and these are not unfrequently systems of doubtful merit. Generally, I take it, as I have said, that for anything above 4 inches diameter at the butt the saw as well as the axe should be used, and for larger timber, if waste is to be avoided, the swelling of the bole just above the ground-level should not be reduced by the axe to a smaller size than the normal part of the trunk just above the point where the hewing in preparation for the saw commences. There will be, of course, here and there a case where this rule must be departed from, as trees do not all grow upon a single model, but in nine cases out of ten it will hold good. The saw is a comparatively harmless tool, and the chief thing to be observed in using it in tree-felling is to keep it as near as possible to the ground.

D. J. Y.

UNSKILFUL TREE PRUNING.

I have been more than ever impressed by the effects of indiscriminate pruning on an Oak wood here. The trees in question seemed to be very fair specimens of hedgerow timber, perfectly clean in the bole for some 6 feet or 8 feet, at which point the branches began. In the felled trees the places from which these large branches had been removed appeared to be perfectly sound, but when the boles come to be cut into sections a very different scene is presented, and only those who have had to deal with it can understand the perplexity it causes to have from a single dead knot to 2 feet or 3 feet of virtually rotten wood situated in the centre of a scantling which is required for a particular purpose and must be of a given length or size. This is just what happened in the case of the Oak trees I have mentioned, and whilst perhaps nine-tenths of the whole bulk was good sound wood—very often of really superior quality—the trees had to be discarded, and a loss of timber of from 25 to 50 per cent. sustained, simply because some ill-advised individual had perhaps half a century ago tried his skill at removing branches from the then young trees. It is impossible to form a just estimate of the loss which annually accrues from this one cause alone, but from my own experience I well know it amounts to a large sum.

Most trees suffer more or less, but the Oak is peculiarly open to damage, and from the form which the decay generally takes it is more serious than with almost any other. In Ash, reckless pruning often develops very bad knots and bad wood, but in Elm, though knotty wood is of relatively much less value, it is not often that it is made entirely useless. In touching upon the damage to Oak I do not refer to shakes and the like which are inherent to the tree, but simply unsoundness, which is to a large degree preventable. Pruning off small branches carefully when the trees are very young will not, as a rule, cause any practical damage, but when the limbs assume any considerable size, such, for instance, that they cannot be readily removed by the knife, pruning will assuredly be detrimental. If from any cause the cutting away of any large branches becomes imperative, I would rather sacrifice the whole tree than mutilate it and let it stand. This may be looked upon as rather severe, but it is infinitely better than allowing it to grow on and produce worthless material. It may be argued that it is seldom that the loss, when unsound wood occurs quite in the centre of the tree, falls upon the seller, but I cannot believe that the majority of producers would counten-

ance what now is chiefly an unconscious fraud if they were fully alive to the means of prevention.

D. J. Y.

SEASONABLE WORK.

Covert Planting.

Now is the time to form new shrubberies for covert, and in cases where the soil is of a poor, hungry nature, a mixture of soft earth, peat bog, or well decomposed vegetable mould, mixed with the soil at the time of planting, will be useful. As a general rule, most evergreen shrubs luxuriate in well decomposed matter, so that such may be applied to poor thin soils of an opposite texture with great advantage, and will have a wonderful effect on the health and vigour of the plants so treated. Transplant and renovate old shrubberies where necessary by cutting off all dead and decayed wood, and such plants as are falling into an unhealthy condition should be examined, and a proper remedy applied to save them without delay. In nine cases out of ten the cause of failure will be found to be either poverty of soil, hard impervious subsoil, or want of thorough and efficient drainage, all of which causes the cultivator can combat by timely and judicious remedies properly applied and within the reach of every one. In forming coverts care should be taken to introduce a liberal quantity of berry-bearing shrubs in order to give a supply of food for game. Plant each species and variety on the class of soil (as far as possible) most conducive to their nature and requirements, which will be a great means of attaining success.

Where open spaces occur here and there in deciduous plantations a few common Silver Firs might be planted in such with advantage, using good-sized bushy plants prepared in the home nursery for that purpose. This tree thrives exceptionally well in such places, retains its side branches, and affords cover and shelter during winter when the deciduous trees are stripped of their foliage. The sites for the trees should be well prepared by trenching a circular piece of ground not less than 6 feet in diameter, and extracting all roots and dead timber in order to render the ground pure and clean for the reception of the trees. It is sometimes necessary to cut a narrow, deep, circular trench around the newly planted tree, and allow it to lie open for a few years in order to prevent the roots of the old trees in the vicinity from exhausting the soil at the root of the young tree; but as soon as the latter is established, the trench may then be filled up.

Where it is desirable to extend the present coverts by means of layering, such work should be done and finished without delay, and in order not to disturb the game, or at least as little as possible, the different groups should be gone over by rotation, as may be found most convenient to all interested. Brittle wood that is apt to break when cut by the knife may be twisted and the bark ruffled; then by fastening them firmly down with a hooked peg and covering them with a few inches of soil, they will be found to emit roots and answer the requirements necessary.

Tree Planting.

Push forward the preparation of ground for new plantations by draining, fencing, and opening pits of sufficient size for the trees to be planted, and in all cases where the subsoil consists of hard till, have such well broken up, which will not only be favourable to the young plants at the outset, but will also have a decided effect on the healthy development of the trees in after life. On exposed situations near the seaboard, barren Heather moors, and bleak peat bogs, a screen fence erected on the most exposed points of the plantation is a great aid in the way of procuring shelter for the young trees. Such a screen fence may be erected by planting a line of wooden posts along the line of fence about 6 feet apart; then by stretching four horizontal wires along the fence and attaching them securely to the posts, and warping branches through the former, a useful and efficient screen fence can be erected at small cost. In cases where it was not convenient to procure branches, Heather and Bog Myrtle warped through the wires answer the purpose admirably. In cases where the fence is not to be of a permanent natnre, the size of the wire used may be No. 6 gauge, which will be quite efficient for the purpose. The posts may be made from young trees, the thinnings of young plantations, tree tops, or other wood of little value; efficiency and economy should always be the forester's consideration.

Plant out Coniferæ and other ornamental trees and shrubs as standards on the lawn and elsewhere as may be wanted, and in lifting the plants use digging forks with steel prongs in preference to spades, which will lessen the risk of cutting and destroying the roots in the course of removal. When planting the trees, it is a matter of vital importance for their success in after life to have the roots spread out in a regular manner from the base of the stem. Carelessness in this respect is sure to be the forerunner of serious loss and disappointment, so that great care is necessary to see that the work is properly executed. Stake, tie, and fence the trees according to their requirements, and finish by giving a good mulching in order to prevent too sudden evaporation. Look over standard trees and see that their wants are attended to in the way of staking, tying, and fencing. Plant hedges of Thorn, Beech, Privet, &c., where they may be wanted, using stout, well-prepared plants with bushy roots.

Nursery.

If not already done, finish putting in Evergreen cuttings without delay. The planting of two-year seedling or bedded Scotch Fir and Larch into nursery rows may now be done advantageously; likewise plant in the same way other hardy species of young Coniferæ, as well as other well-rooted plants raised from cuttings, as they will soon take to the soil at this season, and will not be apt to be thrown out of the ground during winter by frost. Seedling Hollies, Berberries of sorts, Rhododendrons, &c., may all be treated in the same way. Collect tree seeds as they ripen, such as Horse and Spanish Chestnuts, Walnuts, and Oaks. These may be sown at once on well-prepared ground, not of too heavy a texture, in good condition, and free from weeds. The seeds of Beech, Maples, &c., had better be kept till sowing time in spring, as the plants are apt to suffer by spring frosts when the seeds are committed to the ground in autumn. Collect the cones of different species of Picea and other kinds that ripen their seeds in autumn; choose a fine day for the purpose, and store them away in a dry place till wanted in spring. Haws that have been kept in sand-pits for a season should now be sown on well prepared ground, choosing a fine dry day for the operation. All unoccupied ground should be dug up into rough ridges to keep it dry and admit the influence of frost during winter, but in cases where the soil has become exhausted, a dressing of well-decomposed manure mixed with the soil at the time of digging will be beneficial. Turn over and prepare compost-heaps to induce decomposition, so that the stuff may be ready for use when wanted.

Trees in Tredegar Park.—In this beautiful Monmouthshire park there are very fine trees, chiefly Oak, Elm, and Ash, but I think the most imposing are those in the old avenue of Sweet Chestnuts. It is thought that this avenue of trees at one time led to the ancient residence, Tredegar House, but years ago there was a new road constructed leading from Newport to Cardiff which divided the avenue. The trees are many in number, and even the smallest of them is no mean specimen. I give you dimensions of three of the Tredegar trees: No 1, circumference 19 feet; No. 2, 18 feet; No. 3, 15 feet 10 inches, 5 feet from the ground. They average from about 40 feet to 50 feet in height to the topmost twig, but in the bole they only average about 14 feet to where the first limb spreads. The situation is low, and the soil is a sandy, loamy clay. I know of no better timber for gates and posts than that of the Sweet Chestnut. A post which has been standing for the last forty years is perfectly sound. We have also sold it for chair-making and for many kinds of scantling; in fact, it is a most durable timber for almost any purpose. We have found Sweet Chestnut growing and doing well in many different soils and exposed situations. We once felled some very fine trees growing in a marly stony soil on red sandstone, the timber of which was very hard.—Young Forester.

AMERICAN PINE TIMBER.

Fir timber of coniferous trees coming from America is distinguished in the market from Baltic timber by being termed Pine instead of Fir. The different kinds imported are known as Yellow Pine, Red Pine, White Pine or Spruce, and Pitch Pine, according to the nature of the wood, and they are mostly classed as first, second, or third quality, without, however, any distinguishing marks. The chief ports for American Pine timber are Quebec and St. John, the best Yellow Pine being shipped from the former, and the best Spruce from the latter.

American Yellow Pine is the product of the Pinus Strobus, or Weymouth Pine, a very different tree from the Pinus sylvestris, or Scotch Fir, which supplies the Baltic yellow deals; moreover, the term "yellow" is only applied to this wood in our markets; in America it goes by the name of "White Pine." It can be purchased in balks up to 60 feet or 70 feet in length and 24 inches square; it is not so strong or durable as the American Red Pine, but is much lighter, and is, therefore, readily distinguished in the floating docks by the height it stands out of the water. It is not much used in large scantlings in England, but is largely purchased as planks and deals, for it is admirably suited for all kinds of joinery, being remarkably free from knots, and very easy to work.

American Red Pine is the wood of the Pinus mitis, which is called in America the "Yellow Pine," and very closely resembles the wood of the Scotch Fir, though it does not equal it in either strength or durability, nor does it grow so large as the Dantzic and Memel timber, though it is said to be slightly stiffer. Being very straight-grained and free from knots, it is valuable for joiners' work where a stronger wood than the Yellow Pine is required, but it is not so much used in England, in consequence of its being more expensive, in proportion to its quality and size, than Baltic Fir. American White Pine or Spruce is very similar to Baltic white timber, but, not being considered equal to it in durability or strength, does not command a large sale in our markets. It is the produce of two different trees, the Abies alba or White Spruce, and the Abies nigra or Black Spruce, so named from the colour of their bark, though the colour of the wood is in both cases white.

The Black Spruce timber is much better than the white, besides being more plentiful and growing to a larger size. Pitch Pine is the produce of the Pinus resinosa, and it comes from the United States of America, but chiefly from the ports of Georgia, Savannah, and Pensacola. It is, on account of its dark grain, coming much into use for treads of stairs, framing of doors, and other purposes, when varnish instead of paint is to be used. The wood is heavy, sticky, and is as difficult to work as Oak, but the great quantity of resin which it contains—though it clogs the plane, and so adds to the difficulty of working it—renders it very durable, especially when exposed to damp and water; but if cut from the trees which have been recently tapped for turpentine, the durability and strength of the timber is much reduced. The wood is very free from knots, since the tree runs up to a great height, only throwing out branches at the top.

Government tree planting.—Her Majesty's Commissioners of Woods and Forests propose carrying forward planting operations on the waste Crown lands in the Isle of Man on a large scale. Messrs. Dicksons, of Edinburgh, are to supply forest trees for this purpose.

Guides in the forest.—It is a fact that Mosses, owing to their love for the shade, invariably grow on the north side of the tree. Two other rules useful to persons who have lost their way in a forest are (1), the limbs of a tree are generally larger, while the bark is rougher and considerably thicker on the south or sunny side; (2) the shadow of the trees also form a most reliable guide. Early in the morning the shadows are very long and point west. In the middle of the forenoon they are as long as the trees that make them and all point north-west, and at twelve o'clock they are very short and point due north.

No. 718. SATURDAY, Oct. 16, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

MISDIRECTED TIDINESS IN GARDENS.

WE all know the melancholy story of "Ixion, the Scapegrace," who, for his delinquencies, was condemned to be tied and tortured on a wheel, and there are, I am sorry to say, a good many horticultural Ixions, especially in public parks and gardens, who at this season must perforce offer up some sacrifice by way of propitiating the false idol, Tidiness. Whether dead and bleaching stalks of Lily or Delphinium are less attractive than earth scraped bare, I need not now stop to inquire, since it is a question which every owner of a garden, or now and then a gardener, may settle for himself or herself, as the case may be. Of one thing I am perfectly assured, and that is that many bulbs, often rare and beautiful, and not a few herbaceous plants are far less hardy if their old flower-stems are torn away at this rainy season than they would be if the same were left until the genial days of spring. Just at this time, or a little later, is the harvest-time of the jobbing gardener, who wanders from door to door with rake and spade. His mission is to "do up the garden," a mission which he carries out with an earnestness worthy of a better cause. Of course, every owner of a garden may "do as he likes with his own," just as some people get their "old masters" cleaned and re-varnished now and then for state occasions; but anyone who knows something of the natural beauty and usefulness of bare stalks and stems, albeit bleached and bare, must shrink from contemplating the tearing, pruning, and delving which too often form the work amongst hardy flowers during October and November. Quibbler says, a garden "ought to be clean and tidy," and yet he is always complaining that this bulb or that, which cost him many shillings, has failed to appear in the spring. Only the other day I explained to him that if he pulls up an old flower-stalk from a Lily or other bulb, that he leaves a nice little earth-tube right down into that Lilium auratum vittatum for which he paid a guinea last spring. The heavy rains of autumn trickle down the hole, and the interest on his capital goes, even if now and then the principal does not also vanish. "Well, I'll drop dry sand in the hole, or I'll cut off the stalks at ground level," says he, and so the matter ends in a compromise. But I know one garden from which no dead stalks are ever removed in autumn. "There they stand, 'bleached and bare,'" says Quibbler, and I assent to his interpolation. But what happens? The autumnal leaves are whirled around those old stalks and stay there in light fleecy masses locked in among the uprising stems, and neither rain nor frost penetrates to the scaled bulb or tender root beneath the soil. You inspect the borders on a frosty morning, and every dead stem is covered with hoar-frost, and sparkles as brightly as if set with brilliants, while every rare bulb and root below is warmly and securely thatched with leaves. This is no new idea, no new-fangled notion, no theory, but practice as old as the hills, it having been Nature's plan of protection originated at and adopted since the beginning. My dear old friend Quibbler is irrepressible. He says that as dwelling-houses are not built so as to resemble the natural rocky caves or primitive dwellings which they now supersede, so also should the garden have a neat and tidy appearance, and should not resemble a wilderness or a jungle! If mere appearance was at the root of the matter, I should agree with my friend no doubt, but as a gardener I was taught to value mere appearance only as secondary to the real welfare of the plants under cultivation; and if real welfare is the primary point, then the leaving of old stems and scapes is not only natural, but beneficial. If there is to be any pruning, or digging, or clearing up generally, it may be done now, but this does not prove that it would not be better if deferred until the time of budding growth in spring. If it be true that "a living donkey is better than a dead lion," it is also possible that even bare stems and stalks may some day be considered to be more interesting than the area of bare soil exhibited during the winter season. I do not wish to press the point, but if it be true that "anything is better than nothing," then I urge that dead stems have a distinct use always, and at times some beauty that should, when practicable or not undesirable, be spared.

VERONICA.

INDOOR GARDEN.

EARLY CAMELLIAS.

CAMELLIAS are sometimes induced to bloom in October and November, but most people find them to be most useful when brought into flower in December. Chrysanthemums are our best October flowers, and where quantities of the best of these are grown, Camellias would not be appreciated. As soon, however, as Chrysanthemums cease to be gay, which is generally in December, Camellias should take their place, and their large showy flowers never fail to be attractive. Most people know how valuable they are at Christmas for decorations of all kinds. December is, however, still early for Camellias to flower in quantity; many of them, indeed, do not open their blooms until well into spring, but there is no time when they are more appreciated than during December and January, and all who possess a few plants should strive to have some of them in bloom at that time. Those who are well acquainted with Camellias know that it is difficult to force them into flower like many other plants; they have a decided objection to much fire-heat, and the flower-buds swell quicker in a cool atmosphere than in a hot one. Indeed, those on which the buds were formed in August or September, and which are now being kept close and warm with the view of having them in bloom early, will most likely drop many of their buds prematurely and others will fail to open well, but if kept in a temperature not exceeding 55° or 60° at most, and if air is admitted freely, it is astonishing how rapidly they will swell up. This is the kind of forcing which agrees with Camellias better than being kept in a warm, close place, and a bracing atmosphere will always develop their blooms better than a stagnant one. I do not think our Camellias were ever more promising as regards a display in December than they are at present, and they have seldom had so much fresh air in September and the fore part of October as they have had this autumn. I find that they will bear a temperature of 65°, provided they are not shut up in it, but when that happens the buds are certain to fall off before opening. It is also of the utmost importance that they be well watered at the root, the soil being kept in a constantly wet and sweet condition, as root dryness is ruinous to them. Where the plants are in pots and can be shifted about freely, it will be found that their flower-buds will swell rapidly in a vinery from which the fruit has been cut, but where there is a constant circulation of fresh air and a little fire-heat. The foliage of Camellias often becomes covered with a sooty-looking deposit, and when that is the case it should be sponged off before the plants begin to blossom, as nothing detracts so much from the appearance of Camellia blooms as dirty leaves, and it is impossible to clean them after the blossoms have opened without injury to the petals.

CAMBRIAN.

WINTER-FLOWERING PLANTS.

BEGONIAS.—Than these, few plants are more easily cultivated, and none are more free or continuous bloomers. No varieties with which I am acquainted are of any service during the winter in a greenhouse, but there are plenty available for ordinary plant stoves, or any house in which the night temperature does not often fall below 50 or that of the day below 60°. When we had fewer stove plants than we have now, Begonias were more extensively grown; they are easily increased, and a house completely filled with them presents an almost unique appearance in mid-winter. We treat Begonias more as annuals than perennials, as we find young plants, whether raised from cuttings or seed, to be better than old plants, unless exceptionally well cared for. Our Begonias are kept on shelves in forcing houses or in warm pits, and are introduced into the Melon and Cucumber houses according as these are cleared for their reception. We find the majority of flowering Begonias to delight in a rather dry atmosphere, many of the flowers either damping off or dropping badly when much moisture abounds in the house. Plenty of fire-heat and a good circulation of air are what they require, and, other conditions being favourable, they well repay for any extra trouble that may be taken with them. B. semperflorens is perhaps the most valuable winter-flowering variety we have. It produces a continuous supply of beautiful white blooms, and may be employed effectively in various ways. This and any of the coloured varieties of it, such as rosea and gigantea, are best raised from seed every season; seedlings grow more strongly, are more branching in habit, and produce much finer bunches of bloom than older plants. Seed germinates readily in heat, and seedlings raised in March or April can be grown to a large size by the present time. In many gardens we see this class of Begonia standing about in out-of-the-way corners and in a half starved condition, whereas if the old plants were divided and repotted in good peaty soil they would grow strongly and produce flowers fit to be seen. It is not yet too late to give a shift to small Begonias of any kind, and it is useless to attempt to cultivate them satisfactorily in small pots. B. Carrierei (white) is quite a gem among winter-flowering Begonias, and very attractive at all times. It is really too floriferous, the greatest difficulty being experienced in procuring cuttings suitable for growing into useful sized plants. Some of the newly rooted young tops will push up strongly from the base, but with us fully one half refuse to do this, and only a single naked flowering stem is the result. Next season the whole of our plants of this variety will be raised from seed, of which abundance will be found on old plants. Its habit is dwarf and neat, and it does well in 5-inch pots, for which shelves are the best position. Moonlight is also a pretty and neat white-flowering variety, but I prefer B. Carrierei. One of the latest additions to our list of small varieties is B. Martiana gracilis. This produces erect branchless stems and a never-failing succession of charming reddish pink blooms. Clusters of bulbils are formed at every joint, and these, sown like seeds, soon develop into little plants. During summer and autumn it is most suitable for greenhouse decoration, but requires a little heat in winter. B. Ingrami is the best of the coloured compact-growing varieties. Capital plants of it can be flowered in 6-inch pots, or it may be grown to a much larger size in larger pots. During the summer and early autumn months it may be grown in sunny pits, and in order to have bushy plants of it they must be pinched back occasionally. During winter it blooms abundantly in gentle heat; small plants of it are much liked for house decoration, and we also cut the flowering shoots freely for vases, more shoots following quickly in abundance each time the plants are cut over. B. fuchsioides succeeds under precisely

similar treatment, or it may be grown tall; liberal shifts encourage the formation of strong branching suckers. B. erecta multiflora, a strong upright-growing variety, is very serviceable during winter. It should not be stopped many times, the aim being to get a few strong branching leading shoots; these produce a long and abundant succession of reddish pink blooms. During summer the plants can be prepared in a warm greenhouse, and we have had them 2 feet in height and upwards, and one mass of flower at Christmas. B. nitida is a fine variety, and particularly well adapted for the background to a group of plants, or it may be mixed with other plants without being injured. It attains a height of 4 feet, and, being naturally branching, should not be stopped after three or four shoots are secured. We sometimes flower plants of it with a single stem in 6 inch pots and bushy plants in 10-inch pots, and if well attended to they produce extra large panicles of pink flowers continuously. B. odorata, or as it is also termed B. suaveolens, much resembles B. nitida in habit, but it is not such a strong grower; the flowers, too, are smaller, pure white, and sweet scented. This nitida, fuchsiodes, Ingrami, and erecta multiflora succeed admirably when planted out against walls or pillars, in plant stoves, or other moderately warm houses, and thus treated they afford abundant supplies of cut flowers for home use. If good fibrous loam is available this may be employed in composts for Begonias at the rate of two parts to one of either peat or good leaf soil, or a mixture of both, and to this should be added plenty of sharp sand and charcoal, if it can be had. The small black fly is the greatest enemy which Begonias have, and this, when firmly established in the flowers, is very difficult to exterminate. Gentle fumigations with Tobacco paper are the best remedy, though much may be done with Tobacco powder.

Euphorbia jacquiniæflora.—If cuttings of this brilliantly-flowered stove plant could be struck with greater certainty than they are, many more plants of it would be grown than is the case in most places. Sometimes they strike freely; at others, under precisely the same treatment few or none will grow. In one place that I held, we grew large quantities of this Euphorbia, and they were never out of the Pine stove beyond the time taken up in repotting them; short cuttings taken off with a heel were dibbled thinly into 4-inch pots filled with light loamy soil, and kept in a close propagating frame till rooted. As a rule, three or four cuttings were struck in each pot and these were not separated. They were first shifted into 6-inch pots, and before they were badly root-bound the strongest were placed in 9-inch pots. Only clean, well-drained pots were used for them, and the compost consisted of two parts turfy loam to one of peat, to which was added plenty of silver sand and mortar rubbish. In some few cases the plants were allowed to develop unchecked in any way, and grand wreaths of bloom they produced, but smaller sprays were more in demand, and these we secured in abundance by simply bringing the points of the leading shoots down to the base of the plants. The easy curves thus formed caused the partially matured growths to break at six or more joints, each break developing into a fairly strong flowering spray; the points of the twisted branches also flowered. This I found to be a better plan than frequent stopping, and we still adopt it. Strong old plants that have been cut back and repotted are frequently very serviceable, while those planted out in a shallow border and trained where they can receive plenty of heat, sun, and air are when in bloom wonderfully effective. They must all be very carefully watered, the roots being most delicate, and very little liquid manure is needed. When grown in a high temperature and fully exposed to light and sunshine, this Euphorbia forms short-jointed, stout growths, and if induced to push out back growths either by cutting in the flowering portion or by bending the shoots down to the pot any time during winter, they will also flower. If there is a dry corner in the house, this should be devoted to the Euphorbias, as they delight in a rather dry atmosphere. Their flowering sprays in a cut state are very beautiful and durable. The smaller ones are suitable for ladies to wear, while long lengths properly wired may be coiled round the base of candlesticks or stands on the dining-room table, and there are other ways in which they can be effectively employed where the decorations are principally on the cloth.

Cyclamen persicum.—In very few private places are Cyclamens to be seen in good condition, or at all approaching the grand plants of them that are sent to the London and other markets. As a rule, too many matters need looking after just when the Cyclamens are most in want of attention, and, in addition, few have proper facilities for their culture. Not liking to be beaten with them, I tried what I believe to be a new departure in regard to them. Many will agree with me that the seedlings are most frequently ruined when in a young state, or, say, while they are in 2½-inch pots. When set on dry shelves or other exposed spots in a warm house after they are potted from the seed-pans they soon come to a standstill, and the tiny corms harden, never again to properly expand. Sometimes they are safely carried over that stage, only to be spoilt later on in a hot and dry pit or frame. Those who will follow my advice may easily guard against either contingency. Supposing the seed to be sown at the present time, or, better still, early in December, it should not be placed in heat till the commencement of January, when it will have either germinated or swollen considerably. This ensures a stout first leaf, and from that time they should be kept growing almost without a check. Instead of potting off the seedlings they should be pricked out thinly in pans of good free soil, from which, before they begin to crowd each other, they should be transferred to boxes of similar soil, and still be kept growing in gentle heat. Some time in May or early in June a frame or frames should be placed on a shallow hotbed at the back of a north wall, putting in first some short partially decayed manure if need be in order to bring the surface soil near the glass. The compost which we use consists of two parts old soil from Cucumber beds, to which is added one part of good sifted leaf soil. When this has warmed sufficiently the Cyclamens are planted out about 6 inches apart each way and watered. The lights for a time are kept on closely, and at midday a little shade is applied when necessary. On clear days the bed is syringed in the morning and afternoon, or sometimes before opening and prior to closing when a little air is necessary to ensure sturdy growth. Early in September all are potted, using rather rich compost and sizes of pots according to the balls of soil about the roots when lifted. When potted they are returned to cool frames and kept close and well shaded for a few days, and at the present time they are placed in a warm greenhouse in which plenty of bloom is already open. All old plants worth preserving are planted out in frames at the same time as the young ones, and similarly treated, with this difference that much of the soil is removed from the roots, or the balls when we came to lift them would be found to be much too big. No drying off after flowering is attempted; this, when practised, as it very often is, causes many of the corms to become nearly or quite blind. After all our old and young plants were potted they filled a good sized four-light frame. Persian Cyclamens will flower in quite a cool greenhouse, but they must be very carefully watered, or they are liable to damp off wholesale. We like to give them plenty of room on light shelves at a good distance from the hot-water pipes, which are kept warm throughout the winter. They require to be kept carefully watered, and when the pots are well filled with roots, liquid manure is beneficial to them. When blooms are wanted they are pulled clean off the corms, this being a safer plan than cutting them off, as the portion of stem left is almost certain to rot quickly, and spread decay on all sides. If the plants are kept clear of the other occupants of the house, as they ought to be, they will not be much troubled with insect pests; and, besides, they are most effective in masses. W. I. M.

LANCE-LEAVED LILIES.

This is the best time for repotting Lilies belonging to this class. I always make it a rule to shake them out of their pots when we cut the stalks down after the leaves have turned yellow and the flowers have all dropped. We generally set the pots out of doors after the flowers are all cut or have fallen for a week or two. During that time they get very little water, and if the weather is very wet we turn the pots on their side; the soil is thereby kept moderately dry. When shaking them out we sort the bulbs into three different sizes; we put the largest into 12-inch pots, the next size into 7-inch and 8 inch pots (five bulbs in each), and the very small bulbs we plant out of doors, and cover them with litter to exclude frost. The soil which suits them best is half-rotted turf, thoroughly decayed hotbed manure, and sharp silver sand; and in potting, we only fill the pots three parts full, in order to allow for earthing up with good soil after the stems have got half grown and surface roots are making their appearance. If the soil is moist they will require no water until growth commences in spring. We store the pots and bulbs in any cool house or shed secure from frost, where they remain until growth is observed in spring. They are then set out in cold frames. The roots of these Lilies being very fleshy and brittle are easily injured if repotting is left until the spring; in fact, I would rather leave them altogether undisturbed than repot after the roots are in active growth. Failures often occur from over-coddling in winter, thereby exciting premature growth, and also from deferring potting until late in spring. J. G. H.

Double Tuberoses.—Let it not be thought that pearly double Tuberoses can be grown and enjoyed only by people who have warm houses at their command. Anyone who has an ordinary greenhouse can flower Tuberoses satisfactorily, as I have just proved by potting them in good soil as early in the year as possible, so long as frost cannot get to them to injure the bulbs. I potted some bulbs early in March, placing two large ones in a 6-inch pot, using a good, free and rather rich soil, and taking care to drain the pots well. They were some time before they started into growth, but when they did do so they grew very fast, and ultimately flowered, each pushing forth a spike on which there were from fifteen to twenty flowers. Finding that the heat of the greenhouse soon affected them, I cut the spikes when about six blooms on each were well expanded, and I am pleased to report that all the remaining buds gradually expanded. The plants were kept well watered all the summer, and they occupied the sunniest part of the greenhouse. I shall now plant them out under a warm wall, protect them during the winter, and see if they will do any good next summer. To have Tuberoses in bloom in May and June, they must be forced into flower in heat; without heat they will flower in September. They are as easily managed as a zonal Pelargonium or a Fuchsia.—R. D.

Gloriosa superba.—I was much pleased to see a favourable note of the free blooming of this fine old plant, so seldom seen or noticed, at Park Hill, Streatham, p. 331. No doubt the mode of treatment described there has proved successful, but the finest example of this plant ever seen by the writer was planted out in a compost consisting chiefly of light sandy loam in an old-fashioned plant stove. Here the roots were left undisturbed for years, the surface of the mass of tubers being simply top-dressed annually. The chief precaution needed was protection to the tender stems when breaking afresh in the spring, it being found that slugs and snails of all colours and sizes were remarkably fond of these sweet and tender morsels. A large piece of zinc bent into a circle, dropped over the rising shoots and le

into the soil 2 inches deep, was found a sufficient barrier to the ingress of such foes. The sinking of the lower ends into the earth was found to be very important, for when placed on the surface merely the slugs and snails learned to find their way under it; but being poor excavators, the 2 inch deep barrier baffled them. The stems were cut down after blooming, and for many years the bulbs never failed to send up a small forest of shootlets. The strongest of these, to the number of half a dozen or so, were selected to clothe a rafter, and about so many more part of the end of the house, and these grew with a health and vigour, and produced an amount of bloom that I have never seen equalled. The very form and crispness of the extremities of the curious long tubers seem to protest against their annual lifting.—Hortus.

HOUSING CHRYSANTHEMUMS.

Chrysanthemums for all purposes, except plants which are grown for providing a very late supply of flowers, will now be housed; after this date it would not be wise to allow them to remain out of doors without protection; frost may come at any time now, and when the buds are affected by it the flowers get so crippled that they never properly develop. It is useless to allow the plants to remain outside after the flowers begin to show colour in hopes of retarding them, as rains quickly spoil the blooms, causing the petals to rot. The plants, when housed, should have as light a position as possible, and be as near the glass as circumstances will admit. When first housed ventilate freely both night and day, and, in fact, continue the same system of ventilation (avoiding direct draughts) after the flowers are expanded. Plants grown for decorative purposes only where quantity of flowers is the primary object should be slightly disbudded—that is, if a few large-sized blooms are wished for; in such a case all the flower-buds formed at the sides of the branches should be removed, retaining only the central one. If four or five branches on each plant are treated in this manner, the loss of flower-buds will not be much felt, and blooms of large size will be obtained.

Chrysanthemums should be freely fed from this stage of their growth, giving them stimulants of some sort every time that water is required at the roots. Many growers think that as soon as the flowers commence to unfold stimulants should be withdrawn; but that is just the time when the greatest strain is put upon the plants, and feeding then with suitable material is one of the chief means whereby flowers both large in size and long in the florets can be obtained, and, what is more, their colours are clearer and better defined than when the use of liquid manure is stopped at this stage of their growth. Circumstances must be one's guide as to the kind of manure to be used, for I find there is nothing like a change of food; under this method of treatment the plants appear to acquire renewed vigour. Of liquid manures from the cow houses and stables I prefer the former; but where liquid manure cannot be had from tanks fed from such places, drainings from a heap of manure, through throwing clean water over it and allowing it to soak through the manure and collect in a pit at the side of the heap, form a good substitute. Sheep manure, gathered fresh from the fields and placed in a bag to prevent it from mixing with the water, forms a good fertiliser; and deer droppings, treated in the same way, also make excellent liquid manure if put in a tub or tank of water and soaked for, say, twelve hours. A safe guide is to use such liquid manure when about the colour of brown brandy. Liquids made as described should be given every time the plants require water for, say, a week; then give them a few doses of soot water as a change. Soot is almost indispensable to the growth of Chrysanthemums; applied in a liquid form, it soon changes the colour of the foliage from pale to dark green. Some add soot to the water, stirring it and pouring on the soil, but such applications choke up the passage-way for future waterings. The best method of making soot water is to place as much of it as may be required in a sack sufficiently close to prevent it from being washed out; the water soaking through it within the bag gets charged with its properties and becomes a valuable manure. Guano finds favour with some Chrysanthemum growers. It is easily prepared and is excellent; a 4-inch potful to thirty-six gallons of water is a safe quantity to use. Chrysanthemums should now be carefully examined for mildew. It affects the under sides of the leaves of some varieties more than others. The most efficacious way of cleansing the plants from it is to lay them on their sides, and syringe the leaves and stems thoroughly with water in which flowers of sulphur has been dissolved, or, where the plants are only slightly affected, dust the leaves with dry sulphur. I prefer the brown sort to that of the ordinary colour; it is not so conspicuous. E. Molyneux.

Swanmore Park, Bishop's Waltham.

NOTES OF THE WEEK.

Plumbago Larpentæ.—This old-fashioned plant is now very conspicuous in the borders at Hampton Court. It furnishes rich, deep blue flowers in autumn, and is on that account valuable. Although introduced many years ago, its merits have been sadly overlooked.

Anemone japonica alba.—This plant is just now very fine in the gardens at Hampton Court—much finer, indeed, than we ever remember to have seen it before. It is planted in large masses, which are most conspicuous as border ornaments.

White-flowered Chicory.—The other day I came across a white form of the common blue Chicory. This is the first I have ever found either in England or on the Continent. Is it rare?—G. Flemwell, *Sutton, Surrey.*

We do not think it is common, but we have ourselves found the same form in your neighbourhood.—Ed.

Ficus elastica variegata.—This will make a thoroughly good window plant. It has just the appearance of the old India-rubber plant, but the greater portion of its leaves is suffused with creamy white and yellow. We saw good examples of it the other day at Holloway.

Othonna crassifolia.—This is a good plant for baskets, window boxes, or front edgings in greenhouses. It is employed very effectively at Swanley as edgings in the Pelargonium houses, its drooping habit, dark green leaves, and yellow flowers associating well with the brilliant flowers of the Pelargoniums.

Solanum jasminoides floribundum.—Those who appreciate the old form of this useful climber will welcome this free-flowering variety of it which Mr. Williams is distributing. It is scarcely so robust as the normal form; but perhaps that is an advantage, as it flowers in the Holloway Nurseries freely, even in pots of the smallest size.

Oncidium dasytyle.—This pretty Oncid is useful as an autumn bloomer; there was quite a quantity of it in flower the other day in a cool house at Mr. Shuttleworth's, Clapham. Hitherto we had not observed much variation in this species, but here were to be seen numerous forms, some of which were richly coloured.

Leea amabilis.—This deserves a place amongst the most beautiful of small-growing ornamental foliaged plants. Its leaves, which are pinnate, have somewhat oval, deep olive-green segments and a central flaked band of silvery white. It is a plant which requires strong heat and moisture in order to bring out its brilliant colours. We recently saw it in fine condition at Mr. Williams' nursery, Holloway.

The great Vine at Hampton Court.—This grand old Vine is carrying a heavy crop this year, consisting of some 500 bunches, evenly distributed throughout the house, whilst in thinning out the crop in spring about 700 clusters were cut off. Many of the bunches are by no means large, and there are some signs of shanking; but, on the whole, the berries are of fair size, and promise to finish off well.

October flowers.—In order to show that hardy flowers are still plentiful, Mr. J. Stevens brings us from his garden at Grasmere, Byfleet, a gathering of many kinds now in full bloom. One would scarcely credit that so much variety could be found in bloom at this season, but the mild weather of late is no doubt responsible for it. In the gathering are Crown Anemones, Japanese Anemones, Phloxes, Pentstemons, shrubby Veronicas, hardy Fuchsias, shrubby Mallows, Hypericums, and a host of Composites, Sunflowers, Golden Rods, Michaelmas Daisies, and these, like the Asters, are particularly beautiful, and Mr. Stevens must possess a fine selection of sorts. The most beautiful and the most desirable to grow are those named A. Novæ-Angliæ roseus, A. diffusus horizontalis, A. turbinellus, A. Chapmanni, A. Novæ-Angliæ pulchellus, A. Tradescanti, A. ericoides, A. Amellus, A. Novi-Belgii formosus, and A. versicolor. This group of species represents all the beauty to be found in the multitude of Asters now grown in gardens.

Chiswick.—A mutual improvement society has just been started among the young gardeners employed in the Royal Horticultural Society's gardens at Chiswick, which may prove beneficial from an educational point of view. The society has the support of the superintendent of the gardens, Mr. A. F. Barron, who is its president. It is intended to read papers upon and discuss various subjects in connection with the theory and practice of horticulture; some of the subjects announced, however, seem to be somewhat remote from practical gardening. Let us hope that the young men will not, in pursuit of the substance, only catch the shadow.

Irish Anemones.—From the Hill of Howth, "St. Brigid" has sent us another gathering of her glorious Anemones from plants raised from seed sown in the open ground on the 1st of April of the present year. The flowers are sent to show how soon Anemone flowers are produced, the bed in which the plants are grown having begun to blossom in August, and it is now bright with flowers. The blooms are double, quite 3½ inches across, the colours being a glowing scarlet and imperial purple. Would that we could grow Crown Anemones like these in the neighbourhood of London!

Lagerstrœmia indica.—We have received from Mr. Bedford, gardener at Straffan House, Kildare, some shoots of this plant, which have been growing luxuriantly and flowering profusely. This plant is seldom seen in flower in our gardens, and yet it is very easily managed. It is usually treated as a stove plant, but it grows and flowers best in an intermediate house, where it forms a dense shrub, furnished with bright green leaves and lilac or mauve-coloured flowers of great beauty. In Ireland it lives out of doors, but does not flower, and in all probability it would both grow and flower out of doors in the south of England.

Primula purpurea.—We have received from the Rev. Wolley Dod a very fine example of this rare Primrose—that is to say, rare as regards being seen in flower in English gardens. In many instances the plant found in collections is not the true P. purpurea of Royle, but simply a variety of P. denticulata. Royle's plant is a robust grower, with leaves some 6 inches long, slightly serrate on the edges, deep green above, and farinose on the under side. The spike is also farinose, and likewise the foot-stalks and calyx. The flowers are numerous, rich deep purple, increasing in intensity towards the eye, which is blackish purple. This plant must take rank as one of the most beautiful amongst Primroses.

Double Begonias.—One of the most beautiful features at Kensington on Tuesday was a display of double Begonia blooms from Messrs. Cannell, of Swanley. They exhibited flowers of two dozen of the finest sorts, and these made a show of double Begonias such as had rarely if ever been seen at a show. Two of the sorts were certificated, but as all were first-rate we give the names of the selection. These were Blanche Duval, creamy white, tinged with rouge; Susanna Hachette, cherry-crimson; Rosette, flesh-pink; Felix Crousse, vivid scarlet; Virginalis, white double; Agnes Sorel, blush-pink; Louis d'Or, deep yellow; Miss Lucas, orange-scarlet; Mons. Duvivier, deep cerise-crimson; Octavie, best double white yet raised; Prince of Wales, scarlet-crimson; Mons. Arnoult, large rose-pink; Wm. Bealby, cherry-rose; Pavillon Jaune, orange-yellow; M. Trauffaut, bright orange-salmon; Mme. Marie, deep pink.

Aralia Chabrieri and **A. Reginæ.**—These are two extremely ornamental plants, and as they can be grown in small pots they are well adapted for general decorative purposes. Unlike the majority of Aralias, they do not become coarse in appearance as they increase in size. The first-named is a most distinct plant, with long, pendent, pinnate leaves, the segments of which are narrow and deep olive-green, with a crimson mid-rib. A. Reginæ has palmately divided leaves with pendent bright green segments.

Its leaves somewhat resemble in general outline those of A. Veitchi, but they are more closely set upon the stems, thus giving the plant when old a more massive appearance, without losing the graceful and elegant outline which is so conspicuous a feature of it in its young state. In Mr. Williams' nursery at Holloway we saw plants of both these kinds from 6 inches to as many feet in height, and in both instances their value as decorative subjects was most satisfactory.

Winter-flowering Carnations.—These are very fine at Swanley. Pride of Penshurst, although a somewhat old variety, must not be passed over lightly; it is one of the very best and freest winter-flowering kinds—in fact, it is almost a perpetual bloomer. It is now displaying its soft yellow flowers in great abundance at Mr. Cannell's. Miss Joliffe, soft pink, is also very free and good, with a dwarf habit. La Belle, pure white, flowers all the year round. Mrs. Wallington is a very attractive variety; and the pink, crimson, and blush-white forms of Souvenir de la Malmaison are indispensable where good winter blooms are in demand.

Ivy-leaf Pelargoniums—These are invaluable for baskets, window boxes, balconies, or bedding purposes. The double forms of them to be seen at Swanley are very attractive; the flower-trusses are large, and the colours rival those to be found in the zonal section, whilst, on account of their long flower-stems, they are valuable for cutting. Some of the gems of the collection are Madame Thibaut, large, even, deep pink; Madame Pages, lilac, upper petals feathered with maroon; Emile Lemoine, rich orange-scarlet; Dr. A. Chipault, deep salmon-pink; Alice Crousse, deep magenta; Jeanne d'Arc, white suffused with lavender; Gloire d'Orleans, crimson-magenta; Viscountess Cranbrook, white satiny rose; Madame E. Galle, pure white and very double; and Sarah Bernhardt, white, feathered with maroon.

Three elegant Maiden-hair Ferns.—Amongst the numerous species and varieties of Ferns grown in the Holloway Nurseries, Adiantum scutum Lathomi, A. elegans, and A. Williamsi are conspicuous, and all are distinct in their way. The first, whilst retaining the massive pinnæ of the type, has pendent fronds of a light and airy form. A. elegans, which is said to be a variety of colpodes, has somewhat the appearance of an elongated cuneatum; independent of its graceful appearance as a plant, the length of its fronds renders them extremely useful for arranging with cut flowers. A. Williamsi is a free-growing plant, with long and broad arching fronds, the segments of which are elegantly divided. They are brilliant green above, and, when young, clothed on the under-side with golden powder, which in some of the varieties may be found even on old plants. A greenhouse temperature suits this plant perfectly.

WHITE TRUMPET DAFFODILS.

I was very much interested in the remarks on Irish Daffodils in The Garden (p. 323), and especially in those relating to white Trumpet varieties. Doubtless there is confusion in the nomenclature of this lovely group. This, indeed, is admitted; and Mr. Hartland, "G. H. E.," and all other growers, I am sure, will do their best to clear up any disputed point and finally settle the question of the nomenclature of this group. How is it to be done? There is but one answer to this question. They must all be collected in one place and on neutral ground. The garden of the Royal Horticultural Society at Chiswick is the proper place in which to carry out a work of this kind, and doubtless a suitable space would be set apart for the purpose if immediate application was made. Mr. Barr has a very complete collection of white Trumpets, which he would probably be willing to send there; if he is willing to send his collection, I am sure Mr. Hartland, "G. H. E.," and others would follow his example. I have long held the opinion, that whenever any disputed point arises as to the correct nomenclature of any plants, the most satisfactory way by which to arrive at a correct decision is to send them to Chiswick. The whole question of this lamentable confusion may be settled there. Let a beginning be made with this section, and when this one has been finally disposed of, go on to others. It would be too much to take in the whole field in one year. Will those who can aid the solution of this question kindly state their opinions in regard to it? J. Douglas.

*** At one of the meetings of the Narcissus committee it was decided to invite all growers of white Trumpet Narcissi to send bulbs to be grown at Chiswick for comparison, and the secretary, Mr. Scrase-Dickins, has, we believe, made a personal appeal to growers upon this subject. We believe that Mr. Barr is ready to send bulbs of all his white Narcissi to Chiswick, but as the season is advancing it is desirable that no time should be lost in carrying out this matter. Other members of the committee should also send bulbs.—Ed.

TREE ROOTS IN FLOWER BORDERS.

"Querist" (p. 333) raises a different question from that of "H. R. C.:" the latter wanted a 3-feet shelter and proposed to form it with Yews. This proposal was condemned on various grounds. "Querist" wants a shelter 5 feet in height composed, if possible, of Yews or Hollies, his border being exposed on the north-east to gales from a mountain range on that side. To baulk the force of this a single row of Hollies or a thin hedge would be of little use. Clumps or a massive belt so posted as to break the force of the wind at some considerable distance, say 10 yards or 20 yards from the border, is really what are wanted. This, apart from keeping the plant border free from the larcenies of thousands of hungry shrub or tree roots, would be far more effective than a shrub hedge planted in the back of the border, as it is found in practice that shrubs planted in projecting curved lines to meet and slide off the wind are far more effective shelters than those that confront it with a straight line—such as thin hedges, or even a wall. Hence, were it practicable to plant a broadish belt, the out—or windward—side should not be straight, but curved. If "Querist" is so restricted for area as to be compelled to plant his shelter in his border, he should bank out the roots with a concrete wall 2 feet deep at the back of his border, and, of course, plant his hedge outside the barrier. This will check, at least for a good many years, the inroad of the roots; but, if possible, he should interpose a gravel or grass walk, or even wider and more irregular space between his shrub shelter and his flower border. It is quite a mistake to suppose that the efficacy of the shelter lies in its nearness to the plants protected. It is often very much the reverse, especially with living shelters, which differ from dead ones in this respect. Dead shelters, such as wooden fences, brick or stone walls, divert the course rather than break the force of the wind. The air in swift motion leaps over or aside of them, and seems at times to gain destructive force by its temporary diversion.

But living shelters, by the mobility and the depth their mass of leaflets and twiglets receive, retain and exhaust the force of the gale. Anyone may prove all this for himself by simply walking on the lee side of a wood or shrubbery during a March day with a nor'-easter keenly blowing. The wind on the exposed side almost curdles his breath, while it is nearly or quite nil on the sheltered side. Hence the advice given to plant clumps or belts instead of a straight hedge; if the latter is used, it would need to be 2 feet or even a yard thick to prove impervious to north-east winds tearing down with fierce swoop from a mountain range. Even a hedge of such abnormal thickness would need an outer buttressing with clumps or belts to make it effectual against strong blasts. As to moving Hollies 4 feet or 5 feet high in October or November, the risk of checks and losses in such an exposed position would be so great, that it would be safer to defer it till April. Yews might be planted at once with less risk than Hollies. If "Querist's" situation is very cold and exposed, perhaps Scotch Firs or some of the smaller Spruces would prove a better shelter than either. There are few better or cheaper hedges than a thick one of Beech or a double one of Larch and Privet. A massive Beech hedge may be carried up to any desired height, and as it has the property in hedge form of retaining most of its leaves throughout the winter, it almost equals in sheltering warmth such evergreen hedges as those formed of Yews and Hollies. A great deal may also be done to keep Beech or other roots out of flower borders by removing a surface spit in winter and running down a sharp spade to its full depth within a foot or less of the stems. But these and other expedients are, after all, but poor palliatives to the inevitable impoverishment and exhaustion of flower borders through the agency of shrub and tree roots placed in too close proximity to them. By using either of the latter plants named "Querist" may plant his shelters at once. Should he decide on using Beech, it would be wise to enquire whether it is greatly infested in the district with aphides in the spring or summer. Should this be the case, it had better not be planted. D. T. F.

Fungi (*J. W., Edinburgh*).—The fungus from the floor and on rope is the early condition of the dry rot fungus (Merulius lacrymans); the Agaric is Agaricus nidorosus or some close ally. Badly packed, rotten examples full of maggots are not easy to name with certainty.—W. G. S.

Decayed bulbs (*C. B. and G.*).—The decay arises from various causes, often from bruising and sweating. Fungi grow on the injured parts. A decayed bulb will not affect sound ones in the ground unless one actually touches the other.—S.

Grubs (*W. S.*).—Unfortunately, the grubs had escaped from the box before it reached me, so I am unable to say what they were. The Post Office staff treat small boxes very badly, and seem to delight in smashing them in the process of stamping. The address and postage stamp should be on the label which is attached; then there is no excuse for stamping the box.—G. S. S.

Rose insects (*J. T.*).—The insect infesting the shoots of your Rose bushes is one of the plant bugs. They are originally produced from eggs laid by the parent insects. When first hatched they much resemble the latter in general appearance, but they have no wings; they gradually become more developed, and at last become perfect insects. They really undergo transformations like most insects, but these changes are not so decidedly marked.—G. S. S.

Diseased Violets.—Can you tell me what is the matter with my double white Violets? About a fortnight ago the whole of the leaves seemed scalded; they show traces of red spider, but there is hardly a whole leaf left. They are planted in a cold frame, the lights of which have not been put on since last March. The curious thing is, that there are other three sorts of Violets in the same frame which do not seem to be the least affected.—J. B., *Barrelwell, Chester.*

*** Your Violets have evidently suffered from a bad attack of red spider. Syringe the plants with 4 ozs. sulphuret of lime, 2 ozs. of soft soap, well mixed together and added to 1 gallon of hot water; or 2 ozs. of soft soap, 2 ozs. of flowers of sulphur, boiled in 1 gallon of water; or an infusion of Gishurst compound.—G. S. S.

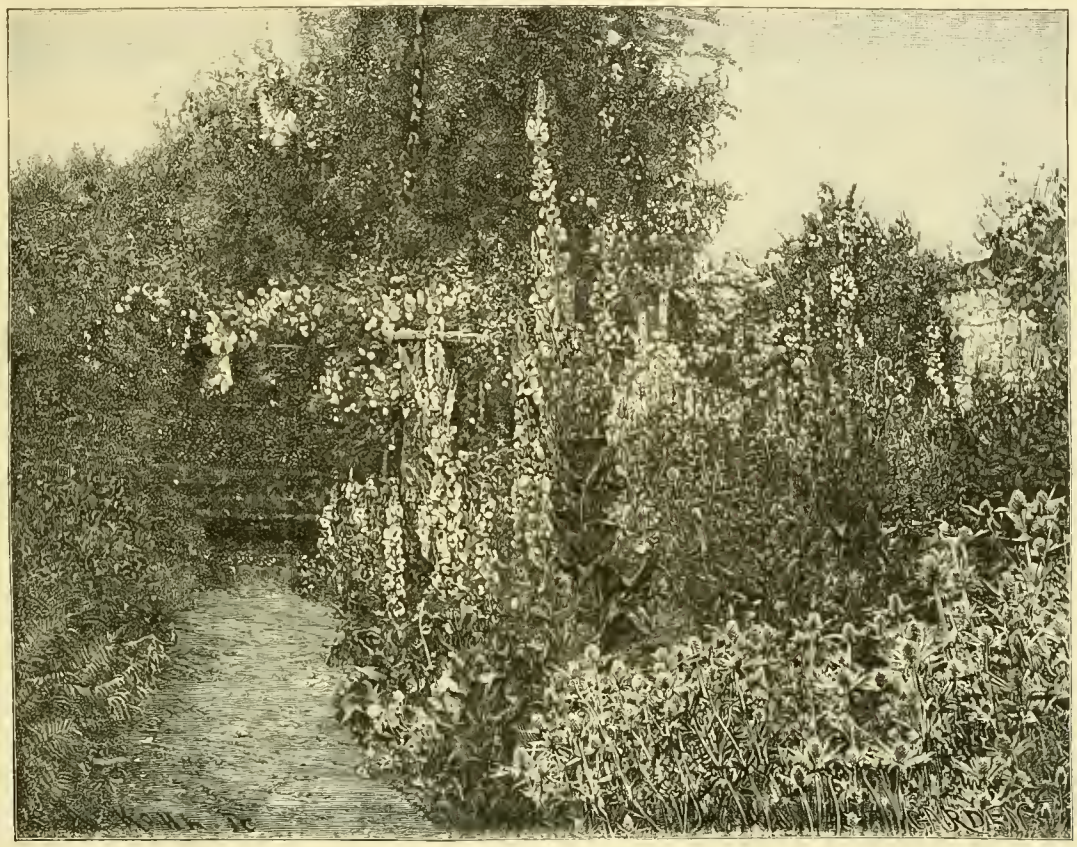
Insects on Melons (*Multum*).—The insects on your Melon plants are little creatures called chelifers. They are nearly allied to the scorpions, but have no tails or poison glands, as the latter have. They usually feed on mites and insects, and may often be seen attached to the legs of house flies, though whether they are parasitic on flies is uncertain. They are not considered to be vegetable feeders. The pieces of Melon leaves you forwarded with them were so dried up before they reached me, that I could not see whether they had attacked them in any way. I expect your Melons had been attacked by red spider, and that the chelifers had been feeding on them, but it is possible that in default of animal food they may attack the leaves of plants. Curtis, in his work on "Farm Insects," mentions that they have been found in some numbers among decaying Potatoes, and adds, "where probably they live upon mites."—G. S. S.

Market Chrysanthemums.—These just now consist of Madame Desgrange and La Vierge, both free blooming kinds, the latter being apparently the best. Both these kinds are invaluable at this season for harvest festival decorations. The winter bloomers are chiefly white, such as Elaine, Princess Teck, &c., and Jardin des Plantes, yellow—just about one dark kind being grown. Only distinctive and striking colours find favour; the merit of the light ones is that they keep true late into the winter, whilst the rich reds, chestnuts, and crimsons of the early season lose colour later.—A. D.

Flower Garden.

HARDY FLOWER BORDERS.

The grouping and massing of good plants is happily daily becoming better understood, to the great improvement of our gardens; it is one thing to have good plants and even plenty of them, and it is another to so use them as to get them to show their own beauty and to enhance that of their neighbours. What is needed is a true love of good flowers, a rigid exclusion of rubbish, and some taste—the more the better; indeed, the true gardener should be more than half an artist, painting living pictures with living flowers. The engraving shows one end of a straight flower border backed by a wall. The wall is clothed with Vines and other good climbers; at the end of the walk is a rustic seat under a bower of cluster Roses, supported on a framework of rough Oak posts and branches. The main group of flowers is of the fine Mullein, Verbascum phlomoides, the tallest 8 feet high; beyond are pale blue Delphiniums; behind are Globe Thistles, and in front a group of blue Eryngiums. Though in other parts of the border the tall plants are mainly kept towards the back, in this part they are allowed to come forward, making a pleasing variation in the general arrangement of the masses. The straight edge of the border is veiled by plants being encouraged to grow over its rough stone kerb, and, where they will do so, to root here and there into the path.



Flower border in July. Group of Mulleins (Verbascum) in the background, with Sea Holly (Eryngium). Engraved from a photograph for The Garden.

September Pansies at Windermere.—"It's the rain that does it!" was my first exclamation on reading your somewhat tantalising note on Mr. Rawson's admirably beautiful September Pansies. I hardly ever go north or west without catching the Pansy fever. Notwithstanding that I have had it many times, Pansies are so alluringly infectious, that I never go among them in their full beauty but I catch it again. The result is, that one more attempt is made to match the beauty and luxuriance of those splendid Pansies to the north and west of us. The result, writing broadly, is one more failure, and a little less of the Pansies or Violas for a time. But a trip to Manchester, Edinburgh, or even Birmingham renews the Pansy fever, with the old results, that seem to follow of necessity. The rainfall in East Anglia is too little; the midsummer sun's bright glare is too much for those sweet children of the cloud, the mist, and the rain. Special culture, partial shade, copious artificial waterings will do much to counteract an arid climate; but all these involve expense and extra labour that cannot always be spared even for sweet Pansies, and thus they suffer, pine, droop, and are not seldom burnt off in the arid east, while they are green as Leeks and clothed with beauty in the cloud-capped north and weeping west.—D. T. F.

MIXED WALL CLIMBERS.

As a fresh, bright-looking wall plant, pleasant to look upon all the year round, Ivy has no equal. It is vigorous in growth, and will thrive on all aspects, even on bleak north or eastern exposures almost as well as when facing the south or west, provided it has good rich ground to grow in. Though Ivy will live on scant fare, such as very few plants can exist at all upon, still, when subjected to semi-starvation, it makes little progress compared with what takes place when its roots have an unrestricted run in good soil. The common Virginian Creeper (Ampelopsis hederacea), as a strong, vigorous plant that will cover a large space in little time, is without a rival for elegance of habit, and the beautiful tints of the decaying leaves in autumn are not the least of its desirable properties. This plant will grow and look healthy under the disadvantages of little and indifferent soil, and also where the atmosphere is charged with smoke and dust that would be fatal to most things. Its only drawbacks are that it requires fastening to the wall, and that, being deciduous, it leaves the wall bare and cheerless in winter. A. Veitchi, like not a few other good plants, has been slow in making way, but it is now receiving the attention at the hands of those who require wall climbers that it deserves. It is amongst the freest of free growers, covering a large space in little time, and thriving on any aspect. It clings so tenaciously to anything on which the shoots can lay hold—bricks, stone, or wood alike—that no attention is required in the way of fastening it. The vivid crimson colour which its leaves put on in autumn is unequalled, and the leaves remain on the plant in their brilliant condition much longer than those of the old Virginian Creeper. On a northern aspect the colour of the leaves is paler than on the south, but they remain longer on the plant when facing northwards than under the sun's direct influence. All through the summer its pale green foliage, covering the wall as evenly as if the leaves had been placed there by hand, has a beautiful appearance, but it is wanting in the elegant drooping character of its shoots which the old kind possesses; as a matter of course, the wall on which it is grown is bare in winter, save for the presence of the long wiry shoots.

There are several kinds of evergreen plants that, although seldom used for the purpose, make good-looking coverings for walls of moderate height, say up to 18 feet or 20 feet. The different sorts of Japanese Euonymus, green and variegated, and Azara microphylla look well on walls. The Azara, although it has been some time in this country, is yet comparatively little known; the spreading fan form of its branches adapts it for covering walls. Its character of growth is like that of Cotoneaster microphylla, but it is a much quicker grower, and will cover a deal larger space. The branches, too, naturally assume such a spreading form, that they require few fastenings to the walls. There are few plants with leaves that possess a more pleasing shade of green than Euonymus, whilst those who like variegated foliage have choice in the different varieties of the yellow and the white variegated forms; but the green self-coloured sort looks best. In good soil the plants soon make headway, covering a considerable space in little time. In the use of these and all other plants for clothing a wall, care should be taken at the beginning to train the strongest shoots out horizontally, so as to furnish the bottom space at first; otherwise unsightly bare places will remain for years uncovered. It is particularly necessary to avoid these when plants like these Euonymuses, with an erect habit of growth, are used. The small-leaved E. radicans variegatus, as it is usually seen in the form of a low-spreading dense little bush, or as an edging, looks an unlikely subject for clothing a wall; but, so used, with a little attention in training the shoots at first, it soon makes a dense covering up to a height of 8 feet or 10 feet. But there is one thing that must not be lost sight of in using the different varieties of Euonymus, as well as the Azara, and that is, they are not sufficiently hardy in all parts of the kingdom to stand exceptionally severe winters, not even when they have the protection of a wall where the aspect is east or north.

So far these remarks have referred to the plants named when used singly, but to have wall climbers in the way that will produce the most elegant effect, several kinds require to be grown together in a manner

that will admit of their branches intermingling amongst each other with no more interference than is necessary, to prevent the stronger growers encroaching too much on the weaker ones. Roses, Clematises, Jasmines, Bignonias, Honeysuckles, Passifloras and the like are beautiful when seen singly or each with a space to itself on a wall; in this way they are usually grown, but so managed they are wanting in the elegant effect produced where they can scramble about loosely with a covering of Ivy behind them. So treated, flowering plants with a background of dense foliage produce an effect which is not obtainable when used by themselves. This may often be seen where an odd branch of a Rose or of a Honeysuckle outstretches the space allotted to it and rambles over something else. But that which thus occurs by accident can be done much more effectually when the necessary consideration is brought to bear on the planting. But in a mixed arrangement of this kind there is a difficulty that makes its appearance in a few years after the planting has been effected. Ivy is a gross-feeding plant, and pushes its hungry roots far and wide in all directions, soon exhausting the soil within its reach to an extent that reduces other plants associated with it to a state of starvation. When planting the first wall that I intended to clothe in this way I had some misgivings that this might occur, but supposed that the difficulty might be got over by subsequent applications of manure when the soil became poor. In this I was mistaken, for the more that was done in this way, the more persistently the roots of the Ivy laid hold of every particle of soil in the border, so that the Roses, Clematises, and Honeysuckles associated with it were not able to hold their own. The best means of avoiding this is to partition off stations for the blooming plants, so as to prevent the roots of the Ivy interfering with them. This is easily done by the use of thin concrete walls when the border is being prepared. This material is much more effectual than slates or stone slabs, between the divisions of which the roots of plants soon find their way. The concrete divisions need not be thicker than about 3 inches, as there is no pressure against them. In this way the flowering plants have the spaces allotted clear to themselves. Whatever plants are associated with Ivy in this manner should have the principal branches secured to the wall, but nothing more. The lateral shoots that spring from these ought to be no further interfered with than in keeping them thinly dispersed, allowing them to come as far away from the surface as they like.

In selecting the kinds of plants for growing in company with Ivy in the way indicated, it is obvious that they should be deciduous and of a somewhat thin, straggling habit. If close growers, unless the knife is freely used they get so dense, that they darken and weaken the Ivy so far that it is apt to suffer in hard winters. Roses, Clematises, Bignonia radicans, Jasminum nudiflorum, Glycine sinensis, Aristolochia Sipho, Passiflora cærulea, and its varieties are amongst the best things that can be used, in all cases having their shoots sufficiently far apart on the wall to begin with, and keeping them so afterwards. Not only is an arrangement of this kind infinitely better, so far as regards the appearance of the flowering plants when they are in bloom than when grown by themselves, but there is the advantage of having the wall covered effectually in winter; whereas when it is occupied by deciduous plants alone, when they are leafless it looks anything but inviting. T. B.

SHORT NOTES.—FLOWER.

Lilium auratum var. cruentum.—We send you a flower of a grand Lily out with us among our plants of L. auratum.—Alex. Wallace, *Colchester.*

*** The flower sent is an excellent form of auratum called cruentum, of which we gave an illustration in The Garden (Vol. XVI., p. 576).—Ed.

Lathyrus Drummondi.—In response to "J. C. B.'s" query with respect to the difficulty experienced in inducing the seeds of this Everlasting Pea to germinate, I can only say that hitherto I have been unable to obtain good seed. This year, however, the crop is heavy compared with that of previous years. Still, I must say that what seeds I have sown (and that has always been soon after they were ripe) have grown fairly well. This year I have already grown in a greenhouse a quantity in a pan, in which the soil is kept fairly moist.—A. D.

TUBEROUS BEGONIAS OUTDOORS.

Beautiful as these are in many places at all seasons from July to November in mild autumns, there are not a few sites and situations in which the midday sun's broad and full glare is rather too much for them in the summer months. In hot, dry sites they are most effective in a partially shaded as well as sheltered position. In writing thus I am well aware how brilliantly beautiful they are, and how bravely they withstand our climatal vicissitudes in the Forest Hill Nurseries of Mr. Laing and in many others around London. But here and elsewhere where I have seen them the leaves are apt to shrink from free development, and the flower-stems to fear rising boldly and far enough above them for the richest effects until the slanting rays and cooler nights of the autumntide come. I have not seen this so marked as this year. A row of seedlings on either side of an open walk across the kitchen garden appeared not to like themselves—to use a very expressive Suffolkism—until within the last month. During the long spell of north-east winds, too, they folded their leaves closely around them, and the flower-stems hugged the leaves too closely to reveal their beauty, but the warm days towards the end of September and the first week of October have quite transformed them. One can also see the foliage spread, the flower-stems rise, and the flowers open out to double or treble their summer-dried, cast-wind-parched dimensions. Stocks, Pansies, late flowering Roses (Teas and others) have now to play second decorative fiddle to the flaunting, flourishing Begonias. The latter are now so full of growth and beauty, that we intend to pot up the best before the frost makes a first meal of their tops. They will be placed in a cool greenhouse where they will bloom for a month or six weeks. As to commoner varieties, they will be left to take their chance till the frost mars their beauty, when the bulbs will be lifted and stored in a cold pit in cocoa fibre refuse for the winter. Some recommend drying the tubers in the sun or under glass before storing. They keep best stored as lifted, that is assuming they are lifted in dry weather. Of course, should they be soaking wet when lifted, partial drying is advisable. But these tubers suffer more from dry than wet rot. In fact, I do not remember losing any from the latter, though at first we lost many from over-drying the tubers in pots. But the point I wish to direct especial attention to now is the value of these Begonias as autumnal bloomers, and the superiority of the blooms in the late autumn over those of the summer months. By choosing sheltered and shaded sites most of this superiority may be realised all through the season.

Hortus.

Nicotiana affinis.—Is it usual for the roots of this to push up and grow the second season? This summer a quantity of young shoots came up from pieces of roots left in the beds last year. These I lifted, and used for enlarging my clumps of seedlings of this Tobacco in a herbaceous border. The blooms on the second year's plants are, I find, much finer and more abundant than those on the seedling plants, and they keep open all day, while those of the seedlings are closed.—A. Campbell, *Ashford, Cong, County Galway.*

Bedded-out Begonias.—Hundreds of dwarf, bushy plants of both single and double tuberous Begonias are growing out of doors at Twickenham, and blooming in the greatest profusion. They range from 6 inches to 9 inches in height, and are exceedingly sturdy plants. All, too, are from home-saved seed, and, still more, are in their respective sections perfectly true. The doubles seem to be almost even more floriferous than the singles, but all are of first-class quality. The flower-stalks are stout—a special desideratum in bedded-put Begonias. Without doubt these plants would have looked even more beautiful had they been planted on some green base, such as Sedum or Herniaria, and more thinly; or, better still, in clumps of half-a-dozen in rockwork recesses. The chief enemy of bedded-out Begonias seems to be cold nights, but those planted out early get fairly hardened, and if not too much exposed to early sunshine after frosty dews are less liable to suffer. Still the results, as seen at Twickenham, show that Begonias are far more satisfactory as bedding plants than is generally assumed to be the case.—A. D.

SINGLE DAHLIAS.

"Hortus" refers (p. 334) to the fragility of the flowers of the single Dahlia as a weakness which I had ignored, but it merely did not occur to me to draw any special attention to the point, as the objection seemed so much less serious than the dreary formality and heaviness of the double show Dahlia in a vase of flowers. Of course, the Cactus is more enduring than the single Dahlia, but if, as I pointed out, the blooms of the latter be cut before the central florets begin to develop, *i.e.*, before they scatter any pollen, they will last four days without shattering, and I have not succeeded in keeping the flowers of the former in water, in a state of beauty, for more than five or six days; while I certainly do not think I should like the task of emptying the vases in which they had remained for more than a fortnight. Neither the flower-stalks nor the water would be pleasant. But, granting that the single Dahlias are somewhat fugitive, is not a brief spell of beauty in our rooms preferable to the chronic ungainliness of the floral hemispheres which "Hortus" concurs in decrying? Besides, there is invariably an abundance of flowers ready within a day or two on the plants to replace the faded singles, which is not always the case with the double Dahlias; and, at any rate, there are other flowers less lasting than single Dahlias which are not denied wide popularity. Roses in July, for instance, seldom last more than a day unless the weather be damp and cool, and the majority of Hybrid Perpetuals have to be replaced every other day at the outside; they are thus less enduring than single Dahlias, but yet are desired. It is true, the Rose's fragrance counts for a great deal, and so does its colour; but in the latter respect the single Dahlia is even more brilliant and varied, and it is undoubtedly more graceful for arrangement in a flower-vase.

I wonder whether "Hortus" ever offered to decorate the drawing-room of one of his lady friends with typical double Dahlias, and, if so, whether he has yet forgotten the kind of reception that his proposal met with? One may guess that it might have been pretty sultry, for there seems to be an impression on the minds of many, if not a majority, of the fair sex that the veriest genetic connection represents the relation of earwig to Dahlia, if, indeed, the terms be not synonymous as far as the quilled show flower is concerned. But its own honest simplicity successfully guards the single bloom from being made the vehicle of the insect detested of women, which, if it should make an attempt to obtain carriage behind a ray-floret, is quickly detected and dislodged before reaching the house.

I rather sympathise with "Hortus's" liking for the less formal flowers—though I draw the line at quilled petals—as I have sundry times got much mocked by strict florists for owning to a certain sneaking fondness for loose, irregular blooms for use in very large vase arrangements several feet in height and for broad effects; but I cannot agree that they are the most decorative in the garden, as I have generally found that the "ragged" flowers are produced on weak stems and upon plants of straggling lanky habit.

When we succeed in getting Juarezi with the habit of some of our best singles—that is to say, holding its gorgeous flowers well above the foliage instead of their being half buried in it—I will heartily endorse all that "Hortus" says in favour of this beautiful and indispensable variety as a decorative garden plant, but even then the palm for grace and elegance in the cut state must be awarded to the single Dahlias, which we consequently continue to advocate and work at. I

may mention that I have succeeded in raising several distinct varieties of dwarf habit measuring not more than 9 inches to a foot in height from the surface of the soil to the top of the flower, which in spite of their diminutive stature are of very vigorous bushy growth and continue a mass of bloom throughout the summer; their flowers are about 2 inches in diameter and are carried on stiff, erect stems; one variety is of an intense dazzling scarlet colour, others dark shades of purple and maroon. Another series, running from 18 inches to 2 feet in height, include a yellow with a brown tip, a pretty pink, and a primrose colour. It is hoped that means may be found to exhibit these varieties next year in pots to show the habit of the plants, as it is thought that they may prove useful for bedding, and they will at least serve to show that single Dahlias need not be objected to as too tall or too short when they may be had of any height from 9 inches to 6 feet. A large bed or group planted with taller varieties at the back and graduated down to the dwarfs in front, from which all seed-pods were assiduously removed, would furnish a bank of bloom which, if not useful for cutting to those who do not care to re-arrange their vases oftener than once a fortnight, would certainly keep that part of the garden gay throughout late summer until destroyed by frost.

T. W. G.

NOTES ON HARDY PLANTS.

Corydalis ochroleuca.—One might grow many a less interesting and less beautiful plant than this. It is somewhat in the way of C. lutea, but it is rather taller and its habit is more erect. The foliage, too, is more glaucous, and the flowers not so yellow; in fact, they are a mixture of yellow, green, and white, and are produced in little clusters, nestling among the foliage. I suppose that there is something of a biennial character about this species: but, for all that, it is a plant capable of taking care of itself, I may say equally with C. lutea. Its usefulness consists mainly in its freshness and its habit of blooming successionally from spring until the end of the season. For dry, sunny rockwork it is a desirable plant.

Cyclamens.—Several varieties of these may be planted now with good results. For a long time C. coum used to rot with me from the top downwards. Those with a sunken circle around the crown, and others very flat and somewhat depressed, like the younger corms of C. coum, were especially liable to go off in this way, and also the very large ones, with, of course, a large upper surface, and often also somewhat depressed. What has been proved quite clearly to my mind is the fact that the loss of these corms is mainly caused through moisture lodging on them and rotting them. Such bulbs when planted should not be placed flat; they should be inclined a little to one side, bringing that part uppermost which brings the germ nearest the surface. By this method all lodgment of moisture will be avoided, and I do not remember since inserting the corms in this way that I have ever lost any by decay. It may not be desirable to transplant autumn-flowering kinds just now, but, for all that, if the roots have to be moved, I have no hesitation in saying that this is a better time to do it than in spring. For a whole year sometimes after transplantation Cyclamens will neither grow nor decay. They, however, both start and thrive best in a deeply prepared soil in which plenty of well-decayed leaf-mould has been worked. In fact, they want a body of soil almost elastic, incorporated with leaf-mould, peat, or something of that character. Just a little shade, too, seems to make them happy.

Campanula isophylla.—The white variety of this is so different from the type, both in habit, form and flower, and hardiness, that I have long suspected it to belong to a different class. It is not a common thing for the type to be more tender and less robust than a variety of it, yet it is so in this case, for the blue form or type will neither stand the amount of moisture in the land nor degree of cold which the white form will do. Moreover, the somewhat tree-like habit of the type is hardly represented at all in the white form, which is more in the way of garganica than isophylla.

Tropæolum tuberosum.—This is a free-growing species, but a sparse bloomer, *i.e.*, unless the tubers are planted in an exceptional way. It may, however, be had studded with hundreds of bright little orange-scarlet flowers from early in August until frosts set in. The best thing to do is to place the tubers in a dry, stony bank of very poor soil, and exposed to the greatest amount of sunshine possible. In such a place they will not only be pretty secure during winter, but they will reproduce themselves more than tenfold for another year. Either the roots should be 9 inches or 10 inches deep, or there should be a covering of ashes placed over them as soon as the tops are killed by frost.

Anemone vernalis.—This is one of the earliest flowering of alpine plants, but it may be said to be also one of the most difficult to establish, especially when plants of more than two years old are being dealt with. One can hardly reckon on older plants growing with certainty if set in the ordinary way. The chief thing to do is to set the crowns well above the surface. But in reference to this species, what I more particularly should like to mention is the fact that it is most easily raised from seed. A lady, who a year or two ago brought some fresh seeds of it from the Alps, sowed them in such material as she rightly supposed they would germinate in, and the result, after two seasons, has been the best plants of the kind I have ever seen either wild or under cultivation. She told me that the material in which she invariably found the plants wild was of a very stony character, especially on the surface. This seems to favour the plan of planting well above the surface, in order to keep the crowns from rotting during muggy winters. The chief difficulty lies in getting fresh seed.

Margyricarpus setosus.—This dwarf bush is reported to be but short-lived, lasting under cultivation only some three or four years. Where such is the case, I am of opinion that it has not been placed under proper conditions. The roots should be in dry, rubbly, or very poor soil of a vegetable character. Unless, too, the plant gets plenty of sunshine, the wood, which is thickly beset by the persistent chaff-like portion of the bristles, does not get sufficiently ripe.

Arabis lucida variegata.—This is anything but common, though one of the prettiest and best of the Arabises. So neat and shining are its pretty rosettes, and so durable are the distinct markings in its leaves, never fading even when they get old, that it may be relied on to be effective the whole year round. I find it to be frequently confounded with the variegated form of Arabis alpina, but the two are as different as it is possible for plants to be. That under notice seldom grows higher than 2 inches; it is quite stemless, and its growths form pretty rosettes. It does not, however, thrive in every garden, and in all it is difficult to keep through the winter. There should be plenty of lime put into the soil, *i.e.*, where lime does not naturally exist. Where the soil is calcareous, growth seems to stop much earlier in the autumn and the crowns become more thoroughly ripened, and so better capable of withstanding our wet winters. It is also a good plan to divide it severely in spring or early in autumn, young plants being much more vigorous than older ones. In all cases, however, lime should be used freely.

Veronica corymbosa variegata.—This is another dwarf plant with an abnormal colouring of yellow or creamy white on the edges of the foliage. The typical form of this Speedwell is neat in habit and valuable for its flowers, which are of good colour (rich deep purple) and continuously produced. The variegated form blooms equally freely, and the flowers afford a pleasing contrast to the two-coloured foliage. On rockwork this variety is one of the loveliest subjects with which I am acquainted. It rarely grows more than 9 inches or 10 inches high, and produces a goodly portion of barren shoots, which half creep on the surface, and thus render this Speedwell what may be termed a carpeting plant. It may be grown almost anywhere. The best plants are always those resulting from offsets taken in summer and well rooted before the winter sets in. Such plants have young growths more or less visible all winter.

Veronica incana.—This has the advantage of being well known and also justly appreciated. It is usually classed with plants that have variegated foliage, though, strictly speaking, it is not variegated, its white colour arising from its silky covering. In beds it is one of the most telling and enduring of plants, and it is equally effective on rockwork. Like most other Speedwells, it is not only kept in its best form when frequently divided, but, so far as I know, it is the only means of saving the plant from dying off in places, which old plants are apt to do. If the work of propagation is set about early in the year, fine plants may be had by the autumn: and these, if planted in rather stiff soil, to which this plant is somewhat partial, will lift with good balls, and may be employed for spring bedding. The advantages of this treatment are, that the plants are not liable to become uplifted by frost during winter, and that a very early crop of flowers may be expected in addition to the white foliage, the primary feature for spring bedding.

Primulas.—Such of these as are cultivated in pots will, no doubt, for the most part have been placed in shady or half-shady quarters, but keeping them there longer is not only a waste of the beneficial influences of sunlight, but the plants will hardly have justice done them. Fed up, as they are, much beyond what they would be in their wild state, they require all the more to be well ripened. If in plunging material lift them nearly out of it; there need be no fear that they will suffer from want of moisture; on the contrary, both roots and crowns will be benefited by being dried a little. I do not say it would be wise to leave them thus all winter. Doubtless during that season the roots would be kept in better health if the pots were plunged up to their rims, and not exposed to fitful sunshine, little as it may be.

Phyteuma campanuloides.—This may not be a very desirable border plant, owing to its straggling habit and somewhat weedy-looking foliage. But if its long slender spikes of purple-blue flowers could be seen in a cut state arranged with feathery Grasses and associated with just a morsel of white, it would commend itself for cultivation for that purpose alone. Its bloom-spike is not less than a foot or 15 inches in length in many instances, and the shorter lateral spikes, from 5 inches to 9 inches, can hardly be less useful. If one might be allowed to compare one flower with that of another and very different Order, the spikes of this Rampion may be said to much resemble a well-bloomed scape of Camassia esculenta, though the individual flowers are not so large. There is nothing special about the culture of Rampions, with the exception perhaps of comosum, with its hard, horn-like root: this kind and also the British ones require a deep rich loam for their long tap roots. In such a soil campanuloides grows quite 3 feet high. The flowers make their appearance in early summer and remain till frosts set in.

Planting dry bulbs.—By this I mean such bulbs as have suffered more or less from being out of the ground for a lengthened period; more injury is often done to such bulbs by inserting them directly out of paper bags into moist soils than one suspects. In the case of many Lilies, Sternbergias, Scillas, a few Narcissi, and even Tulips, we find the scales or wrappers often so much shrunken when too long out of the ground, that, to say the least, it is risky to set them in moist soil, which, of course, gets between the scales and induces decay which would never take place if the bulbs were fresh and plump. Death may not take

place the first season, because many can hardly be killed; but they send up weakly growths, and produce puny flowers. There is a remedy by means of which such bulbs may be restored to a proper state for planting. It consists in merely removing them from their dry quarters for five or six days before planting them, and in setting them out of doors on a moist bed of sand or Cocoa-nut fibre for that length of time. Thus treated the fractures in the bulbs will not only be found to close up, but the bulbs will become much heavier and plumper, and will soon begin to throw out roots. This practice I have followed in the case of dry bulbs for many years, and I am quite sure that bulbs so treated make a much more vigorous start either in the open ground or in pots than they otherwise would do.

Muhlenbeckia varians.—This is a better plant than M. complexa. For several weeks it has been in flower, if but sparsely. Such a thing has not happened in the case of M. complexa during nine years, though it has been grown in the hottest place I could find for it. M. varians is in stony clay, over which there is but an inch or two of mould. The situation is sunny and dry. It has been allowed to ramble into a young Rhododendron bush, and the upper twigs, most exposed, are those that produce flowers. I fear, however, that it is too late for us to see any berries, which are handsomer than the flowers. Grown under glass, either in a pot or otherwise, its fruiting is more certain. Apart, however, from either flowers or berries, both M. varians and M. complexa are very ornamental when planted on the dry parts of rockwork. Their habit is much more stunted than under glass. In fact, they become bushes, the twining habit only manifesting itself when the growth is rendered vigorous through the plants being placed in rich soil in moist positions. Even in dry situations they rarely get hardened in winter.

Rudbeckia (Echinacea) purpurea.—Mixed among yellow Rudbeckias this distinct form has a somewhat unique appearance. The reddish purple ray florets when newly opened are curiously contorted, a condition in which they remain for some days. When fully matured the blooms are as rich as they are distinct. I find this plant to be anything but a free grower, though I know it to be quite the opposite in some gardens, and it sometimes goes off suddenly and in an unaccountable way. I believe that the roots, which are as peculiar as the flower-heads, are partial to a sandy soil. They make very little fibre, and the healthiest growth is always made in porous soil. In the stiffer loams I never could succeed in making this plant grow at all. Even, too, when one is successful in getting good growth it is not at all certain that it will flower well. An exposed position in full sunshine seems essential to its well-doing.

Helenium autumnale.—This has been a mass of flowers ever since early in the summer, and still more and more are produced. They are not, too, smaller in size from having had so many predecessors on the same plant; on the contrary, they are quite as fine, and even more perfect as regards shape, and better in colour. The plant is now in what I consider its best form; but it may be interesting to state that the variety pumilum has long since ceased to flower and shows no inclination to follow the example of the type.

J. W.

Tritoma caulescens.—In common, I fancy, with most of your readers, I experienced no little surprise at the position given to this species in M. Victor Lebeuf's note on this genus. I have grown the plant since its first introduction, and it has very frequently produced its flower-spikes in the open ground. Invariably these have appeared in June, or early in July, according to the season. I am at a loss, therefore, to understand how it can flower in January and February in the latitude of Argenteuil. With regard to T. corallina, whatever difference exists between this variety and the T. Macowani disappears when it is perpetuated by seed. I have a considerable number of strong seedling plants, and I can affirm that no distinction is perceptible between them and T. Macowani either in colour, stature, or period of flowering. Apropos of the last-named species, I would remark that although M. Lebeuf puts it down as a June bloomer, it is in reality almost a perpetual flowerer; a strong clump will furnish spikes for two or three months, but the soil must be of fair depth and duly supplied with moisture. If the early spikes are allowed to mature seed, or even to bear it in any quantity, the further production of scapes will be considerably checked.—East Anglian.

TRANSPLANTING CHRISTMAS ROSES.

Like "J. C. B." (p. 313) I have learned the difficulties and dangers of autumnal planting through several failures and severe disappointment, and also the merits of spring planting by accident. Being a common plant, cultivators are prone to think that it may be moved at any time and in any manner. Thus it occurred that a lady who was very fond of Christmas Roses wished to grow them as winter or spring flowering plants among early flowering bulbs and other plants. There being a nicely furnished long-established border of Christmas Roses on the place, orders were given to lift these and plant them in the flower garden towards the end of October. This was done in a rough-and-ready fashion, and the results the first year were all that could be desired. In April they were moved back bodily, as near as may be, to their old quarters, and little more notice was taken of them till wanted again next autumn. It was then found that they had made few leaves, and that there were hardly any blooms, and the few there were refused to come up or expand. The plants made very little root, and not a few of them died. Disappointed and beaten in this almost my first dealings with Christmas Roses, it was needful to take means of increasing the stock. Plants were offered in a neighbouring market in full flower early in April, and these were purchased, divided into one-crown pieces, and planted in fresh and rather light soil. These formed roots, grew vigorously, threw up good crowns and several blooms in the winter of the first year. Since then, I have fought shy of disturbing Christmas Roses, though I quite agree that when transplanted in the spring, unless for a mere matter of one great display, then and there they should be divided into patches of single, two, or, at the most, three crowns. Those conversant with the semi-tuberous and fangy roots of Christmas Roses, and know how they bind themselves together in clustered and entwined masses, will easily see how impossible it is for them to form fresh roots in the centre of the mass. By pulling them asunder, which, when possible, is preferable to cutting, the roots and root-stock form new roots all round each one left, and hence their rapid growth if planted when the roots are in a state of activity. Planted in a dormant state, the larger roots seem to sulk and perish for lack of solidity and soil-hold. Clumps formed of a number of young plants are also far more floriferous than those formed by one, as the centre of the mass in old plants, for reasons already assigned, is mostly flowerless. Hortus.

Salpiglossis for beds and groups.—The Salpiglossis is a charming annual for beds and groups on borders for autumn decoration. The flowers are very bright and showy, and can be had in many colours, including crimson, yellow, and dark purple, all variously striped. By sowing in heat in spring, pricking the plants out early into pots singly, and growing them on for a time in a warm pit, they may be had in bloom by the end of June or beginning of July. They should be planted out when well hardened about the middle of May; in good soil they grow about 3 feet high. In habit they are light and graceful, and the flowers, taken off in sprays, are useful indoors for many purposes. Seeds may be saved now from the best marked flowers, gathering the pods and placing them on a sheet of paper in a cool airy room to ripen.—E. H.

HERBACEOUS BORDERS.

This season has undoubtedly been a good one for herbaceous plants. These in our case are in the kitchen garden on both sides of a well-made gravel walk 7 feet wide and 100 yards long, edged with ornamental tiles. Pyramidal fruit trees form the background, 8 feet from the edge of the walk; the trees are planted 9 feet apart, and between each tree we planted Hollyhocks, Pyrethrum uliginosum, tall varieties of Michaelmas Daisies, Helianthus multiflorus major, H. giganteus, Helenium autumnale, standard Roses, &c. These and the fruit trees form a suitable background for a herbaceous border. The fruit trees when in flower are in themselves an ornament, and they are not less so when laden with fruit. These borders this season look as well now as earlier in the year. They contain such plants as Gaillardia grandiflora, white and yellow summer-flowering Chrysanthemums, dwarf varieties of Michaelmas Daisies, such as Aster longifolius formosus, Amellus, salsuginosus, and multiflorus; Rudbeckia Newmanni, a striking plant just now, also the autumn-flowering Sedum spectabile, about which so much has lately been said concerning its attraction for butterflies and bees. The annual Chrysanthemums are very beautiful, and flower till frost sets in, *i.e.*, if the withered flowers are continually picked off them.

The white Anemone japonica is indispensable. If undisturbed, it flowers beautifully all through the autumn. We have one large plant of it which has stood where it is for years. It produces flower-stems 5 feet high, and the blooms individually are better than those on recently moved plants. Delphinium Cantab, Mrs. Miller, formosum, and ranunculoides all make grand border plants which also dislike disturbance. The varieties Cantab and Mrs. Miller, if cut down immediately their first flowers go off, will yield a good autumn supply of bloom if occasionally fed with sewage. The yellow Marguerite (Chrysanthemum Etoile d'Or) is a useful plant at this time of year. Plants of this that have done good service indoors in spring, if shaken out of their pots and the bottom roots pulled off, will make bushes 3 feet or 4 feet high by the autumn, and will furnish hundreds of flowers much richer in colour than those borne in spring. The hardy white Marguerite (Chrysanthemum maximum) is another grand border plant which, if fed with sewage occasionally, will yield large quantities of flowers that are most useful in a cut state. Amongst annual plants, Nicotiana affinis is one of the best. Plants of it from seed sown in heat in February and planted out like ordinary bedding material in rich soil produce by the end of the summer flower-heads over a yard through. Though the flowers are closed in the daytime, they open in the evening and early morning, and are very sweet-scented, chaste, and beautiful. The white and rosy-flowered lance-leaved Lilies likewise make beautiful border plants, which are now finely in flower, and they are quite hardy. The Queen Victoria variety of Lobelia cardinalis is also a handsome plant late in summer and autumn. In order to grow these successfully they must be planted in good rich soil and kept thoroughly moist at the roots. The best way to deal with the Lobelia is to take out about 1 foot square and 1 foot deep of soil from the border and fork in the bottom some good rotten manure. Then as the hole is filled add more manure mixed with the soil, leaving it a little below the surface. Plant four plants with a single plant of the variegated Veronica in the centre, and keep them well watered. A few clumps of this kind look extremely well.

Salvia patens in good light soil is one of the best late summer blue-flowering plants we have, and one which pays well for a little extra attention in the way of water and in supplying sewage occasionally. Tigridias, too, are strikingly beau-

tiful. They should be planted in sandy soil in the beginning of April where they can get plenty of sun; put five or six bulbs in a clump, with some silver sand under them, and then cover them with about 2 inches of light soil. Thus treated they flower well late in summer and autumn, especially the white variety, and though the individual flowers last only one day, they keep continually opening fresh blooms until frost puts an end to them. Nierembergia gracilis is a showy and conspicuous plant, and comes in well for filling up vacancies in herbaceous borders. Mignonette, too, is very useful for the same purpose. Fuchsia Riccartoni and corallina are also two conspicuous and graceful hardy shrubs suitable for plant borders. Single Dahlias likewise play an important part in making such borders gay, especially from this time on towards Christmas, *i.e.*, if frosts be merciful, and the later they flower the richer their colours are. Some advocate treating single Dahlias as annuals, but I dislike that plan where the border has to be kept trim. The best way is to mark a few of the best kinds that are not too rank in growth; select self colours, such as good yellows, crimsons, or whites (the best white with which I am acquainted being Duchess of Westminster), and then propagate these from cuttings annually. Double Zinnias, when planted in good soil well to the front of the border, prove to be very attractive. For the front line, about 6 inches from the edging tiles, we plant the variegated Grass (Dactylis glomerata elegantissima). This we divide in spring and plant pieces with two or three growths 1 foot apart; alternately with these we put Lobelias of the speciosa type close to the tiles. At the end of May we plant immediately behind the Grass scarlet and purple Verbenas and a few pink Pelargoniums. By the end of the season all these grow together—a charming mixture; the Verbenas falling among the white Grass, and the blue Lobelia peeping up here and there makes the whole very effective.

For filling up gaps at the end of the summer I sow a quantity of annuals very thinly in 3-inch pots in the early part of June, and plant them out without dividing them. Some very good annuals for this purpose are Alonsoa Warscewiczi, Calliopsis Drummondi, C. atrosanguinea, Nigellas (Love in a Mist), African Marigolds, and Mignonette. A few spare pot plants, such as small Fuchsias, are also very useful for this purpose. In my case I have generally in pots such plants as Lilium lancifolium, Montbretia Pottsi, Francoa ramosa, Madame Desgrange Chrysanthemums, &c., and these are plunged in the borders. I occasionally give our borders a thorough soaking with house sewage, and picking off withered flowers must have weekly attention. Many plants would flower more than double the time they do if this attention was given them.

Plants that die down below the surface should have something to mark their whereabouts, many good things being damaged and sometimes lost where this is not done. For my own purpose I use stout galvanised wire (three-sixteenths) cut into lengths of a foot for supports; one end is flattened, and a hole is punched through it for small zinc labels to be hung on it by means of galvanised wire. Before writing on such labels lightly cover them with the best white lead, then before the paint gets dry write the names on them with Wolff's pencils. Labels of this description will last good for years. Touch the ends of the stout wire inserted in the soil with boiled oil to prevent rusting; push them about half their length into the ground. We use such labels for naming and marking spaces for the plants, and with little or no disfigurement to the border.

Fox Warren. J. R. Hall.

Salvia patens.—"B." does good service by calling attention once more to the great merits of this old-fashioned plant, which is effective either as a bedding, ribbon, or border plant. Those who may be discouraged by its height—from 2 feet to 3 feet—may feel reassured by the fact that with a little humouring, for it is somewhat brittle, it may be pegged down. Those who wish, then, to keep it pretty close to the ground can give the shoots a slanting direction at planting. By carrying the main shoots along on or near to the earth and pinching out the points when they have reached a sufficient length, the shoots will break into laterals that will flower freely at heights varying from 1 foot to 2 feet. This considerably alters the general character of the plant, and, as many think, improves it by increasing the amount of bloom and rendering it more dwarf in habit. For mixed borders and bold groups, however, the natural loose and tall habit of this fine old Salvia is by far the most effective.—Hortus.

SAXIFRAGA SARMENTOSA.

Probably this pretty Saxifrage is best known as a basket plant hanging in windows. In this position its long pink threads hang straight down, some with tiny plants at the end, the threads growing longer and longer, vainly searching for

Mother of Thousands (Saxifraga sarmentosa). Engraved for The Garden from a photograph.

earth for the little plants to root into. It is properly a bank or rockwork plant, where its handsomely marbled leaves look well among rough mossy stones. It is hardy in our southern counties, but likes a sheltered place.

Anemone japonica in masses.—"Byfleet's" note on this subject (p. 312) is as timely as it is valuable. Two days before reading it I saw the finest masses of it I had ever met with in the fine old kitchen garden of the Duke of Grafton at Euston Park, near Thetford. Mr. Low, the duke's gardener, informed me that this beautiful autumnal Windflower was nearly a weed in the borders there. Certainly it is grown in enormous quantity in the mixed borders that abound in the kitchen garden. It is quite refreshing to meet with those cheerful relics of antiquity—the mixed borders, ever beautiful, fringing the quarters devoted to utility. The borders, too, may well rank among the most useful adjuncts of any garden. For all along them, gardeners in search of decorative leaves and flowers, and ladies and others who enjoy cutting old favourites for themselves, may come and cut again and again without greatly impairing the beauty of such well-filled mixed borders as abound in the kitchen gardens at Euston. Next to the Anemones, at the time of my visit, the single Sunflowers, Dahlias and autumnal Daisies were the most beautiful. But the greatest charm of such borders is that in all weathers and in all seasons there are always some pleasing objects of interest and beauty to be enjoyed or gathered. The major portion of the Anemones at Euston are white, which is by far the most useful. There are also many masses of the pink, but I did not see the red, nor have, so far as I can remember, ever met with such a red as that described by "Byfleet." All the reds I have ever seen have been pinks, varying in washiness of hue, but all comparatively worthless as contrasted with the white. But a really good bright red would be quite a different matter, and gladly welcomed to take equal or second rank with the white. Holders of good red strains of Anemone japonica would find it greatly to their interest to make them known.—Hortus.

NOTES ON POPULAR PLANTS.

Auriculas.—These will have been placed in their winter quarters, and the glass lights washed, repaired, and fresh painted. The glass is liable to become loose in summer, and unless made good and repainted, the leakage in wet weather injures the plants. Decayed leaves should be removed and the frames fumigated to destroy green-fly. As winter sets in, gradually withhold water, and when there is no rain the lights should be entirely removed. All alpine plants and their descendants naturally like plenty of air.

Carnations and Picotees will also have been placed in their winter quarters after having been potted. We began to take off layers in the last week in September. The largest plants are put singly in 3-inch pots, and the smaller ones two together in the same sized pots. The layers are well rooted this year and are stronger than usual. The weather has been warm and dry, conditions favourable to perfect development. They have, of course, received a sufficient supply of water. After repotting the lights are kept close or tilted a little at the back, more air being admitted by night than during the daytime. The young plants must on no account be allowed to flag; this they will do if exposed to bright sunshine or drying winds. During the last week in September the weather was excessively hot, but up to the present (October 9) not one plant has suffered. When the sun shone on the frames a mat was thrown over the lights, which were tilted about half-an-inch at the back, an attention which must be continued for a week or ten days; when the plants are established the lights should be removed altogether. Some varieties are very shy as regards forming roots, and if it be necessary to remove them from the parent plants before they are well rooted, they may be placed in a spent hot-bed; a brisk bottom heat would be injurious to them. Perpetual flowering varieties have been placed in a warm greenhouse; they are healthy plants in 5-inch and 6-inch pots. Larger plants might easily be had, but we prefer the smaller size, which when well managed flower freely from now until the first month in the new year, and intermix effectively with zonal Pelargoniums, Bouvardias, and other winter-flowering plants.

Dahlias have supplied us with an almost inexhaustible wealth of flowers this autumn. We have been cutting flowers from them almost constantly for harvest festivals and other purposes. There has been no frost to injure them in the least as yet, and the luxuriant growth made by the plants will have caused a corresponding root action; therefore the tubers may be expected to be of large size, and to keep better than usual this winter. For all sorts of decorative purposes small flowered double Dahlias (Pompons) are the best, and amongst Pompons the most useful in a cut state is Lady Blanche, a beautiful pure white variety.

Pinks.—These are doing well this year, but they ought now to be planted out in beds or borders. I like to plant them out in September, in order that they may get well established before frosts set in. Slugs and various kinds of grubs seem fond of Pinks, the leaves of which they eat mostly at night; it is, therefore, necessary to search for them with a good lamp. Rabbits, too, are very fond of them, and will take some pains to get at them. Frequent stirring of the surface soil is necessary during the winter. Now is a good time to lift from open borders plants of Pinks for forcing that have been in the open ground during the summer. Good clumps of these may be potted in 6-inch pots in good soil and be placed in frames, where they soon root into the good compost, and are ready when wanted to place in the forcing houses.

Gladiolus bulbs should now be dug up; this has been a good season for ripening them. When we get continued cold rains in autumn, the plants the following season decline and die at various stages of their growth. Some do not even appear above ground; others make good growth for a time and fail just before the flowers open. Seedlings grown in pots all through the season should now be shaken out of them, and the stems should be cut over close to the soil-line. Store them for the winter in dry sand in paper bags, and keep them in a cool airy room free from frost.

Pentstemons.—We are now putting in cuttings of these. They do well in boxes filled with sandy loam, and winter safely in cold frames. The treatment usually given to shrubby Calceolarias suits them remarkably well; they are almost, but not quite, hardy. Those who would like their plants to flower well late in autumn or early in winter should pick off all seed-pods as they form; if allowed to remain, they appropriate the sustenance that should go to the flowers.

Tulip planting time will soon be here; we have just gone over our stock of bulbs, and have had them all cleaned in preparation for planting; the bulbs are not large, but clean and healthy looking. We plant a few offsets with the flowering bulbs; these will not flower as a rule, but they make large leaves and form flowering bulbs for the year following. Preparation of the ground is an important part of Tulip culture. I have not, however, incurred much expense in this respect during these last few years, and we have had very satisfactory results. The ground is merely trenched and well manured. At planting time a drill is drawn as for Peas. A pinch of coarse sand is dropped where each bulb is to be planted, the bulb is pressed into the small mound of sand, the soil is drawn over the drill when all are planted, and no more trouble is taken with them. If some decayed turfy loam to fill up the drills is available, it would, however, be an advantage. When the plants appear above ground the surface of the bed is covered with decayed manure. We do not protect the beds in winter in any way. They may be planted at any time now and up to the middle of November, or even later. On examining some of the bulbs I find that they are swelling at the base, and if put into the ground would soon produce fibres.

J. Douglas.

Sunflower Miniature.—I fully agree with all that Miss Annette S. Wakefield, hailing from Uxbridge, says of this Sunflower. Entering a large garden the other day specially rich in autumnal Daisies and Sunflowers, the most brilliant of them all was the Miniature. The size of the bloom was not much larger than that of the herbaceous multiflorus, but it was even more brilliant and floriferous than that well-known species. It is not needful to add another word to the excellent description of the habit and character of the plant so truthfully given by Miss Wakefield. It is hoped the intermediate seedling referred to by that lady will yet seed with sufficient freedom to enable it to be widely distributed, as the more of these single Sunflowers we have the better.—Hortus.

—— With reference to my note on the above in a recent number of The Garden, I have received a communication from the Messrs. Sutton, of Reading, to the effect that my description must apply to Helianthus argyrophyllus, which is quite distinct from their Miniature Sunflower sent out by them in 1883. Accompanying this communication were specimens of the Helianthus in question, and also of their Miniature Sunflower. The former is identical with the new Miniature Sunflower sent out last spring by a leading firm of nurserymen. This has tolerably large, very woolly leaves; the habit is branching; it grows 8 feet high, and it does not bloom till late in the summer. Messrs. Sutton's Miniature is about 4 feet in height, and has small glossy green leaves. The flowers are good in form, apparently about half the size of those of argyrophyllus, and said to be produced freely and continuously through the summer. There could scarcely be a greater contrast than that afforded by these two Sunflowers. It is evident that Miss Wakefield, who differs from me in my estimate of the Miniature Sunflower, has grown Messrs. Sutton's variety. This seems certain, as she speaks of it as an old acquaintance; whereas the new Miniature—*alias* argyrophyllus—was distributed last spring for, I believe, the first time. Those, therefore, who wish to grow the true Miniature Sunflower must be careful from whence they obtain their seeds, or they will be likely to experience disappointment in meeting with, perhaps, an old acquaintance under a new name.—J. Cornhill.

Dahlia White Bedder.—In "A. D.'s" notice of bedding Dahlias (p. 336) I did not see this one mentioned, although I consider it to be the most effective of the whites. In point of habit it is almost perfection, the foliage being robust and of a rich green, the large pure white blooms standing up boldly above it. I went in early autumn, just when Dahlias were at their best, to see a large collection of them, and I thought White Bedder the most telling kind of all. It grows from 2½ feet to 3 feet in height, and is therefore well adapted for beds of moderate size. Wherever Dahlias are used for bedding this one should find a place.—J. C. B.

NOTES.

Lilium auratum.—This Lily is such a beautiful torment—that is to say, so capricious in its growth and so irritating in its tendency to die out on some soils—that I hope to be excused for again referring to its culture. A friend who had visited the Brook Lane Nurseries of Messrs. Davies at Ormskirk wrote to tell me that he had seen this Lily as raised there from seed in all stages and growing "like Grass," as he expressed it in his letter. I at once wrote to Messrs. Davies, who tell me they have no trouble whatever with auratums in their nursery. "They do grow like Grass in our light, sandy, and well-drained soil, but we have good hedges to screen them from the strong winds. We cannot boast of possessing many very large bulbs, for the simple reason that we sell them off too quickly and cannot give them time to grow big. We transplant them every two or three years and give them spent Hops and peat soil mixed with sand. Any well-rotted manure will answer. We raise them from seed in pans and plant them out as soon as they can be easily handled. We think full exposure to the sun is best for them, especially on damp or low-lying soils. Soil and climate have much to do with the successful culture of this bulb. You cannot grow them well in a heavy ill-drained soil; a peaty soil is most suitable, and they require plenty of sunshine to ripen up the bulbs and prevent decay." I hope this information will interest many besides myself who have only been partially successful in the culture of Lilium auratum. One thing seems certain, viz., that properly drained beds of light sandy peat, or peat, loam and sand will be necessary in most gardens where the soil is damp or heavy. Of course, I know how they grow and increase in Mr. M'Intosh's garden near Weybridge, where they occupy Rhododendron beds on a sloping lawn, but I shall try a bed of peat and sand specially prepared and well drained, and I propose to plant the bulbs in amongst the roots of dwarf Bamboos, as I am told they grow naturally in Japan.

Scarlet Lobelias.—We have no hardy flowers just now which can compete with these old herbaceous kinds of Lobelia in point of colour. There are many seedlings, from L. splendens, L. cardinalis, and L. ignea. One of the best is a form of L. splendens named Comet, which I saw the other day 4 feet or more in height, and bearing spikes of vivid scarlet broad-petalled flowers a foot or more in length. A very fine dark purple-leaved form of L. ignea named St. Clair is also far finer than the type, but if seedlings be reared from these flowers there is much variety observable in the progeny, a result not much to be wondered at, seeing that nearly all the Lobelias cross-fertilise each other with extreme facility. Like many other hardy flowers, these herbaceous Lobelias grow best when divided and replanted just as they begin to grow in the spring. They are not perfectly hardy on cold, wet, or retentive soils, but if lifted in autumn and potted, or if placed in boxes and protected in a cold frame all the winter, they are easily replanted during the following May. A good bed of Madame Castex Desgrange Chrysanthemum edged with Lobelia ignea is a sight worth seeing during chill October, and a mass of white Japan Anemone looks all the brighter if a clump of the Cardinal flower is planted near it for the sake of contrast.

Veronica Andersoni.—All the now numerous varieties of this Speedwell are tolerably hardy in nearly all seaside localities, and some are so distinct and striking when in flower, that the wonder is they are not more grown than they are everywhere by or near the shore. This plant is a hybrid raised at Edinburgh years ago by the late Mr. Anderson (who afterwards took the name of Anderson-Henry), and was the result of a cross by him effected between V. salicifolia and V. speciosa. The result is a shrub of considerable value, since in mild seashore places it continues fresh and floriferous all through the autumn and winter months. Some of the varieties have purple, crimson, blue, and lilac spikes of flowers and are far finer than the type. Even where they are not perfectly hardy in cold northern or midland places, it is easy to keep a few rooted cuttings in a pit or frame ready for planting out during the following spring. On light, dry soils they are now very fresh and pretty, especially at Bournemouth and elsewhere, in Hampshire, Somerset, Devon, Cornwall, Scilly, and in Ireland, as also in the Isle of Wight. The white variegated form of V. Andersoni makes a very useful decorative plant if grown in 6-inch pots, plunged outside in coal ashes, and watered regularly, with now and then a dose of weak manure water. Its bright oblong leaves of creamy whiteness show well by lamplight, and contrast well with Palms, Cyperus, and other Evergreens of similar habit.

Pampas Grass.—We ought to know a great deal more about Pampas Grass than we do. It is a very variable plant, and the varieties are by no means well defined. Some are tall and others short in habit; some are in flower early, while others hardly open ere the rains and frosts of early winter destroy all their grace and silvery sheen. Before purchasing Pampas Grass one ought to see the plants in flower, or one can never be sure of getting good forms. The dwarf rosy tinted form is distinct and pretty, but those who know it not must be satisfied with the merest suggestion of rose colouring, for if they imagine its rosiness to be anything approaching

that of, say, Spiræa palmata, or even S. venusta, they will be woefully deceived. Some kinds have a neater and more compact habit than others, and there is a difference in the strength of their culms, for while some sorts are easily broken down by rain and wind, others remain rigid and erect through the wildest storms. These distinctions, slight as they may be from a botanical point of view, practically mean a good deal in the garden, and it is the business of the gardener or amateur to select kinds best fitted for his purpose. There is a variety having a suffusion or a diffused stripe of yellow colouring down the leaves which gives a nice rich olive tone to the plant as seen in the mass. It is in some lists called golden variegated Pampas Grass, and, although a most satisfactory kind, it scarcely comes up to so definite a pseudonym. The only way to get good forms of Pampas Grass is to watch them when in flower and at once secure them.

Hypericum empetrifolium.—This pretty little sub-shrubby St. John's-wort is hardy during mild winters, but our plan is to save a rooted cutting or two in a pot in a cold frame. These are planted out during the month of May and grow away freely, and are now feathery masses of yellow flowers and bright green branchlets covered with narrow Flax-like leaves. I like it even better than H. Coris, which it somewhat resembles, but it is more erect in its growth. All the shrubby St. John's-worts are well worthy of general culture, and are easily increased from cuttings or slips of the young wood put in sandy soil, near the glass, in a cold frame. Young plants are most satisfactory, as when old the stems get gnarled and woody, and the flowers are neither so numerous nor so fine in size and substance as are those borne by healthy young specimens. I hope to try some of these Hypericums in pots another season, for, as it is, their latest buds and flowers are generally cut down by the first sharp frosts in November; whereas in a sunny greenhouse they would flower on for at least part of the winter season, and so be useful at a time when flowers are scarce. Has anyone tried the little creeping H. reptans as a basket-plant in a cool house? Outside, its golden blossoms are often a prey to snails and slugs, but in a basket they could dangle down near the eye, and one would have the satisfaction of knowing them to be safe from injury, while but few other basket-plants could be more graceful.

Nierembergia frutescens. — As a basket plant in a greenhouse or conservatory this Chilian plant is one of the most elegant I know, and has, moreover, the habit of flowering continuously. The pretty little cup-shaped flowers shade from lilac to white, and are borne quite jauntily on the tips of the numerous slender Flax-like shoots. It is hardy, or nearly so, in most localities, but is prettiest as grown indoors in the above way. Cuttings root quite freely in the spring, or indeed at almost any time, and if six or eight young-rooted bits are planted in a 12-inch basket, they soon cover it with a profusion of slender glaucous-leaved growths and dainty blossoms. One merit possessed by this little sub-shrubby species should not be overlooked, viz., that it is distinct in habit from nearly all other basket plants, its feathery spray-like growths being almost Asparagus-like in tenuity, and, as hung up near the glass, flowers are most freely produced. Like Ivy-leaved Pelargoniums, Harrison's Musk, some sorts of pendent-habited Fuchsias, and Begonias, this Nierembérgia grows and shows itself better in a basket than as grown in a pot. In some places it is used as a summer bedding plant, and grows and blooms freely as pegged down on the surface of the soil. Although long ago introduced to our gardens from South America, it is far less often met with in gardens than it really and truly deserves to be.

Pyrethrum uliginosum.—We have one or two white-flowered Asters and like them very much, but for size of flower and general effect we have nothing at all in that genus that can for a moment compare with this stately and floriferous Pyrethrum uliginosum. It carries on the Ox-eyed Daisy or Marguerite season into October and November, and its great white Daisy flowers contrast well in large dark vases along with the parti-coloured leaves of autumn. The increase and culture of this plant are of the easiest, our best plants being those divided and replanted every spring. It is just the plant to naturalise on the margins of wood walks or in plantations, where it soon becomes strong and vigorous in deep rich soil fed by the falling leaves year by year. It is quite robust enough to hold its own even when its roots have to compete with those of the surrounding shrubs and trees. In the kitchen garden belonging to the late Col. Fred. Burnaby at Somerby, near Oakham, in the fox-hunting country, I saw this plant years ago, long before it became popular as a hardy flower in gardens generally. An old herbaceous border ran the entire length of the garden backed by espalier fruit trees, which served to fence off the vegetables from the flowers—that is, it was intended that the wire fence and fruit trees should effect this purpose; but I remember this wandering Pyrethrum had crept under the fruit trees, and, at the time I saw it, was most rampant and most beautiful among the feathery red-fruited plumes of the Asparagus beds. It was a happy and suggestive union, even if an accidental one.

Helianthus lætiflorus.—Helianthus rigidus and several other perennial Sunflowers of that section were over weeks ago, but this H. lætiflorus is now quite fresh and beautiful. Its colour is so rich a yellow, that flowers of H. multiflorus simplex maximus near to it look almost primrose-coloured by contrast. This plant is a robust grower and increases rapidly. A friend sent me a morsel of its root ten months ago, and it is now 5 feet in height and bearing twenty or more of its vivid yellow semi-duplex flowers. This has been a very good season for all sorts and kinds of Sunflowers. H. orgyalis is now flowering well, a thing it very rarely does in this climate, and only the other day I saw H. tuberosus in blossom, which is even a yet more uncommon sight. The common annual Sunflowers have been good this year, but prettier than any is the pale primrose or sulphur-tinted kind, having a black disc which contrasts most forcibly with the ray florets. But, as a rule, it is the smaller-flowered kinds of the perennial race that are most useful for cut flowers and ornamental purposes generally. Some of them, such as H. rigidus, are dreadful ramblers, but by replanting the roots every spring they may be kept within bounds.

Rhus typhina.—No shrub I know dies off more brilliantly beautiful than does this feathery-leaved Sumach, which is just now a most effective combination of greenish red brightening into crimson and gold. A large mass of this plant backed up by evergreen Oaks is just now the most beautiful bit of colour in the whole place, and is much admired. It is a hardy shrub which grows very rapidly in deep rich soils, and it has the additional merit of being easily increased from root suckers or stolons, which are abundantly produced by old plants. Even when green and growing it has a distinct and effective foliage, and a few good groups of it on the margins of plantations, or beside woodland walks, or anywhere within sight of a country house would be always sightly objects, but at this season they would light up the landscape very prettily. I saw a bush of this Sumach the other day in a large bed along with Pampas Grass and Torch Lilies, and the effect, even at a considerable distance, was very beautiful. There is another species of Sumach which is often very lovely at this season on some soils where it is well established. I mean Rhus Cotinus, sometimes known as the Feather bush, its delicate hair-like inflorescence reminding one of Marabout feathers, shading from pale yellow to deep purple-red. Both these Sumachs deserve culture, and if well placed are very effective at this season.

Cotoneaster frigida.—Just at this moment we have no berry-bearing shrub or tree that can in any way compare with this crimson-fruited Cotoneaster. It forms a small tree 20 or more feet in height, and its topmost branches are now thickly set with its glowing berries, which shine bright and beautiful against the cloud-flecked sky. I know of no other berry-bearing tree which makes such a decided bit of colouring in the autumn landscape as does this Indian species, which is no novelty, having been introduced from Nepaul as long ago as 1824. All the species of Cotoneaster are fruiting well this season, and as a group they deserve more attention than they generally obtain. Some of the dwarf creeping species are very useful for covering masonry, or for creeping over moist mossy stones. One of the most rapid of growers is C. Simonsi, which makes a wall look cheerful during December and January if planted in company with Jasminum nudiflorum, or with any of the slender-growing small-leaved Ivies. One of the most distinct of all the species now in fruit is C. bacillaris, the leafy shoots or rods of which are now covered with axillary clusters of blackish purple berries in great abundance. It is so different from Cotoneasters generally, that at first sight one might be excused for not recognising it as a species of that genus. C. microphylla and its forms are often useful for covering walls or large rocky mounds; it is one of the very few shrubs which will grow downwards —a point well worth remembering.

Sundials in the garden.—It is a fancy of mine that every good garden should shelter that oldest of all chronometers, a sundial. I think it is Charles Lamb who says, "What a dead thing is a clock, with its ponderous machinery of lead and brass, its pert or solemn dulness of communication, when compared with the simple altar-like structure and the silent heart language of an old dial." The sundial was for centuries a garden guide, bearing witness to moderate labour and temperate refreshment. It was in a way the very epitome of all the Proverbs, the absolute ruler of all things done between the sun's rising and its setting. I can scarcely explain how it is, and that inability in itself is a testimony to its subtle interest, but the garden having a dial amongst its sweetest blossoms gives to me a greater pleasure than one where the figured plane with its gnomen is not hospitably entertained. I suppose the charm lies in the connection between the sunshine and the flowers, a union best seen during dull wintry days, when Aconites and Crocuses expand at the first breath of sunshine and shut again as clouds lower for rain. After all, Nature is greater than art, and so to-day, even in our mechanical era, we see children clustering round an old sundial just as bees swarm and hum among the blossoms of the garden. The interest of a sundial is perennial, as Lamb says it is Nature's own true measure for bird song, and also for the blossoming of beautiful plants. Veronica.

Michaelmas Daisies.—The more we see of these, the higher is our estimate of their fitness for the decoration of

our gardens in autumn. The best kinds are well worth placing in good positions, and they require very little attention, the chief thing being to divide them now and then. They grow up so quickly, that annual change of ground is the best treatment that can be given them. They should not, at any rate, remain more than two years in the same place.—R.

Rose Garden.

STAYING PROPERTIES OF ROSES.

"D. T. F." demurs to my statement of practical experience as to the best means of obtaining Rose-blooms that shall endure in a cut state, apparently because it does not dovetail into his speculation. Unfortunately, it has been the fate of many hypotheses, that have been founded on speculation rather than on the records of actual observation, that they have not been borne out by facts. Having grown Roses on soil of almost every conceivable consistency, the means shown by practical experience to be best adapted to the production of Rose-blooms that will "stand" well are summed up in the sentence of which "D. T. F." falls foul. It is true that a printer's error has made me talk about Roses journeying "to and from" shows, as if the same blooms were expected to come home and go out again like specimen plants, an achievement only occasionally effected with success by cut Roses; but beyond this, I am prepared to adhere to every point in the statement, and if "D. T. F." does consider it positive, I am glad that I succeeded in indicating my sense of conviction. If "D. T. F." would come down from speculation to facts and practical experience, we should be getting on; for instance, if he is convinced of the wrong-headedness of my practice, let him grow Roses on his "training" system, and bring up his blooms to one of the July shows in London; let him enter his Roses in one of the leading classes, and I will do the same; then let the judges say at four o'clock in the afternoon which flowers have stood the best. If "D. T. F.'s" flowers are placed first (say) three years in succession, then I will be delighted to "stand" him a lunch, and will admit that previously all rosarians must have been on the wrong tack, and will retire cheerfully to the contemplation of Roses growing strong and lusty as an athlete in their hungry wastes of sand.

There is one sentence of "D. T. F.'s" that I cannot get the "hang of": "As a rule, it will be found safer to thread one's way . . . . than to ride rough shod *through* the whole matter on the high level!" I give it up, but no doubt it elucidates quite a lot of truth. Oliver Wendell Holmes tells us that "the whole force of conversation depends on how much you can take for granted." If nothing can be taken for granted, discussion becomes impracticable, and, indeed, will be impossible with "D. T. F.," unless he will condescend to define the meaning of his terms. For instance, he objects to "assertions," and then cites as an example a purely conditional phrase; if the sentence quoted had been intended as an assertion, it would certainly not have contained the word "might." "D. T. F." himself writes, "We have not an atom of proof, direct or indirect, of any Roses having been starved to death." How is that for a man who finds fault with positive assertion? The rest of the remark conveys an intimation in many words that invisible signs cannot be seen, a proposition that may readily be granted, even if somewhat irrelevant.

The expression of a "bloom flushing" is new to me. If "D. T. F." will tell me what it means, I will tell him how I try to avoid it.

The rest of "D. T. F.'s" letter need not be discussed, as it is based entirely on a false assumption adopted by him to fit his own hypothesis; for, so far from the sandy soil being the most enriched with manure, the very contrary was the case. The heavier soil was well manured when trenched in the spring, and then received a liberal top-dressing when the trees were planted in the autumn, the mulch being forked in during the following March. The sandy soil was trenched and only slightly manured, not being at first intended for Roses, and this treatment was supplemented by a top-dressing of clay, as far as could be managed with limited means of carting, &c. The clay lay on the ground all the winter until the March winds dried it through, when it was thoroughly pulverised and incorporated with the native soil. The base of "D. T. F.'s" amazing contention, that "Roses grown on sandy soils are overfed out of their staying properties," therefore disappears.

It might be worth while to point out that, though "D. T. F." states that there are so many objections to the rule that strong growths carry first-rate flowers, he omits to enumerate a single one, were it not that further argument seems hopeless with one who does not distinguish between an active being with a free will and a passive subject of physical and chemical laws, or between the longevity of Rose trees and the endurance in water of cut blooms.

If "D. T. F." has come across anyone more conversant with the morphology and physiology of plants than Sachs and Prantl, or even Naegeli and Luerssen, we (I undertake to answer for my schoolfellows, whom, however, "D. T. F." also omits to specify) shall "positively be comparatively surprised," though superlatively interested, to learn his (the new botanist's) discoveries. But as "D. T. F." adverts to the scientific side of the question, let us briefly review the botanical facts that bear upon the point at issue. As I stated on p. 305, all that is necessary to keep a plant or part of a plant from flagging is a sufficient supply of water. The turgidity of a plant is dependent solely on its water supply, and when this is deficient the plant fades; but a faded plant may be restored to a state of turgidity by being supplied again with water, as anyone may prove for himself with an air-pump. Now the only way in which a growing plant can obtain water is through the roots, that is to say, it is entirely dependent for water upon the surrounding soil. Again, the whole food of a plant, except carbonic acid, is obtained through the same channel from the same source. Thus a copious supply of moisture in the soil is essential to the growth of a plant. The movement of water in plants is most noticeable at the period of most active growth, and though the movement of water effecting growth and nutrition is slower, the movement of water through the woody cells of the fibro-vascular bundles to supply the waste of transpiration and preserve the plant from a state of flaccidity is very rapid. These facts may serve to show that to grow Roses on moisture-retaining soil, and to supply them with abundant water in June, are not such unreasonable means of ensuring that the cut blooms shall continue in a state of turgidity as "D. T. F." would try to make out.

In conclusion, I cannot help thinking that if "D. T. F." had ever trained in an eight, he would not be so disposed to talk about the "moderate *regimen*" of an athlete; let him cater for a university crew for a week, and then see!

T. W. G.

THE EGYPTIAN PAPYRUS.

In your last issue "Veronica" asks what is meant by the byblus of Herodotus. Surely there can be no doubt but that it is the Papyrus! Not only is the name closely allied to the Greek *βύβλος*, but it has also given rise to the name of the town Byblus, in the delta of the Nile, in olden times so famed for the manufacture of paper from the Papyrus plant. Theophrastus (Hist. Pl., 4, 10) and Pliny (Nat. Hist., 13, 21-26) both tell us of the various uses to which this plant was applied, and, among other things, say the stem was used for making boats. From existing bas-reliefs we can see the ancient Egyptians of the fourth dynasty represented cutting down Papyrus leaves and binding the stalks together in the form of a boat. It is evidently to this custom that Isaiah refers when he speaks of "vessels of Bulrushes upon the waters" (xviii., 2). The Hebrew word here used is *gomè* (allied to the Coptic *gom*, a volume), and the same is applied to Moses' ark (Ex. ii., 3). It is, therefore, probable that Moses' ark was also made of the Papyrus. "Veronica" refers to the "paper reeds" of Isaiah; but this rendering of the Hebrew text is evidently wrong. In the preceding verse the word *gomè* is translated "reed," but here the word is *'aroth*, which literally means "green herbage," and not "paper-reed." The Papyrus plant, Theophrastus tells us, was a native of Syria, and, Pliny adds, it also grew in the Niger and Euphrates. In reference to Herodotus' remark that the roots were eaten, tubers of Cyperus esculentus (L.) have been found amongst the funeral repasts in some of the tombs of the twelfth dynasty (B.C. 2200-2400) in Upper Egypt. Several specimens are preserved in the Berlin Museum. Cyperus papyrus (L.) has also been found amongst other plants from the ancient tombs of Egypt (see Mr. Carruther's address to Biological Section, B. A., 1886). P. E. N.

Upper Norwood.

Garden Flora

PLATE 566.

SARRACENIAS.

(WITH A PLATE OF S. MOOREI AND S. POPEI.*)

The Side-saddle flowers of North America may be said to represent in the New World the Nepenthes of the Tropics of the Old World, and we know them both popularly as Pitcher plants, notwithstanding the wide difference between the two genera botanically. The cultivation of Nepenthes cannot be successfully managed without the aid of much artificial heat and the many other accessories to tropical plant culture, and it is no doubt owing to this fact that the many beautiful and truly wonderful Nepenthes now known are to be seen in only comparatively few gardens. But the Sarracenias do not require any more heat than is obtainable in an ordinary glass house, where fire-heat is used only in very cold weather, and we may therefore consider them as plants that may be grown in almost every garden of any size, where, according to Cowper, as well as the out-of-door garden there must be a greenhouse too. In Sarracenias we have a double attraction, viz., in the form of their pitcher-like leaves, which are often beautifully variegated, and in the large and handsome flowers which they produce very freely in the early summer months. These two characters are both exceedingly well shown in the accompanying plate, which ought to go far towards winning for Sarracenias a prominent place amongst popular greenhouse plants. It is unnecessary to go into the details of treatment for these plants, the pages of The Garden from its commencement up to recently containing frequent reference to the cultural requirements of Side-saddle flowers. The difficulty of making a plant known through a description in words is plain enough here, for it would be impossible to convey anything like a correct idea of the richness and beauty of colour and the singularity of form possessed by Sarracenias as shown in the plate. In the colours of the flowers and in the form and size of the pitchers there is very considerable variety amongst Sarracenias, and they are certainly amongst the most attractive of plants when grown in a corner or small house by themselves, as, for instance, at Kew, Glasnevin, and in several of the London nurseries. In our present remarks we intend more particularly to call attention to the hybrid kinds of Sarracenia which have been obtained by crossing the different species with each other, but before doing so it will be as well if the true species themselves are briefly referred to.

A few years ago an excellent synopsis of Sarracenias was prepared by Dr. M. T. Masters, and to this all admirers of these plants turn for

* Drawn in the Glasnevin Botanic Garden, Dublin.

the most recent historical information about them. There are six true species of Sarracenia known, all of them natives of the Atlantic States of North America. Darlingtonia californica, a closely allied monotypic genus, is, as the name denotes, a native of California, and the very remarkable, but as yet almost unknown, Heliamphora nutans, also a near ally to Sarracenia, is limited to the Roraima Mountain, in British Guiana. These three genera form the Natural Order Sarraceniaceæ, and all of them are in cultivation in English collections (Heliamphora is perhaps only in one collection as yet). Although frequently attempted, no one has succeeded in obtaining a cross between Sarracenia and Darlingtonia, and it is very likely that some functional barrier will prevent this from ever being accomplished. In the former the stigma is large, petal-like, and umbrella-shaped, and reflexed in such a manner as to completely conceal the stamens, much in the same way as those organs are hidden by the petaloid styles in Iris. In Darlingtonia the pistil is only slightly five-lobed and the stamens are exposed, whilst in Heliamphora the flowers are not unlike those of an ordinary Buttercup.

Specimen plant of Sarracenia flava.

S. PURPUREA is the best known, the longest cultivated, and the hardiest of the species; it has short horn-shaped, inflated pitchers of a deep blood colour when mature, the flap-like lid upright, so that rain easily falls into the pitchers. When well managed this sturdy plant forms a very attractive specimen. We have seen it grown in a 10 inch pot with at least thirty large crimson pitchers upon it, and in the spring these were accompanied by numerous large red-purple flowers.

S. DRUMMONDI has erect trumpet-shaped pitchers 2 feet or more long, the lid broad and wavy, the whole of the upper part being creamy white with a thick reticulation of reddish and green veins; the flowers are 4 inches in diameter and have dull red sepals, maroon-coloured petals, and the stigma, which is 3½ inches across, greenish red. It is still one of the most beautiful of all Sarracenias.

S. RUBRA.—In this the pitchers are erect, 1½ feet to 2 feet high, with a tail-pointed, inflexed lid, as in S. Moorei; they are green with deep red veins on the upper part, where, in autumn, they assume a uniform vinous colour. The flowers are 3 inches across and coloured reddish brown.

S. FLAVA.—This is the tallest-growing kind; we have seen pitchers of it which measured 3 feet 3 inches in length; they are erect, trumpet-shaped, green, the veins dark green (in some varieties red), and the lid, which is sometimes yellowish, is upright with the sides reflexed and the point tailed. The flowers, which are large, have a powerful odour, and are coloured a bright canary yellow. Some of the varieties of this, such as, for instance, ornata and atrosanguinea, are great improvements on the type, the former being very large and wide-mouthed in the pitcher; atrosanguinea, as the name implies, is remarkable for the deep red of its veins and lid.

S. PSITTACINA is a small plant with small horizontal pitchers, which have a broad wing like a knife-blade, a hood-like lid, and the apex of the pitcher so twisted as to give it the appearance of a parrot's head; hence the name. The almost transparent sides of the pitchers, with their numerous blotches of dark red, are pretty characters in this plant. It has only rarely been seen in flower in England.

S. VARIOLARIS is the least attractive kind, and it is not so easily kept in health as the others. It has pitchers 1 foot high, with a broad wing and a hood-like lid, and they are green with a little yellow mottling about the mouth. The flowers are large and pale primrose-coloured.

In several of the species we have considerable variation in the size and markings of the pitchers, but they all bear the stamp of their respective types, the descriptions of which about cover the characters of the varieties. We come now to the hybrid sorts. The last species introduced was S. psittacina, which Messrs. Veitch distributed in 1866, and from that time till 1874 no additions to the genus were made. In 1866 it was stated that seedling Sarracenias were unknown in this country. It remained for the late Dr. Moore, of Glasnevin, to not only succeed in raising plants from seeds, but also to obtain the first hybrid Sarracenia, which he exhibited in 1874, and which was named S. Mooreana. The parents of this beautiful plant were S. Drummondi and S. flava, and the characters of the two are blended in the offspring in the most perfect manner. The pitchers are large and richly veined, and the flowers are about 3 inches across, their colour being crimson, pink, and yellow. A flower and portion of the pitcher of this are shown in the plate.

S. POPEI.—This was obtained at Glasnevin through crossing S. flava with S. rubra. It is most remarkable because of its flowers, which are 4 inches across, and coloured rich velvety crimson, with yellow margins, and pink inside the petals. Mr. Pope, after whom this was named, is a foreman at Glasnevin, and has had the Sarracenias under his care for many years. A flower and pitcher of this hybrid are shown in the plate.

S. STEVENSI was obtained from S. purpurea crossed with S. flava, and originated at Trentham, under the care of Mr. Stevens. It is one of the finest of all Side-saddle flowers, growing into very large specimens, and holding its pitchers perfect much longer than any other kind. The pitchers are nearly 2 feet long, erect, broad, with a prominent wing, a large, almost round, lid, and they are coloured green with a reticulating nervation of brownish red. The flowers in this are also exceptional, being as much as 6 inches across, the sepals green with brown edges, the petals crimson outside, cream-coloured within, and the style, which is 3 inches across, bright green.

S. WILLIAMSI is an imported plant, and is supposed to have sprung from S. purpurea and S. flava in a wild state. The pitchers are shorter than in S. Stevensi, but similar to it in shape; whilst the flowers are 5 inches across and coloured reddish brown on the sepals, rosy lilac on the long petals, the large disc of the style being green. The contrast between these colours is peculiarly attractive.

S. PATERSONI was raised by Dr. Paterson, of Bridge of Allan, and is a cross between S. purpurea and S. flava. Except in the rich deep crimson colour of the upper part of the pitchers, there is little difference between this and S. Stevensi. It obtained a certificate from the Royal Horticultural Society at South Kensington about a year ago.

S. CHELSONI.—The parents of this were S. purpurea and S. rubra, and it was raised by the Messrs. Veitch in 1877. The pitchers are about 1 foot long, broad, as in S. purpurea, almost erect, and coloured a rich claret purple. The flowers are 4 inches across and purplish brown in colour. It is a handsome kind, and may be described as an elongated and improved S. purpurea.

S. MELANORHODA, also raised by Messrs. Veitch, was obtained from S. purpurea crossed with the fine hybrid Stevensi. In habit it is like S. purpurea, the pitchers being 6 inches long with a deep wing; colour rich blood-red.

S. FORMOSA, a hybrid from S. psittacina crossed with S. variolaris, has pitchers 6 inches high and coloured green, with reddish spots and veins. The pitcher is covered by the lid, as in S. psittacina, which it also approaches in the habit of the pitchers being almost horizontal.

S. COURTI was raised by Mr. Court, of Messrs. Veitch's establishment, and is a cross between S. purpurea and S. psittacina. It has decumbent pitchers, about 8 inches long, and coloured a rich deep crimson, and their form is intermediate between that of the two parents.

S. Swaniana, from S. purpurea and S. variolaris; S. Wrigleyana, from S. psittacina and S. Drummondi; S. Tolliana and S. Wilsoniana, from S. purpurea and S. flava; S. Mitchelliana, from S. Drummondi and S. purpurea; S. excellens, from S. Drummondi and S. variolaris; S. Maddisoniana, of the same parentage as S. formosa. These are hybrids, with characters partaking more or less of both parents, and which are all handsome in pitcher.

For descriptions of these, and also of several kinds not so well known, the reader may refer to THE GARDEN (Vol. XXVIII., p. 218). For cultural details for Sarracenias, see also THE GARDEN (Vol. XXIII., p. 341). B.

WORK DONE IN WEEK ENDING OCT. 12.

OCTOBER 6 AND 7.

STORMS of wind and rain on both these dates gave us the opportunity for which we had waited, namely, of arranging in something like neat order in the fruit room all Apples and Pears. We have plenty of space to lay them in single layers only; thus the work of examination to remove bad fruit is facilitated, and, what is better still, as they are laid so thinly, but very few decay prematurely, except from over-ripeness. The work of arrangement completed, all are neatly labelled, the floors cleaned, and the room ventilated freely in fine weather; but when the outside atmosphere is charged with moisture the ventilators are kept closely shut. Other work has been sponging plants, Dracænas, Palms, Crotons, and Gardenias, and washing the pots of Chrysanthemums, Bouvardias, Pelargoniums, Azaleas, Heaths, and Callas that have been put in houses and pits for the winter. Cut all the shoots of Peach trees in second house away from the trellis, and pruned the trees; the leaves are not quite all off, but this is of no consequence, as their work is completed, both wood and buds being thoroughly ripened. Still, for all that, we do not care to pull off the leaves much as we wish to see an end of them, that Chrysanthemums, &c., may have more light, which now that this moist weather has begun they need to

keep the opening buds free from injury by damp; necessarily, we have to over-crowd our houses to get in all the plants; hence the injunction to take special care to keep both foliage and buds as free of moisture as possible, and to water sparingly at the root whenever the outside atmosphere is charged with moisture. Stored away and sorted Onions into sizes, and arranged them on shelves in the order in which each sort is to be used. Gave potting, tool, and work sheds in general the thorough clear out they had long wanted.

October 8 and 9.

Very fine, and warm as midsummer—74° in the shade, and having, in this district, escaped the frost that occurred in some parts of the kingdom three weeks ago, the flower garden is still in the height of perfection. The rain of the past two days has made Pelargoniums look a little "weedy," but to most other flowers it has imparted freshness and to the plants new vigour. We have had a lot to do in the way of picking over of beds and sweeping up leaves, clipping grass verges and rolling walks, consequent on the storms of wind and rain of the last two days—a branch of work that at this season we sometimes feel disposed to shirk, but the resolution to do so does not last long—about a couple of days at most—and the "order of the broom" is again dispensed right and left, and wishes innumerable expressed at same time that the leaves would come down and be done with, but that is wrong, for what would then become of the beautiful autumnal tints of the trees that abound at the present time; they are more than magnificent, and the sight and enjoyment of them are worth far more than the little labour they cause in the way of sweeping up. Preparing stations for planting fruit trees, Peaches, Apricots, Plums, and Morello Cherries. Some old plants of each are to be replaced with young trees. Our soil being light, with an under stratum of gravel and sand, deep trenching is indispensable, and the gravel is taken out and the stiffest loam procurable substituted, and mixed with the light soil of the garden, together with a little chalk and a small percentage of crushed bones; this mixture is well pounded into the excavation made, and is then ready for the trees; obviously by reason of the gravelly nature of the ground, concrete bottoms or drainage is quite unnecessary; but in soils of a tenacious nature, drainage should always be the first consideration when fruit-tree planting is projected. Our rule is to plant as early in the autumn as possible, which virtually, if put in competition with spring planting, saves a year, as by the exercise of due care, trees that are transplanted now will bear well next year, but spring-planted trees cannot be warranted to bear till the following year, nor even to make the growth that autumn-planted trees make, apart from the question of fruiting, which I look upon as into the bargain. Therefore, plant as early as circumstances will admit, prepare the ground well, plant carefully, and not deeper than the trees have been in the nursery bed, and mulch thickly with good manure as soon as ever the plants are in. Got under cover the last of the Chrysanthemums; abundance of air will be given them in all weathers, short of actual frost, and any appearance of mildew checked by dustings of sulphur as soon as fungus is observed. Potted a few Deutzias, Rhododendrons, and Spiræas for forcing, and pruned a few Roses that have been grown in pots all the summer with the intention of forcing. The Tea section is the favourite class, and, what is a consideration, they always force better than any others, as they seem to revel in a moist heat. Shortened back all the laterals on Vines in the latest house, the better to allow the air to circulate freely about the fruit; artificial heat is always turned on at night, and, combined with ventilation, the fruit keeps perfectly; in fact, Gros Colmar and Lady Downes varieties are, as yet, scarcely fully ripe, so that, apart from the expulsion of moisture, heat is requisite for these kinds.

October 11 and 12.

We had another heavy storm of rain on the evening of the 10th, but finer and much colder weather has prevailed these two days, and precautionary steps have been taken to prevent damage of plants, &c., by frost. Except a few flower-garden plants, all that we care about now are in safe quarters, and the former we shall cover up with mats and canvas at night, for they are still in such good form that we wish to keep them out a little longer. We have lifted a very few of the rarer succulents, such as Echeveria Peacocki, E. farinosa, E. metallica, and the variegated variety of Sempervivum arboreum. Prepared cold pits for Strawberry plants; the earliest batch will be put under glass, but the great bulk we winter in pits formed with boards. The floor consists of a good foundation of cinder ashes, and the pots are plunged in the same, and in severe weather they are covered with straw, thatched hurdles, felting, or leaves—in fact, with anything to keep frost from the pots. Wet we do not mind, as the drainage is ample. Of course, if glass-covered pits were available, we should prefer to winter the plants in them rather than in the makeshift way necessity compels us to do. The latest potted plants still keep on growing, and runners and side crowns are kept persistently pinched off. The early plants being in small pots they quickly get full of roots; growth has stopped some time, and by way of giving them a short rest before putting them into forcing quarters—about the middle of next month—the supply of water will be lessened to the point of giving only just so much as shall ensure that no part of the ball shall get sufficiently dry as to make the leaves feel flabby. Perhaps I shall better express my meaning if I say that the soil should never be allowed to get anything like dust-dry, which condition I have from trials proved to be a more frequent cause of non-setting than any other of the many reasons that are advanced as the cause of failure in that direction. Took lights off late Peach house and gave the trees a thorough wash with a hose; the best part of the border is inside the house, and being able by removal of lights to, as it were, turn the border outside, is an immense gain when the labour of applying the quantity of water that such borders will absorb is taken into account. Soon as the border has got well saturated with rain, the lights will be replaced, and top-dressing of the border done as soon as the trees have had their annual dressing or painting over with a strong solution of soft soap and sulphur. Got all recently struck tender plants in stock-pots for next spring's supply of cuttings on to shelves in Pine pits; stagnation cripples them; they want plenty of heat to keep them gently on the move all winter long. I refer more particularly to Alternantheras, Coleus, Iresine, and Heliotropes; all others, or nearly all, will winter perfectly well in a greenhouse temperature, and many in a cooler temperature than that, so long as they are kept rather dry and free from cold currents of air, as these are the most prevalent cause of mildew. Weeded and pinched off runners from Violets in frames, also part of the flowers, in order to get increased vigour of plants. There was such a mass of flowers on very second-rate plants, that this seemed our only way of preventing premature exhaustion. Having a surplus lot of plants, we have planted them on a narrow border at the foot of a south wall, and, no doubt, if we are favoured with an open winter we shall get a good supply of flowers—in any case, they may be expected to flower well in the spring. Gathered all Pears, except the very latest kinds, such as Easter Beurré, Beurré Rance, Josephine de Malines, Ne Plus Meuris, and Directeur Alphand; these will be left till they really begin to drop from the trees; then the quality may be good. If gathered now they would only be fit for culinary use. Planted out more Lettuce on south borders, and pricked out the last of Cabbage and Cauliflowers to stand the winter. Earthing up Celery, preparing borders for fruit-tree planting by deep trenching. Pulled up Beetroots; they are stacked closely together in sand in a cool shed that is dry and impervious to frost. Salsafy and Scorzonera is conveniently stored in the same way. Carrots decay when thus stacked, and these we winter without any material between them. A month hence will be quite early enough to get these up. Parsnips we leave in the ground and dig up as required for use. The time to lift the lot is as soon as renewed growth starts in February. If left after that the roots quickly become tough and stringy, and therefore useless. Hants.

FRUITS UNDER GLASS.

The Orchard House.

In many places this structure will have been turned into a Chrysanthemum house, and the legitimate occupants will be standing out in the open air. The weather hitherto has been exceptionally good for ripening up the past season's growth, and as all forced trees have by this time recovered from the potting, the best thing will be their immediate disposal for the winter. In wet seasons we sometimes allow them to stand above ground for a few weeks to favour the hardening and ripening of the roots, but this first part of October has been so hot and dry, many will have found it necessary to plunge the pots to the rims to economise watering. Plums and Cherries, now bare of foliage, must be kept as cool as possible, and while guarding against dryness by burying the rims of the pots with old tan or decayed manure, no more water than is absolutely necessary must be given until the weather changes. Peaches, Nectarines, and choice Pears, on the other hand, will be benefited by the high temperature, as we rarely find them breaking into growth or their flower-buds getting too forward when they should be going to rest. If any late trees remain in their fruiting pots and a shift or shake out is thought desirable, there is no time like the present, as the sooner the roots are set free from old inert soil the sooner will they make a fresh start in the new. The foliage, it is true, may have fallen, but the trees will retain sufficient vitality to ensure the formation of fresh rootlets, and once started they will make steady progress for some weeks to come. Upon the same principle, trees of all kinds, intended for the orchard house, may now be lifted from the open quarters, potted firmly in good calcareous compost, and made safe for the winter. If of home-growth, and root-pruned last season, they will lift with wigs of roots which will preclude the possibility of anything beyond a wholesome check; and having been closely pinched throughout the summer many of them will be well furnished with flower-buds. It is gratifying to find in many places large trees in tubs and boxes which have braved many seasons and still going on in a satisfactory way. Many years ago it was considered good practice to pack stone fruit trees as close as they would stand under glass, and cut off the supply of water. Bud-dropping and premature old age naturally followed, and the system was voted a mistake. This state of affairs no longer exists, as the veriest tyro now knows his trees must be potted, tubbed, or renovated early in the autumn, and the soil in which they are grown kept moist throughout the winter. Moreover, he finds that turning into the open air all portable trees not only prolongs their lives, but also increases their health and vigour, and enables him to turn the orchard house into a gay greenhouse until after the turn of the year. Some trees there are too large for removal and too old to require pruning, as they make very short growths, and those if anything too thickly furnished with flower-buds, as every blossom sets. The proper course with these is the removal of a good quantity of the old compost round the insides of the tubs—if a foot or more in depth and 3 inches or 4 inches in width so much the better—and filling in with rather heavy loam enriched with bone-dust. The balls should be thoroughly moist when this is taken out, but the new compost should be dry, as firm ramming is one of the great secrets of success. The best time to perform this work is when the foliage begins to change colour, when watering to make the new as moist as the old will put the trees safe for the winter. When all the leaves have fallen and the

buds are firm and plump the judicious removal of some of the crowded spurs will insure a vigorous bloom and reduce the labour of thinning in the spring. The finest Noblesse Peaches, Stanwick Elruge, and Napier Nectarines which I gather are taken from trees in tubs which they have occupied for twelve years. They make very short wood, but this and the spurs require thinning out every autumn. They are trained in the ordinary way on a trellis in a span-roofed house and face the east. Stiff loam and bone-dust is their food, and they are well mulched with rotten manure as soon as the fruit is thinned.

Fruit room.—The gathering and storing of Apples and Pears is still in full force, and must be closely followed up until all the fruit is safe on the shelves. Although the season was late and the crops made but little progress until after midsummer, the fine rains following and preceding two hot periods brought about a most agreeable change, and fruit of all kinds on trained and untrained trees has finished up well. Indeed, many varieties of Pears and Apples are larger, brighter, and cleaner than we have seen them for several years past. The only drawback in many places is want of colour, but where they have been allowed to hang until quite ready for plucking, many varieties, notably of Apples, will yet finish off well in the fruit room. Crops, unfortunately, being partial, frequent advice to lay the fruit as thinly as space will allow may this year be carried out to the letter, but where the owner has the good fortune to hold a full stock, Pears of the best quality will pay for storing in rooms somewhat warmer than would be good for Apples. The fruit room, it is needless to say, should be kept scrupulously clean at all times, dry, cool, and airy, until the sweating process is over, when the ventilators may be partially closed to maintain an even temperature. Just now it ranges unusually high, 65° to 70° in the shade, and the ground being dry and warm, it is more favourable to the ripening of the trees than the keeping of the fruit, but this is a godsend of which no one will complain, as fruit-buds are abundant and promise well for another season. Having disposed of the best and longest keeping fruit on latticed shelves, through which the dry, cool air of the room can circulate, much space can be gained by folding extra fine specimens in tissue paper and placing them in air-tight earthenware pots, boxes, or drawers. The fruit selected for this mode of storage should be free from spot or blemish, quite dry and nicely coated with the varnish which sweating produces, before it is put away for the winter. Apples and Pears so managed will keep sound, crisp, and fresh much longer than others of their kind laid on open shelves, but the greatest care must be observed in their selection, otherwise the principle that one scabbed sheep soon affects the whole flock will find its parallel in the fruit room.

The Hardy Fruit Garden.

In recent papers I have pointed out the importance of carrying out all root and border work in the forcing houses before the leaves fall. This week we must look round and see what can be done for our hardy fruit trees. Wall trees of all kinds, with the exception of Apricots, in this district have acquitted themselves better than the tardy spring at one time led us to anticipate, and, as I have just observed, they look promising for another season. But this apparent security must not become a stumbling-block, otherwise trees just suspiciously strong this autumn, if left alone, may become unmanageable before we reach another. This is the more likely to happen, as the full crops which many trees have borne and the probable dryness of the subsoil have prevented them from forcing up a persistent growth of lateral; but the roots are there, and a wet winter may give them food for mischief next season. To counteract this, the regular system of root-lifting, so often advocated in The Garden, should now be in full force. Apricots and Peaches, the latter as the fruit is cleared, come first; then we have Cherries, Plums, and, last of all, Pears on walls. Pyramids and bushes may also be taken in hand, but wall trees, naturally the ripest, should always take precedence. If nothing more is needed, old mulching and inferior material should be removed from the wall paths, and if, as I suspect, any of the borders are too dry, the subsoil roots should be well moistened before they are covered up with new compost. Years ago it was the practice to make deep undrained borders as dry as possible by digging trenches round the trees and leaving them open often for weeks together in the autumn, but this is all changed, and the greatest danger the modern border-maker has to contend with is a dry stratum overlying a foot of drainage. Water in many places is plentiful enough; in others, thousands of gallons of the best which now runs away might be stored at trifling expense, as tanks open to the atmosphere are better than close ones; indeed, where the altitude favours natural gravitation there is nothing better than a well-puddled shallow pond for receiving the water intended for fruit tree borders. To the new beginner who has never reduced root-pruning to a system the labour appears formidable, but such is not the case—at least, where properly managed borders are attended to every year. To some new compost is an unsurmountable difficulty, but where there's a will there's a way, and poor indeed must be the locality which will not yield, when occasion requires, a few loads of fresh loam, burnt clay, and road scrapings.

Planting generally succeeds, or it may be carried on conjointly with root-pruning during the month of October and the early part of November. December and January are the worst months, as the roots, more or less injured, lie so long dormant in the cold soil and not unfrequently perish before spring. On very cold, tenacious soils spring-planting may perhaps be preferable to late autumn planting, but on these October is the month, as new roots are emitted at once and danger from spring drought is avoided. All these points should be well considered, and when a certain course has been decided upon despatch should be the order of the day. The ground at the present time is not only dry and workable, but it is unusually warm, and for these reasons, and for others to which I need not here allude, all who can should leave this root and border work in a finished state behind them.

Varieties.—Although all the best nurserymen have reduced their lists to an extent which renders the selection of inferior sorts of Apples and Pears an impossibility, and short lists of varieties which do well in different parts of the United Kingdom frequently find a place in the pages of The Garden, amateurs more than ever are constantly asking for information. This is an important step in the right direction, as it shows that growers both for private use and for profit are alive to the fact that they must put their shoulders to the wheel or be beaten out of the field by their colonial kinsmen. A few writers have thrown cold water on Apple and Pear growing, and the masses have been cajoled into the belief that American Apples are superior to the best we can grow in England; but I contend that our best samples are preferable, and the modern system of properly preparing the ground and planting Pears on the Quince and Apples on the Paradise stocks will enable the British fruit grower to keep his head above water. The great mistake which the majority make is the selection of too many varieties. All may be good in their way and in certain districts, but the autumn and early winter Pears and Apples are too numerous; moreover, they vary to an extent in different soils and localities which renders the giving a list which will suit all buyers a simple impossibility. Pears vary, perhaps, more than Apples, as we not unfrequently find early varieties worthless in the south and excellent in the north; while some late ones, as a rule, are good in the south and second-rate, or only fit for cooking, in the north. Early Apples, on the other hand, are improved by warmth, and for this reason varieties which succeed fairly well in the midlands or northern counties generally come extra fine on good soils in the south. Private growers in advanced fruit districts experience little, if any, difficulty in making selections, as they have only to look round and make themselves well acquainted with sorts which do well with their neighbours before they plant. This point settled, they should then purchase a few of the best in duplicate in preference to endless variety, as it is really astonishing how well a few suitable kinds will carry a family through the season. Commencing with first earlies, they might plant Irish Peach, Worcester Pearmain, and Kerry Pippin, Lord Suffield, Keswick Codlin, and Echlinville. For succession, Adams' and Golden Winter Pearmain, Cox's Orange Pippin, Golden Reinette, Ribston Pippin, Sykehouse Russet, Claygate Pearmain, and Court of Wick, Stirling Castle, Cellini, New Hawthornden, Golden Noble, Blenheim Orange and Flanders Pippin. For winter and spring use, Ashmead's Kernel, Court Pendu Plat, Golden Harvey, Mannington's Pearmain, Ord's Apple, and Sturmer Pippin; Alfriston, Brabant Bellefleur, Brownlee's Russet, Dumelow's Seedling, French Crab, Hanwell Souring, Northern Greening, Royal Pearmain, and Striped Beaufin. Of Pears, a still smaller number would suffice, as gathering at different times and storing in warm or cool rooms prolongs the season of different varieties, and enables the grower to dispense with all evanescent sorts which are hardly ripe one day and sleepy the next. Of sorts which come in before the end of October the name is legion. Many of them are remarkably fine, but they do not keep; consequently very few trees should be planted. The old Jargonelle is a household name, then we have Beurré de l'Assomption, Souvenir du Congrès, Williams' Bon Chrétien, Beurré d'Amanlis, Madame Treyve, and Fondante d'Automne. A more useful list includes Beurré Superfin, Beurré Hardy, Emile d'Heyst, Louise Bonne of Jersey, Marie Louise, Red Doyenné, Doyenné du Comice, Pitmaston Duchess, and Thompson's. For use from November onwards the following come in: Huyshe's Princess of Wales, Hacon's Incomparable, Winter Nelis, Glou Morceau, Josephine de Malines, Knight's Monarch, Jean de Witte, Zephirin Gregoire, and Van de Weyer Bates.

A Score of Good Late Apples.

Growers who are already well supplied, or possibly overdone, with early and mid-season Apples will not go far wrong in planting or grafting the following: Ashmead's Kernel, Baddow Pippin, Brownlee's Russet, Coe's Golden Drop, Cox's Redleaf Russet, Duke of Devonshire, Golden Harvey, Hambledon Deux Ans, Lord Burghley, Lemon Pippin, Lodgemore Nonpareil, Old Nonpareil, Northern Spy, Ord's Apple, Reinette Van Mons, Ross Nonpareil, Sturmer Pippin, Striped Beaufin, Winter Queening, Court Pendu Plat. If kept in a dark, cool, moderately dry fruit room these Apples will come into use from Christmas onwards, and give a supply up to the end of May. If I lived in an intermediate or cool district and wished to grow these varieties well I would erect rough wooden walls 6 feet or 8 feet high, and, worked on the Paradise stock, train them as oblique cordons. How seldom we meet with the Old Nonpareil and Margil in really good condition, and yet they are two of the finest flavoured dessert Apples grown. When worked on the Paradise stock they are marvels of fertility, and, being moderate growers, they need not be planted more than 18 inches apart. Add to these Cox's and Ribston Pippin, Golden Harvey, and Ashmead's Kernel, give them a south or west aspect, let the borders be narrow, properly drained, and well mulched, and the grower will produce six varieties fit to place before a king.

W. Coleman.

Eastnor Castle, Ledbury.

Wasps amongst Ivy.—If "D. T. F." (p. 352) will examine the wasps which congregate on the Ivy flowers, he will, I think, find them to consist almost entirely of males. There may be one or two workers and queens with them, but the bulk

will be found to be drones. Ivy flowers are a favourite resort of insects at this time of year.—A. R., *Windermere.*

Trees and Shrubs.

THUJOPSIS DOLABRATA A HEDGE TREE.

In his concluding remarks on this tree Mr. Webster says (p. 322) "If Mr. Coleman will tell where the hedges of Thujopsis dolabrata, to which he recently referred, are growing, he will answer a query which has been asked by more than one correspondent." If I wished to gain time or parry the question, I might do so by asking Mr. Webster in return where he saw my name appended to the statement that I had seen it growing as a hedge tree. But I will not do Mr. Webster, myself, or our guild an injustice by admitting the assumption that he for one moment thought I was "throwing the hatchet" or "drawing the long bow" in my recent defence of the hatchet-leaved Thujopsis. In my paper (p. 169), to which I beg to refer your readers, I stated that Thujopsis dolabrata was "alike useful in the pinetum, the flower garden, as a screen or hedge tree, and last, but not least, as a lawn specimen in the villa garden." My object, as all planters who have seen the Californian giants growing in small gardens will readily understand, was to draw the attention of villa owners to its adaptability to their requirements; but how this sentence can be converted into a statement that I had seen hedges of it I will leave others to decide. Many years ago I surprised a great nurseryman by asking him to quote two or three Conifers at prices that would enable me to use them as hedge trees. I had never seen them used in this way, but my experience justified the opinion that they would answer my purpose. I was not disappointed; and now miles upon miles of these hedges are in existence. On the same grounds, twenty years' experience with Thujopsis might have justified Mr. Webster's rendering of my remarks, but in this case it fortunately happens that I am supported by facts, and lest any of your readers should feel disposed to read between the lines of his paragraph, I beg to say I can look upon a hatchet-leaved hedge every day of my life. That hedge is within five minutes' walk of my house, and readers interested in Conifer hedges, Mr. Webster included, may reckon on a hearty welcome when opportunity favours their calling to see it. The "query" put forth by so many has never caught my eye, otherwise I should have answered it, as it has been, and always will be, my practice to give information in a plain, unvarnished way, and I have endeavoured to avoid useless discussion by confining myself to facts fully authenticated by my own experience.

William Coleman.

Eastnor Castle, Ledbury.

Acer Leopoldi is one of those variegated trees of which we should recommend the universal employment were it more vigorous. It is especially distinguished in early spring, when the leaves first appear, by a coppery-yellow tinge of incomparable richness and effect.

A good Weeping Poplar.—Poplars of late years are receiving attention, and already our list of weeping varieties numbers four or five distinct kinds. According to our idea of beauty, however, there is but one really first-class tree, and that one is among the finest of all the drooping plants; we allude to the P. grandidentata pendula.

Purple-leaved Barberry.—This is a variety of the common Barberry (Berberis vulgaris) which, in spring, has leaves of a vinous red colour, afterwards becoming brown by degrees, until, in autumn, they change to a purplish green. When the plant reaches a certain age it undergoes a change. The branches droop and become warped, and the leaves grow small and dull-coloured. Fortunately, it is easy to preserve this handsome shrub in a condition of perpetual youth, beauty, and freshness by cutting it back close to the ground every second year. The finest specimen I have seen of it is in the richly-stocked arboretum at Westdean Park, near Chichester, where, at the present time, the purple-leaved Barberry and the common variety are now in great beauty.—W. G.

The Weeping Sophora (S. japonica pendula).—There is no weeping tree with which I am acquainted that can equal this in beauty, but unfortunately it is of slow growth. Ten years ago I planted a tree here of this variety in a soil in which all kinds of Conifers and deciduous trees grow in the most luxuriant manner, but the Sophora makes but very indifferent growth. It would, therefore, be interesting to hear if there are any trees in the country that are making satisfactory progress; possibly our soil, which rests on red sandstone, is not quite suitable for the requirements of this tree, but all other Leguminous trees grow here freely.—J. C.

The Red Maple (Acer rubrum).—Why is not this beautiful deciduous tree more extensively planted? As an ornamental tree at all seasons few equal this in beauty; in spring its flowers render it especially striking; in summer its compact growth and fine foliage make it a very effective shade tree; whilst in autumn the brilliant golden-yellow of its decaying leaves attracts the attention of even the most casual observer. It is not such a rapid grower as the Silver-leaved Maple (Acer dasycarpum), but is neater in habit and much more handsome during early spring, its blossoms being deeper in colour and endure for a much longer time.—G.

Abies Alcoquiana.—This is a Spruce which for ornamental purposes is not surpassed by any of its congeners. Its habit of growth is free, and its colour a silvery glaucous hue, which in the case of the young shoots is very conspicuous; the plant, too, is thoroughly hardy, and not fastidious as to soil and situation. Where planted in company with some of the darker-leaved species such, for instance, as the Norway Spruce (Abies excelsa), the contrast is very striking. This Fir is a native of the mountainous parts of Japan, whence it was first introduced by the late Mr. John Gould Veitch.—A.

The Sea Buckthorn (Hippophaë rhamnoides).—If this will produce its bright orange-coloured berries, resembling somewhat those of a miniature Solanum, as freely in this country as it does in Switzerland, where I found it in great abundance, both in the Rhone valley and also in the Prättiqua, I should say it would be a good addition to our shrubberies. Small seedlings of it which I received by post from the Tyrol have grown with great rapidity, but as the tree is diœcious, as is the Aucuba, it remains yet to be proved whether I shall have any berries on those sent to me or not.—J. T. P.

The common Barberry.—This forms in suitable positions a striking object at this season, when heavily laden with bright scarlet fruit. It should occupy a slightly elevated spot, exposed on all sides, to permit the plant to assume its true character. It is one of the handsomest of our native shrubs, and deserves more attention than it gets at the hands of the modern planter. It has a chaste, elegant appearance when in flower in spring and even when leafless in winter plants of it are not unornamental. There are several varieties, though the only one with which I am acquainted that is at all common, besides the normal type, is the purple-leaved variety. The fruit of the common Barberry is sometimes used to make a preserve.—E. H.

The Red Horse Chestnut (Æsculus rubicunda).—This is one of the most handsome flowering trees that enliven our parks and gardens in spring. When in full bloom the effect of so many brightly coloured spikes of flowers is really grand, and forms a fine contrast to the lighter blossoms of the common kind. It is too well known to need any description, being commonly spoken of as the red-flowered Horse Chestnut to distinguish it from the common kind (Æ. Hippocastanum), from which it differs, besides the colour of the flowers, in being a much smaller tree and of a greater depth of green, while it is also somewhat later in opening its blossoms. As a lawn tree of a medium size it is unsurpassed, being admirably adapted for single specimens, from the circumstance that, so treated, it forms a dense tree of a beautiful regular outline, the ample foliage of which is very handsome, even when not in flower. As the red-flowered Horse Chestnut is generally propagated by grafting on the common kind, it comes into flower much sooner than it otherwise would if raised from seed. Individual plants vary a good deal in colour, no doubt owing to the tree having been propagated from seedlings, but it is the deep rich-coloured form that makes the finest display. There appears to be some doubt as to the origin of this tree. It is also known under the name of Æ. carnea. Of the common Horse Chestnut (Æ. Hippocastanum) there are several varieties, but the variegated forms, however beautiful they may look when in the propagator's hands or in the form of small plants under glass, are seldom satisfactory when planted out of doors, the sun and wind generally turning the variegated portions to a brownish hue. Besides the variegated there is also a cut-leaved form, while the double-flowered came with a high recommendation from America, which up to the present hardly seems to have been borne out in England, but probably as the plants become stronger and better established finer flowers will be produced.—A.

HARDINESS OF THE REDWOOD TREE.

Some say that the Californian Redwood, Sequoia (Taxodium) sempervirens, has not done well in this country, except in localities in which shelter from cutting winds is afforded. This is true, no doubt, to a certain extent, especially in the northern counties of England and Scotland, but it can hardly be applied to the southern and western counties of England; neither can it apply to Ireland, for there this tree grows most luxuriantly; the humid climate there and the deep soil, full of vegetable matter, are just what it delights in, and I think it is the place of all others to plant it exclusively with a view to produce timber, and where colossal butts of it may be anticipated in the future. My opinion of this tree is that it will prove to be the fastest producer of timber amongst all the Conifers, the Sequoia gigantea not excepted. The latter will probably grow to a greater height, as it is not so liable to lose its leading shoots by rough winds as the S. sempervirens is; but it is not likely to make so bulky a butt of timber, as its stem tapers more rapidly. I base my opinion on observation of several specimens growing in the south of England. I have seen several specimens of Redwood in perfect health and growing vigorously, and in the poor, green-sand soils in one plantation they are keeping pace with the Larch of the same age and time of planting. There is no doubt that this tree succeeds best and grows most rapidly in deep, moist soils, and when protected from rough winds, like all other fast-growing Conifers; but, at the same time, I maintain that in the south and west of England and Ireland it will thrive in almost any situation; on the other hand, I have seen it in the North Riding of Yorkshire present a miserable appearance, so battered and disfigured by storms, that one could scarcely recognise it, so greatly does difference of locality affect trees. The heart-wood of this Sequoia will, I think, prove valuable for furniture-making and for other constructive industries, where a richly-coloured, fine-grained wood is essential; it is also susceptible of high polish. I have in my possession a piece of the stem of this tree, about 6 inches in diameter; the heart-wood is of a reddish colour, close and fine-grained, while the sapwood is white, soft, and probably not durable, and of little value. G.

Ulmus Berardi.—This is a very remarkable and distinct variety of the common Elm (U. campestris), raised some years since by MM. Simon-Louis, of Metz. It forms a very bushy shrub with very slender branchlets, and in its foliage exactly resembles Comptonia asplenifolia. The leaves are of a very dark green, almost black, very small, and irregularly crenated, like those of Planera crenata, and usually stand erect on the branches, which they almost entirely hide from view. This variety is at present

not much known, but it cannot be too highly recommended as a singular, effective, and ornamental shrub.—G.

Pinus koraiensis.—This Japanese Pine appears to be the same as the P. parviflora, although the figures of the cones, published by Siebold, look very distinct, but the one is figured open and the other shut, which may be the explanation of this. I have lately seen P. koraiensis in cone, and the cone which that tree bears is identical with Siebold's figure of P. parviflora. Its leaf has a beautiful white silvery side, which gives it almost a variegated appearance, and as it seems hardy it will come in well with any of the dark Firs, such as the European Cembra or austriaca, or the Scotch Fir.—E.

A NEW HYBRID CRINUM.

(CRINUM POWELLI.)

To the list of hardy bulbous plants has lately been added this beautiful hybrid, raised by Mr. Powell, of Southborough, Tunbridge Wells, between the well-known hardy Crinum capense and C. Mooreanum. The hybrid is exactly intermediate between the two parents, the flowers being as large as those of Mooreanum, of an exquisite rosy pink colour and produced in clustered spikes, as is C. capense; it is, moreover, quite as hardy as the latter species. The following note respecting its origin has been sent to us by Mr. Powell:—

"This hybrid Crinum was raised from seed in Suffolk ten years ago, and having within the past two or three years become widely distributed in many districts both in England and Ireland, its complete hardiness may be said to have been thoroughly tested, and those who have grown it find it to increase in vigour and size yearly. All it wants is to be planted in a suitable spot, and if not meddled with, it will then take care of itself. It seems to grow twice as fast as C. Mooreanum in Kent, though Mooreanum, as seen out of doors at Glasnevin, is most satisfactory, both as regards foliage and bloom. I have tried Powelli in a pot, but could not get it to thrive, though in the same house Mooreanum succeeded well. The leaves of Powelli have great substance, and taper to a point; whereas those of Mooreanum are uniform in width and soft, and out of doors easily broken. They are not rigid and erect, like those of Powelli which they somewhat resemble in colour, being quite distinct from the glaucous green and prostrate leaves of C. capense. The flowers of Powelli vary in colour from pure white to deep rose, but bulbs of the white kind are very scarce as yet, and it does not develop many offsets. Strange to say, the white-flowered plants were obtained from C. capense roseum; while those from C. c. album (which was also used as a seed parent) had the deepest shades of rosy pink. The flower-stems of Powelli reach fully 5 feet in height when the bulbs are well established; the latter must be planted deep, with plenty of manure beneath them, but not in contact with the bulbs. This variety has never shown any signs of producing seed, but it has not been fertilised with any pollen except its own."

CLIPPING BOX EDGINGS.

THAT there is a right and a wrong way of doing things is a truism which applies equally to the annual trimming of Box edgings as to any other gardening operation. The condition of the Box bordering in many places is, however, a proof that this fact is not universally recognised. One often sees it wearing through the summer an aspect the very reverse of verdant, and in most cases this dingy appearance is due to the right moment not having been taken for cutting it in. Many of your readers will have remarked that the fresh green look of Box edging often suddenly gives place to a rusty, blighted appearance, from which it rarely recovers till the advent of the early autumn rains puts fresh circulation into the foliage. This is almost always due to the action of spring frost upon the tender budding foliage, and which seems to be about as susceptible to injury from this cause as that of any outdoor plant.

There is a natural tendency to push forward work by clipping Box edging early in the spring; this causes an early growth, which is just in the condition to be nipped by a sharp late May frost. The safeguard is to defer the cutting until the end of April, which just enables it to tide over the critical period. The new garb is not then put on till summer is on its way and frost is gone from us. Then comes a free, unchecked, healthy growth, which renders Box-lined garden paths cheerful and pleasant to the eye through times of heat and drought. But the clipping must not be too long deferred, or evil will come in another way—the young growths come away so tardily when hot, dry weather suddenly comes after clipping, that the appearance of the Box is the reverse of good for a couple of months or more; indeed, it sometimes fails to recover its true character before autumn. In brief, clip so that growth is just well commenced as the danger of frost is over, but sufficiently early to allow of the old wood breaking again before a scorching sun can act upon it. In some gardens it is not considered necessary to clip Box more than once in the year, but in many places two annual trimmings are regarded as imperative. I consider the early part of September to be the best time for the second cutting, as the wounds have good time to heal before the winter. To the skilled hand the clipping of Box edgings is an easy matter, but the inexperienced amateur generally finds it difficult to keep them even at top and of uniform thickness. So far as I am aware, nothing but practice will enable the operator to succeed in the first-mentioned detail, but the garden-line will enable a novice to keep an edging perfectly true and straight. After the top is cut, stretch a line along the centre of it from end to end, and by keeping the shears at an equal distance from the line on both sides the edging will be kept uniformly thick throughout. J. C. B.

New hybrid Crinum (C. Powelli) in the open border. Engraved for THE GARDEN from a photograph.

FRUIT GARDEN.

PLANTING WALL TREES.

THE holes for the reception of wall trees should always be dug to their proper width, and about 9 inches deep of soil taken out; upon the soil inside the hole may be spread 3 inches of well rotted manure (unless the ground is highly fertile); this should be well mixed up with the earth at the bottom of the hole. The roots of the tree having been previously pruned and prepared, should be carefully spread out upon the soil, the budded or grafted part of the tree to face the border, and the bole to be about 6 inches from the wall, allowing the head to incline towards it. If the plants have been grown previously in pots, it will be necessary to alter them from the manner in which they have hitherto grown, and I have noticed that planters spread them out fan-shaped. I have known trees turned out of pots and planted without much re-arrangement of the roots to fail and disappoint the cultivator. No roots should be allowed to point towards the wall, for if allowed to travel in that direction, on reaching the wall they turn up, and by forming an angle against the wall are generally injured, particularly so in the case of stone fruit trees. One who has large experience in planting trees against walls writes as follows: "When the roots are properly spread out, let about 3 inches thick of the soil that has been thrown out of the hole (and previously broken fine) be gently put upon them; upon this lay 1 inch of well-rotted cow manure, and, lastly, 2 inches more of soil. When this is done, let all be gently pressed down by the foot, always beginning at the extremities of the roots, so that the ends of them may thereby be kept in their proper positions. Then let the soil be levelled and raised so high that there is a mound of earth about 3 inches higher than the border to allow for settling. Always have the edge of the mound a little higher than the other part of it, so that it will hold the water which will be supplied; then let the tree be fastened to the wall."

It is scarcely necessary to bear witness to the value of mulching newly-planted trees. This prevents the water when poured upon the soil from running away, and it therefore sinks just where it is wanted. It also prevents the water from washing away the soil, and protects the roots both from drought and frost, as well as the earth from cracking under the influence of the sun. After the mulching is applied let a good watering be given if the weather is dry, as this assists the earth to settle close about the roots, and it is a far better practice than that of shaking the tree at the time of planting, which is so generally done in order to induce the soil to settle properly among the roots. The bad effects of such a practice is, that in raising up the tree the roots are drawn forward, and the soil then being light about them immediately closes up those spaces from which the ends of the roots are drawn, and when the tree is pressed down again, the tender roots cannot force themselves forward into the space they previously occupied, and are thus bent backward; in this way they remain, and very frequently the ends of the fibres afterwards point straight down and grow in that manner. But when water is applied, the desired end is attained equally as well as by shaking, and then the damage described is avoided. The water over the roots at this time also affords a portion of nourishment to the tree, which is very essential, because it has been deprived of a part of its natural support by removal.

If immediately following the planting of the tree dry weather sets in, the soil must be kept in a moist state. It is a good plan occasionally to remove a little of the mulch, and if the earth

under is found to be dry, some more water should be applied. The quantity applied must be regulated according to the state of the soil, taking care that it is not kept too wet, for if the roots are kept in a very wet state by frequent waterings, instead of being an advantage to the trees it rots the tender fibres of the roots. Unless, therefore, the soil becomes dry, the trees do not require water at the roots after planting until they begin to push into growth, and if necessary to be applied it will soon show its effects by the production of corresponding shoots at the top. It can be easily discovered when a tree is in too wet a state or too dry a one about the roots. For when too wet, if there be foliage upon the tree, it will turn yellow and the bark will shrivel, and if too dry the foliage will drop, and if no remedy be applied will fall away and the bark also shrivel, as in the other case. It is, however, on the whole, better to keep a tree too dry rather than too wet, particularly before it has pushed roots. It is very rare, if the trees are planted in autumn, that they will require more than one watering at the roots, but much will depend upon the dry character or otherwise of the weather, and especially during the spring when the time for growth arrives. As the roots of the trees extend themselves in the border great care must be taken that they are not injured by digging. The border ought not to be dug deeply, and it is best if it can be lightly forked over, and only shallow-rooting plants should be grown upon it.

What I have stated to be applicable to wall trees will also apply to a great extent to other trees, but I have been led to direct attention to this subject from having seen a good deal of the evils resulting from imperfect planting in suburban villa gardens. From this cause many trees die outright, or if they do not die, they become cankered and diseased and are absolutely useless for fruiting purposes. I write for the information of amateur planters who prefer to select and plant their own trees. R. D.

Old Peach trees.—The number of years during which Peach trees will continue in robust health and carry good crops of fairly good fruit is greater than is generally imagined. I cannot say exactly how long our old Peach trees have been planted, but certainly over thirty years, and during all that time they could hardly have been cleaner or in better health than at present. Many of their stems are from 18 inches to 24 inches in circumference, and in some cases they are mere shells. Here (in West Surrey) our soil is sandy loam, changing to sand at about 30 inches from the surface, and their cultural requirements may be summed up in a few words, viz., good spring protection, cleanliness during growth, early thinning of the wood in autumn, a good winter mulching, and a firm alley so far as is consistent with cropping the border. I find that the old trees will not bear heavy cropping, consequently we thin the fruits rather severely. They would average perhaps, taking them all through, about one fruit to the square foot. We are not at present rich as regards varieties. Amongst Peaches we have Early Crawford, Royal George, Noblesse, Bellegarde, Barrington, and the two Admirables, and amongst Nectarines Elruge, Hunt's Tawny, and Violet Hative. Younger trees and newer varieties are just coming into bearing; a curious old variety, Poole's Late Yellow, is rather a favourite. It grows to a great size and is a very firm Peach, having something of the consistency of an Apricot. I may say in reply to Mr. Gilbert that Admirable sets very well with me, and perfects every year a crop of very large fruit.—E. Burrell.

SHORT NOTES.—FRUIT.

Diseased Pear leaves (*Pansy*).—The leaves from your Pear trees are infested with a fungus namedRæstelia cancellata, said to be derived from another fungus which grows on Savin bushes. Perhaps you will tell us whether diseased Savin grows in the neighbourhood of your Pears. There is no known remedy. The diseased material should if possible be gathered and destroyed.—W. G. S.

Peaches at Ditton Park.—I have long known that Peaches succeed exceptionally well at Ditton Park, but it is odd to me that they are grown without protection when in bloom. "A. D.'s" remarks on the subject (p. 338) would lead one to infer that their success is mainly due to non-protection. I may, however, say in defence of the protecting system that without it we would not have a Peach crop once in ten years; whereas, with it we invariably secure all that we require. I have tried both ways, and therefore speak from experience as regards this matter.—Cambrian.

PALE PEACHES.

Mr. Coleman (p. 320) does well to add the above to complete his previous list of Peaches, and I hasten to welcome his four, pale-skinned Peaches, and all he says about them as about the strongest arguments that have yet been advanced in support of my views, not "that colour is a defect," but that an absurdly exaggerated importance has been attributed to it in the case of fruits grown to be eaten. Of course, on the show table there are money and victory in colour. So wide, deep, and general is the prejudice in its favour among jurors, that the writer has known Hamburghs but little sweeter than Sloes take first prizes in preference to others that were the very essence of sweetness and vinousness. "The colour carried it, sir," being mostly given and accepted as sufficient explanation. To such excess is this colour mania carried, that some jurors boast they never taste well coloured fruit. I was recently linked with such a juror, and on insisting on the test of taste being applied, there was quite a hubbub; the secretary and committee had to be consulted, but I carried my point, and the mere colourist was beaten in every instance, for I insisted in carrying the taste test through Peaches, Melons, Pears, and Apples as well as Grapes on that occasion. But to Mr. Coleman's most valuable testimony, and what it proves; he begins with an assumption, which is quite correct, that I will endorse his high praises of the Malta and other pale Peaches. I do this more readily, as I have grown the Malta for many years. Mr. Coleman says it is one of the most luscious Peaches he ever tasted, and there is no better grower or judge of Peaches than Mr. Coleman. He also adds the fruit is large, flesh greenish yellow, tender, juicy, and very rich. I can add that the tree is a free fruiter. And yet Mr. Coleman says he has never seen fruit of it on the exhibition table. Why, oh why, this exclusion of the most luscious Peach that even Mr. Coleman ever tasted from the mere chance even of winning honours on the exhibition table? The only reason is to be found in its colour, or want of it rather, as proved by experience, and further verified by the following descriptive notes: "Skin greenish yellow in the shade, blotched with purple next the sun, occasionally suffused with pink, especially so when grown under glass." I have inserted the word "occasionally" in Mr. Coleman's description, and so this pale-faced beauty retires, in order that the brilliantly coloured Georges, Violette Hâtives, &c., may sweep off cups and money prizes, though the Malta is faultless in size and form, and is one of the most luscious Peaches ever tasted by Mr. Coleman, or anyone else. Can it be needful to quote a stronger case against the red-tape absurdity of awarding prizes or determining quality by colour chiefly, or only? Since writing my last letter I have seen and tasted Grapes in several large vineries, and have passed through some houses in which the colouring has been ripened or faded out of Hamburghs. In no instance could I discover that any amount of flavour had been lost through the fading of their black rind. Were it so, then would the quality of the fruit rest in the rind, and not in the luscious flesh which it merely protects, and, it may be, adorns with its coat of richly varied, many coloured beauty. We all admit that beauty is but skin deep, neither less nor more; therefore, who can determine character by the colour of the skin? But that would be almost equally wise as setting up mere colour as a test of quality, and upholding it by all the influence of jurors, money prizes, and highest cultural honours, until any and every fruit that is out of the fashionable colour is relegated to obscurity or driven out of cultivation like the Malta Peach, untried and untasted. Pshaw! we had better set up our black and golden calf for Grapes, and our scarlet and pink ones for Peaches and Nectarines at once, and behead all writers and cultivators who will not forthwith bow down and worship these horticultural idols which our jurors and horticultural societies have set up.

Hortus.

COLOUR AND SIZE *V.* QUALITY.

It is pleasing to find "T. B." with his unique knowledge and experience placing his powerful influence on the rational side in this long-disputed matter (p. 338). "Chef" follows on the same page with the usual strong assertions of colourists to the effect that colour is an unfailing test of quality, and loftily dismisses other ideas and facts to the contrary, as "too absurd for criticism." Not content with running the colour-test of flavour rough-shod over all sorts of Grapes, "Chef" also runs it through Melons, Apples, Pears, Plums, Peaches, Nectarines, and maintains that each, in its way, is much better when lightly coloured. Any other view is but proof of wrong-thinking, which, though seemingly endowed with considerable vitality, must soon come to an end under the heavy sledge-hammer of "Chef's" sweeping assertions. "Chef" is, however, good enough to challenge me to test the matter by showing green and red against golden and black Grapes to prove that colour is no certain test of quality. But surely in vain is such a net set in sight of any bird after his record of the dispute of the judges over sour black and sweet red Grapes at the Manchester show. "Chef" was called in, and doubtless gave his verdict in favour of the black, because they were the finest, though not ripe. I believe I, too, had a voice in this very matter, and spoke in favour of the ripe, sweet Grapes, notwithstanding their lack of colour. But the mere fact of such a dispute being possible, or of the prize being awarded to fine black Grapes, albeit they were sour and unripe, shows how deeply jurors and societies have been bitten by the colour mania, and how impossible it would be for fruit deficient in colour to obtain first prizes from any existing authority.

Possibly "Chef's" extreme devotion to colour tests, and his running it through all our larger fruits, may destroy its tyranny over judges, and arouse our larger societies to the fact that it is little more than skin deep at the best, and is not seldom a mere Will-o'-the-wisp, to lead astray, as in the case of the unripe black Grapes at Manchester. "Chef's" red Grapes on the same Vine, but on a different limb from the black, proves nothing to the point, as no doubt they were partially starved or shanked into inferior quality, as is invariably the case with red bunches on Vines on which the normal crop is black. This case is on a level with the assertion that the greenish Muscats preferred to golden were watery. They were less hard in the flesh than golden Muscats often are, but the sap was so luscious and vinous as to be pronounced much better flavoured by connoisseurs who even so much preferred Grizzly Frontignans to Muscats, as to grow the latter in quantity as the best flavoured of all Grapes. But it is useless to reason further with your correspondent, who prefers unripe Hamburghs to ripe on account of their colour.

But if the highest coloured Grapes are the best, then should the Barbarossa, Gros Colmar, and Lady Downes be the sweetest of all black Grapes. The rage for size and colour has been largely fostered by lord mayors' dinners and other festive affairs. Huge Pears, totally unfit for eating, monster bunches of Grapes, sour as Sloes, big Apples, unripe Peaches—all look magnificent on the dinner-table, and in not a few cases they are piled up for mere effect, hired for the occasion, and removed afterwards, the eatable fruit being handed round.

Enormous quantities of fruit are also marketed and used in an unripe state. The size and colour regulate the price to a great extent, and the harder and less ripe such fruits as Peaches, Nectarines, and Plums are, the longer they keep saleable. It is difficult to prevent this. But there cannot be a doubt that the enormous extension of our culture of fruit for trade and commercial purposes has done much to impart a most exaggerated importance to its mere colour and size, and so lower its quality. The smaller and less

coloured varieties, however excellent, are driven out of cultivation, sat upon, and extinguished by the bigger coarser sorts, as "T. B." so pithily points out in the case of Grapes, Plums, Strawberries, and Pears. If "Chef" is disposed to doubt or deny all this, let him go to the first public dinner that comes in his way and try the fruits piled up for effect in the centre of the table. HORTUS.

CANTALOUP MELONS.

MR. CORNHILL (p. 308) is of opinion that Cantaloups "are scarcely known in this country," and to a certain extent he may be right, as they are now very rarely met with. In 1844 they were, however, extensively cultivated at Claremont by the late Mr. Charles McIntosh, and in his first edition of "The Practical Gardener" he enumerates four varieties, viz., the Montague Cantaloup, raised in 1815 by Mr. D. Anderson, gardener to Lord Montague; the Pine-apple Green-fleshed, Scarlet Rock, and Scarlet-fleshed, and adds, "but of these as well as the others (named), many very indifferent sub-varieties are in cultivation, in consequence of sufficient care not being paid to keep them from being impregnated while in flower by others of more indifferent properties"—an observation applicable to many Melons distributed at the present time. At a much later date when the Bourbon Princes were located at Claremont, Cantaloup Melons had to be grown extensively for them, as no other sort pleased them so well, but whether they brought or introduced their favourite sort from France I am unable to say. A few years ago I grew and fruited several Melons raised from Claremont-saved seeds, but the only recommendation pertaining to them was their free-bearing character under comparatively cool treatment. They succeeded admirably in frames with only sufficient bottom-heat to give them a good start, but no one could be persuaded to eat them. It may be if we had eaten them with pepper and salt they would have gone down better; but this was never tried; we were not then so well acquainted with French customs as we are now. The variety of Cantaloup which we cultivated produced very large fruits, which were scarlet-fleshed. They were ribbed, had a coarse blotched rind, mottled with green and white. Munro's Little Heath most nearly approaches the variety in question, both as regards constitution, shape, general appearance, and also quality; and the conclusion at which I arrived on growing it the first season after its distribution was that the Cantaloup must have been one of its parents. If ever Melons become as much appreciated in this country as in France, and which may yet happen, there will be a demand for such varieties as can easily be cultivated in frames, and the Cantaloups should be one of the progenitors of such a race. As a matter of fact, the majority of the Cantaloups which we ripened during the two seasons in which they were tried—once in the midlands and once in a more favoured southern county—were superior to many Melons staged at various horticultural exhibitions, and fully equal to many that receive prizes as being the "least worst" of the lot shown. W. I. M.

QUESTIONS.

5521.—**Transplanting Roses.**—I have a few scores of standard Roses which were budded this season. Would it be advisable to plant them out this autumn where I intend them to grow, or leave them where they are for another year? Some of them have made shoots 18 inches and 2 feet long.—J. H. O. M.

5522.—**Bees and rosy Sedums.**—Under this heading THE GARDEN of Oct. 2 contains an interesting letter, signed "D. T. F.," describing the fatal effects produced by the rosy Sedum on bees and butterflies which settle on its aromatic flowers. Might I ask your correspondent to kindly inform me whether the rosy Sedum to which he refers is the species commonly known as Sedum spectabile?—J. B., *Home House, Worthing.*

5523.—**Is copper wire hurtful to Roses?**—I have fastened some Acme labels on to my Roses with copper wire, and on a friend seeing them he remarked that it would kill them in consequence of the electricity in the wire coming in direct contact with the trees, as he had had painful experience on this point. Can any of your correspondents give further information in reference to this matter?—S. W., *Darlington.*

KITCHEN GARDEN.

THE EARTHING UP OF CELERY.

THOUGH differing from "W. S." on the one point of progressive or single earthing up for blanching, his general instructions for the culture of this useful vegetable are well nigh all that can be desired. There is, however, one point about the natural habit of the plant (see p. 295) which is rather misleading, viz., that Celery is naturally of a spreading habit. This is hardly borne out by observation and experience. The word naturally is doubtless capable of at least two interpretations. For example, it may mean in a state of nature. Now, in such a state Celery is found mostly in salt-water marshes and ditches. In these it is invariably crowded so much together as to render its spreading a physical impossibility. But possibly "W. S." alludes to the natural habit of the plant. But that plant is not the wild Celery, but the cultivated varieties, which through a long series of years have been selected for various cultural or culinary qualities, one of the most vital of which is the ability to grow up into a good stick. Hence it cannot be said of the most approved strains of cultivated Celery that their natural habit is to spread. Besides, trench planting, almost universal, still further curtails and controls any spreading tendency left in the improved garden strains, so that practically the spreading habit of cultivated Celery is no objection to its being left unearthed up till it is fully grown. In addition to all this, not a few of those who earth up only once for blanching advocate and practise the system of keeping the stems close to the hearts by loose tying, while all good cultivators of clean perfect sticks recommend early disbudding and the severe and timely removal of all suckers. All this favours one straight stick—the great point desiderated by the producers and purchasers of perfect Celery. As to the dressing of soot and lime recommended by "W. S.," the former should be sparingly used, if at all, and neither should be enclosed with the plants nor placed in their hearts during the process of blanching. Lime and soot dressings during growth may destroy slugs and worms, the latter being almost as injurious to Celery as the former, and stimulate growth. But blanched Celery is highly susceptible to taint or contamination from contact with such pungent substances as lime and soot. Nothing but sweet soil, free from rank manures, is capable of blanching and finishing Celery crisp as glass and sweet as a nut.

HORTUS.

WELL-FLAVOURED LETTUCES.

LAST spring a row of White Cos Lettuce was planted on a piece of ground which was about as poverty-stricken as garden ground could be. It had had no manure of any kind for several years and had been cropped with Strawberries for some time. When the plants were about 3 inches high the mould was drawn up on each side of them so as to form a trench. A tolerably liberal top-dressing of Clay's fertiliser was then given, which was well watered in. On another occasion they were again watered, and this was all the help they got. Although the season was dry, these Lettuces attained unusually large dimensions; they were good enough for any prize collection of vegetables, and had they been judged by flavour alone they would have been second to none in the kingdom. I can safely say that I never eat such crisp, well-flavoured Lettuces before. Everyone who eat them without exception said that these Lettuces were in flavour quite different from any they had ever tasted. For some time I could not understand it. I thought that I had accidentally procured an extra fine strain of the White Cos, but the enigma now seems plain to me. It was the absence of manure in conjunction with another manure of a forcing nature, and without its rankness, which gave them crispness and flavour. It has often been stated in THE GARDEN that Cabbages and Broccoli grown by market gardeners are inferior in flavour to those grown in private gardens, the large quantity of house manure used in their culture putting rankness as well as coarseness into them. I believe this to be true, and I advise your readers to experimentalise in this matter. I believe that Cabbages would be immensely improved in flavour by growing them in soil which had been manured for a previous crop, supplying the manurial deficiency by top-dressings well hoed in of some strong concentrated manure. This affair of the Lettuces in a great measure explains why our Coleworts are always so Marrow-like in flavour. We always plant them on a bit of ground which has been cropped with early Potatoes, or which has lain fallow through the summer. Oftentimes they get but a dressing of soot which helps to keep off the brown grub, but they are invariably first-class in quality, and I can give my neighbours no greater treat in mid-winter than a dish of Coleworts. BYFLEET.

FERNS.

GOLD AND SILVER FERNS.

FERNS of all kinds are favourites wherever plants are cultivated. True, we have many beautiful plants belonging to other Orders—plants with brilliant flowers and plants with beautifully marked and richly coloured foliage, all of which contribute to the beauty of our plant houses and the embellishment of our open-air gardens; but none of these can compete with the Fern family as regards grace and elegance of form. The rage which once existed for high-priced rarities in the way of Ferns has died more rapidly than that for Orchids. Still, that a lasting love for the grace and beauty of Ferns has taken deep root is evinced by the countless numbers of them disposed of annually in our public markets for window decoration, and also for grouping with various kinds of flowers. Ferns are capable of being grown in different ways to suit special purposes. Thus some display their beauties to the greatest advantage in hanging baskets, others as bracket plants. Some thrive best when planted in crevices of rocks, whilst the fronds of Maiden hairs (Adiantum) are looked upon in a cut state as quite indispensable adjuncts to coat flowers, houquets, and shoulder sprays. Gold and Silver Ferns are, however, not adapted for any of the purposes just enumerated; but when well grown they form the most *recherché* ornaments of a plant house. Used in that way, the extreme beauty of their fronds—which are, in most instances, deep green on the upper side and more or less densely powdered with a silver or gold on the underside—renders them favourites with Fern growers. In the genus Gymnogramma are some of the best of the Gold and Silver Ferns, but some may be met with in other genera deserving attention. Gymnogramma, as recognised by some authors, contains a very heterogenous set of plants, presenting totally different appearances and requiring different treatment; but the kinds here enumerated are all plants of similar aspect and habit, and all will readily submit to the same description of culture. They are plants which grow with remarkable freedom, and speedily make handsome specimens; indeed, they may be grown to almost any size desired. Gymnogrammas may be increased very readily from spores; therefore young plants are always obtainable to replace overgrown specimens, and young plants will be found to be more attractive in a general way than overgrown ones. As regards cultivation, a few particulars only are needed. We have found them to grow most rapidly, and to make the best fronds, when potted in good fibrous peat and sharp sand, without any other admixture; but cultivators who have but limited space at command will find smaller plants more suitable, and these can be secured by using a compost consisting of half yellow loam instead of wholly peat. In all cases and under all circumstances thorough drainage must be maintained, as Ferns require an abundant supply of water, and in the case of gold and silver ones it must be confined to the roots. Upon no account must the syringe be used for Gymnogrammas, or the farinose powder, with

which the undersides of the fronds are coated, and which constitutes their chief attraction, becomes smeared and dimmed. If the directions just given are followed, and the plants kept in a moist atmosphere and in the heat of an ordinary stove, the kinds enumerated below will produce a charming effect.

The fronds of the Gymnogrammas, which we here recommend as the best and most distinct, are, for the most part, decompound—that is to say, they are many times divided, the ultimate divisions being more or less broad. G. chrysophylla, from Jamaica and various other West Indian islands, has rather broad segments and intense deep green fronds, the under sides of which are heavily powdered with deep golden farina, through which, when fertile, the black sori protrudes. This is certainly the richest coloured form in this beautiful genus, but the plant is delicate, and we have always found it difficult to preserve through the winter months. Other forms with rich golden farina are G. Laucheana and its varieties. These are taller, more erect in growth, and more robust, whilst G. Laucheana grandiceps has tasseled fronds. G. sulphurea, from Jamaica, is a somewhat slender plant, but very elegant; its fronds are soft green above, and clothed beneath with a dense sulphur-coloured powder. G. triangularis, from California, is an outlying member of this family, and thoroughly distinct in aspect; its fronds are erect, triangular in outline, and leathery in texture, deep heavy green on the upper sides, and covered beneath, in most instances, with a dense deep golden-coloured powder, but in some varieties the colour becomes sulphur, and even white. This plant dislikes stove-heat, but thrives admirably in a greenhouse; indeed, in the southern counties it would succeed in the open fernery. G. calomelanos is widely distributed throughout Tropical America, and is usually a bold-growing plant of robust constitution; its fronds are deep green above and silvery white on the under side. G. tartarea is also a common plant in the Tropics of America, and varies much in different localities; its fronds, which are deep green above and French white beneath, are broader and less lanceolate than those of the preceding, and the bases of the stems are furnished with numerous black chaffy hairs. It is a robust plant, and extremely handsome. G. decomposita, from the South American Andes, is a robust, free-growing kind, with large fronds, the terminal segments of which are very finely cut; their upper side is a cheerful light green, and the powder on the under side varies from white to sulphur colour, and even golden. It requires less heat than most of the other kinds. G. pulchella, from Venezuela, is, as its name implies, a beautiful form, with broad, finely-divided fronds, which are brilliant green on the upper side and silvery white beneath; the colour of the farinose powder, however, changes in some plants to sulphur. G. peruviana argyrophylla is, in habit, very distinct; its fronds are arched, the pinnules or segments broad and obtuse, and clothed, both above and below, with a dense bluish white farina. C. Pearcei, from Peru, is an elegant and most distinct plant, with erect triangular fronds, the segments of which are as fine almost as in the case of Asparagus. The colour on both sides is vivid green, sparingly dusted below with silvery white. It is rather delicate, and, if subjected to a very high temperature, is apt to die out. G. Wetenhalliana is a charming plant for those who delight in crests and tassels; it is densely covered with a sulphureous powder. G. schizophylla and its variety gloriosa are both beautiful Ferns for small hanging baskets; their fronds, which are pendent, are very finely cut, but slightly farinose. G. trifoliata is a robust-growing Fern from Jamaica; it is erect, tall, and has trifoliate pinnæ, which are broad and bright green, the under surface being clothed with white or sulphur-yellow farina.

The Maiden-hairs contribute two species to this class of Ferns, viz., Adiantum sulphureum and A. scabrum, the latter powdered with white farina; both are natives of Chili, and have hitherto not been very successfully cultivated, the reason, we believe, being that in many instances they have been killed with kindness. They should be placed in a cold house; indeed, we are of opinion that they would thrive best on the open-air rockery in the south and west of England. Onychium auratum is a good Gold Fern not unlike the Japanese species, O. lucidum; but its fronds are longer, broader, and more elegantly cut than those of that kind; their segments are bright green above, while on the underside the sori and their coverings are bright golden yellow. Coming as it does from considerable elevations on the Himalayas, it requires a cool temperature. The genus Cheilanthes contains a few elegant members belonging to this category, and they require much the same treatment in a cultural point of view as that laid down for the Gymnogrammas. C. farinosa varies in height from 1 foot to 2 feet. The pinnæ, which are in opposite pairs, are notched on the edges, and stout and leathery in texture. They are deep green above and silvery white beneath. Other names for this plant are C. dealbata and C. argyrophylla. It seems to be widely distributed throughout India and the Indian islands. Another kind which much resembles it is C. pulveracea. It is, however, smaller and less leathery in texture, and the farinose powder on the under side is frequently scattered over the upper surface, a circumstance which adds materially to its beauty. It comes from Mexico. In C. argentea we have a veritable gem in miniature. It comes from Siberia and Japan, and must be kept in a cool house. It grows a few inches only in height, the slender stems being ebony black and polished, the fronds being triangular or pedate in outline. Above they are bright green, and beneath silvery white, bordered with a conspicuous and continuous line of black sori. Similar in appearance to argentea is C. chrysophylla. It is, however, much larger, and its fronds are more divided, and clothed below with a heavy golden farinose powder. It is a native of Northern India. Cincinalis flavens and C. nivea are two beautiful little Ferns, having jet-black stems and roundish pinnæ, reminding an ordinary observer of the Maiden-hair. The upper surface of their fronds is bright green, while the under side of the first named is golden, and of the last silvery white. Both come from the warm parts of South America.—*Field.*

Lycaste Skinneri; flowers pale rose (about half natural size).

Orchids.

COOL ORCHIDS.

LYCASTES.

These are for the most part plants of considerable beauty, and the length of time during which they keep in flower without injury to the plants when removed to the dwelling house adds considerably to their value. Even the flowers when cut and placed in water will last fresh and in good condition for weeks, especially if the ends of the stems are freshly cut occasionally and the water renewed. Lycastes produce pseudo-bulbs, bearing a pair or more of large, membranous-plaited leaves, which are persistent and deep green. The flower-stems rise from the base of the pseudo-bulbs after the growth is perfected, and each bears a single flower. The cultivation of Lycastes is by no means difficult, provided they are kept cool and moist and placed in a shady spot, but they will not thrive if subjected to full exposure to the rays of the sun and a high temperature. They should be potted in good rough fibrous peat and chopped Sphagnum Moss, with the addition of a few nodules of charcoal and a little sharp sand. It need scarcely be stated that for all Orchids the pots must be thoroughly drained, and especially is this needful in the case of Lycastes, as their roots require an abundant supply of water, and they are also much benefited by frequent sprinklings overhead with the syringe during the growing season; although much less water is necessary after growth is finished, at no time should it be entirely withheld, unless it may be necessary to retard their blooming. In that case the plants should be kept entirely dry and be removed into a cooler situation. L. Skinneri is at once the best and most variable of its race, scarcely two plants of it producing flowers alike either in shape or shade of colour. The sepals are very large and spreading, thick and fleshy in texture, waxy white, more or less pure, and tinged and shaded with pink, rose, or crimson in the different varieties. The petals are smaller than the sepals, curved upwards over the base of the lip, and rose or crimson. The base of the lip, is of the same colour, usually white in front blotched with rose or crimson. There are numerous named varieties of this species, the one called virginalis or alba being perhaps the rarest and most distinct. In this form the whole flower is pure waxy white, except the base of the lip, which is tinged with pale lemon. All the forms of this plant flower during winter and spring. The type comes from Guatemala. L. Barringtoniæ grandiflora has flowers similar in shape to those of L. Skinneri, but they are slightly smaller, measuring from 5 inches to 6 inches

across; they are pure white, more or less suffused with yellowish green. It blooms during the winter months. L. lasioglossa has flowers which measure about 5 inches across; they are spreading, and chocolate-brown in colour; the petals, which are small, are bright golden yellow. The lip, yellow, which is freckled with purple, is densely clothed with long silky hairs. This variety is a winter bloomer and comes from Guatemala. L. Harrisoniæ, a beautiful plant, has long been an inmate of our plant houses, and for years has suffered from neglect, refusing to die, even under the roughest treatment. It has, however, at last come to be appreciated. It is very distinct in appearance from the kinds previously named; the pseudo-bulbs are pale green, with a black top or neck, and bear a single, large, leathery, strongly-ribbed deep green leaf. The scape is sometimes two flowered, the individual blossoms measuring 3 inches or more across. The sepals and petals are thick and fleshy and pure waxy-white. The lip, which is rich purplish lilac, is furnished with short hairs. There is a variety of this plant called citrinus, in which the sepals and petals are pale yellow; and also another called alba, in which the flowers are wholly white. It blooms during early spring and summer. L. gigantea is, as its name implies, larger than the other species of the genus, *i.e.*, in growth rather than in size of flowers, although the latter are also large. The sepals and petals are brown, tinged with greenish yellow. The lip, which is flat and velvety, is deep crimson-maroon, broadly bordered with rich orange. It is a winter and spring bloomer and comes from Santa Martha. L. Deppei has olive-green sepals and petals, profusely spotted with orange and white. The lip is small and deep orange. This Mexican species, although not amongst the showiest of Lycastes, is nevertheless a most profuse bloomer, and its flowers are extremely useful in a cut state during the winter months. W. H. G.

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 12 AND 13.

A GREAT show of hardy fruits was the chief attraction on this occasion, and a finer display of Apples and Pears could not possibly elsewhere be found. The leading growers and exhibitors from all parts competed in the various classes, which throughout were represented by fruit of very high quality. There was but little room to spare in the large conservatory after the fruit had been staged; but, nevertheless, a great gathering of cut flowers, chiefly Dahlias of all kinds, was crowded round the margins. The floral committee had comparatively few novelties submitted to them. The following certificates were awarded.

First-class certificates to—

ANGRÆCUM CAUDATUM.—An extraordinary Orchid, imported from Sierra Leone over forty years ago, but still rare in gardens and seldom seen in flower. Like several other species of the genus, such as A. sesquipedale and Kotschyi, the flowers are remarkable for the length of their spurs, which in caudatum reach 8 inches or 9 inches in length. The flower measures about 4 inches across; the sepals and petals are narrow and of a dull olive-green colour. The lip is somewhat wedge-shaped and pointed, of firm texture and pure white, while the column is yellowish. The spur or tail is as thick as a quill, round and curly, and of a pale brown colour. The twisting of the spurs gives the flowers a most singular appearance. The plant bore eight expanded flowers and one bud, and the whole spike measured fully 2 feet in length. This number is unusual, for generally there are but four flowers on a spike; the leaves are deep green, arranged as in A. sesquipedale and others. The plant exhibited came from Baron Ferdinand de Rothschild's garden, at Waddesdon Manor, Aylesbury.

ADIANTUM CAPILLUS-VENERIS VAR. IMBRICATUM.—A very distinct and most beautiful variety of our native Maiden-hair Fern. It is somewhat similar to the Cornish variety named cornubiense, but the pinnæ are larger and deeply divided. The fronds are broad and dwarf, and form a dense mass of a beautiful fresh green. Exhibited by Mr. G. Masters, gardener to Col. C. Legh, High Legh Hall, Knutsford.

RHODODENDRON AMABILE AND LUTEO-ROSEUM.—Both new seedling varieties of the greenhouse Javanese Rhododendrons. The first has flowers of a soft pale pink tinge, the colour of the other being deep rose-pink with a suggestion of yellow on the petals. Both have large and perfectly shaped flowers produced in massive trusses. Exhibited by the raisers, Messrs. J. Veitch and Sons, Chelsea.

CHRYSANTHEMUM MONS. W. HOLMES.—A new Japanese variety. It has compact flowers after the style of Cullingfordi, which it resembles. The florets are dense and rather reflexed. The colour is a rich maroon-crimson with a pale yellowish gold tinge on the under surfaces of the florets. Shown by Mr. G. Stevens, Putney.

DAHLIA HELENA.—A single-flowered variety having small compact flowers, roundish florets slightly reflexed, and of good substance. The colour is a deep crimson, shaded with orange-yellow. From Messrs. Cheal, Lowfield Nurseries, Crawley.

BEGONIA MRS. PLUNKETT.—One of the finest Begonias of its colour yet raised; the flowers are 4 inches across, perfect globular rosettes of petals, which are of a delicate salmon-pink. From Messrs. Cannell.

DAHLIA ZEPHYR.—A single variety with medium-sized flowers. The florets are of a bright Indian red, broadly edged with orange. Very pretty and distinct from others. Shown by Mr. Turner, Royal Nurseries, Slough.

DAHLIA ANNIE HARVEY.—One of the so-called decorative sorts, having double flowers of medium size. The colour makes this sort remarkable, as it is the deepest yet raised. It may be described as a blackish crimson, flushed with scarlet. As a border variety it is a great acquisition. Exhibited by Messrs. Cannell, Swanley.

BEGONIA PAUL DE VICQ.—A lovely double-flowered sort, the colour being a soft cherry rose. The flowers are large, very double, and full. From Messrs. Cannell.

DAHLIA R. T. RAWLINGS.—A show variety, with perfectly formed flowers of a bright yellow. Shown by Messrs. Rawlings, Romford.

Other plants of interest shown comprised the following: Dendrobium Phalænopsis, a beautiful Australian species, reminding one of D. bigibbum, and of the same bright magenta-crimson colour. From Mr. Pollett, Fernside, Bickley. Cattleya Gaskelliana, a lovely white variety, still extremely rare; the flowers are pure white, except a dash of yellow on the lip. Seven flowers were shown by Mr. C. F. Partington, who also sent a spike of a good variety of Vanda cærulea bearing thirteen flowers. A cultural commendation was accorded to Mr. Partington's gardener. Messrs. Sander, St. Albans, showed a splendid variety of Cypripedium Spicerianum, named magnificum. It is remarkable for its unusually large flowers and the beautiful colouration of the dorsal sepal. Mr. Day showed an exceptionally fine variety of the pretty Odontoglossum Sanderianum, which may be known at a glance by the white lips of the flowers. Messrs. Veitch showed the new Amasonia punicea, whose bright crimson floral bracts are so attractive at this season. It is a valuable acquisition to stove plants. The same firm showed also some new Japanese Chrysanthemums, viz., Annie Clark, pale pink; Charlotte de Montcabrier, blush; and Bouquet Estival, deep rose-pink. Mr. G. Stevens also showed some new Japanese Chrysanthemums, those named Martha Harding, a bright yellow, and Miss Stevens, blush-pink, being the best. Mr. R. Marnock showed a branch of the Sea Buckthorn, Hippophaë rhamnoides, heavily laden with bright orange-yellow berries. It was cut from a bush growing at Rousdon. Mr. Penford, Barnfield, Weston, showed a new crested form of Pteris serrulata, named Westonensis. The fronds are slender and slight-tasseled. Some spikes of a beautiful dark form of Primula capitata were shown by Mr. G. F. Wilson, Heatherbank, Weybridge, which at this season seemed doubly welcome.

The majority of the other flowers exhibited consisted of Dahlias of all sections and other autumn hardy flowers, besides Roses, which both Messrs. W. Paul, of Waltham Cross, and Messrs. Paul, of Cheshunt, showed admirably. In the large collection from Waltham Cross, several well-known favourites were represented by really fine blooms, the Teas being particularly good. One of the most conspicuous was Perle d'Or, which is in the way of W. Allen Richardson, but paler, and, in our opinion, even more beautiful. Both the Pauls showed pot plants of the white Tea Rose, The Bride; hence it seems that they have a good opinion of it as a new Rose.

Dahlias were to be seen on every side, large and handsome show kinds, neat little Pompons, and elegant singles, the latter being by far the most abundant. We were pleased to see that the committee are taking a new course in certificating the single Dahlias. They do not, and rightly, select the big coarse flowers, but the medium-sized blooms, remarkable for good substance of petal, rich and decided colour, and slightly reflexed blooms, which latter point, as some think, adds to the beauty of the flower. One of the prettiest sorts on Tuesday we considered was that named Pink Paragon, from Messrs. Laing, of Forest Hill. The flower is good in all points and the colour most pleasing, the florets being pale pink edged with pure white. Mr. Turner's Pompons seemed to please the public most, as they have all the elegance of the singles combined with the beautiful symmetry of shape of the big show kinds.

Hardy Fruit Show.

The competitive classes on this occasion were specially limited to Apples and Pears, some sixteen classes being apportioned to the first and thirteen to the other. Generally the exhibits were of a remarkable kind; indeed, both Apples and Pears it seemed impossible to excel either in size, beauty, or average quality; whilst the competition throughout was remarkable, and fully displayed the popularity of hardy fruit shows.

APPLES.—The largest Apple class was one for fifty varieties, of which there were no fewer than seven collections, giving a total of three hundred and fifty dishes, all of fine quality. Messrs. Bunyard, Old Nurseries, Maidstone, worthily took first place, whilst Messrs. Sclater, of Exeter, and Mr. Watkins, Hereford, followed in that order. Thus the chief Apple counties were well represented. In these collections were fine samples of Warner's King, Lord Derby, Lady Henniker, Grenadier, New Hawthornden, Pott's Seedling, Lord Grosvenor, Washington, Stone's Pippin, Golden Noble, Peasgood's Nonsuch, Transparent Codlin, Alfriston, Lewis' Incomparable, Cox's Orange Pippin, Duchess of Oldenburg, Worcester Pearmain, Cox's Pomona, Emperor Alexander, and Red Costard—the latter half-dozen, from Hereford, having splendid colour. Mr. Bunyard's fine fruit were, it seems, gathered from ordinary nursery trees. The class for twelve dishes of culinary kinds brought grand samples, some, indeed, eclipsing anything before shown here. The dozen dishes from Linton gardens, Maidstone, included wonderful Gloria Mundi, Peasgood's Nonsuch, Loddington Seedling, Winter Hawthornden, Frogmore Prolific, and Stirling Castle, and were well worthy of the county and Mr. McKenzie, the gardener. Berks gave the second best lot, a beautiful, even collection, set up by Mr. Turton, Maiden Erleigh gardens, Reading, who had Echlinville Seedling, Pott's Seedling, Cellini Pippin, Waltham Abbey Seedling, Peasgood's Nonsuch, &c. Berks took third place, Mr. Ross, of Newbury, having fine samples. There were eight collections of twelve dishes, and no less than thirteen lots of six dishes, in which class again the fruit were exceptionally grand. Essex here came to the front, Mr. Smith, of Loughton, coming first; whilst Yalding and Margate gardens showed the second and third collections. Mère de Ménage, Striped Beaufin, Stirling Castle, Stone's Pippin, and Gloria Mundi were superb samples. Turning now to *dessert kinds*, no less than ten collections of twelves dishes were staged, affording much beauty and colour, especially in the earlier kinds. Very beautiful were Ribston, King, Cox's Orange, Strawberry, and Blenheim Pippins; also Evagil, Cornish Aromatic, Worcester Pearmain, and Mother Apple. Then no less than fourteen lots of six dishes of dessert kinds followed, the best coming from Beckenham, Kent, from Mr. Hoare's gardens; Sussex was next, and

Somerset third. Here was found the only dish of the old Nancy Apple, rich coloured and delicious; also good Ribstons, Blenheim, Duchess of Oldenburg, Cox's Orange Pippin, King of the Pippins, Worcester Pearmain, &c.

Single dish classes proved very interesting, and, on the whole, wonderful samples were shown. *Blenheim Pippin* came first with seventeen dishes, the best coming from Highworth, Wilts, and the next best lot from Petworth, Sussex, whilst all were good, though none showed special colour. Of that beautiful kind *Cox's Orange Pippin* there were no less than twenty-one dishes, the best, really unusually fine samples, coming from Shardeloes (Bucks), Maidstone and Mereworth (Kent). As evidence that the fine old dessert kind *Ribston Pippin* is not yet gone out of cultivation, no less than twenty-two dishes of very fine clean samples were shown, the best coming from Gaddesden Place, Herts, shown by Mr. Folkes; the next best—two lots—coming from Beckenham and Margate. Then, increasing in number, no less than twenty-four lots of that popular Apple *King of the Pippins* were shown. Here at last Middlesex had a turn, very grand samples coming from Mr. Wells, of Hounslow, and Mr. Chadwick, of Ealing, was third, whilst Mr. Bunyard took the second prize in Maidstone. Single dishes of culinary Apples began with *Wellington*—very good samples, the best coming from Carshalton, and the next best from Powderham Castle, Devon. *Mère de Ménage* was represented by four dishes only, the best, as usual, coming from Newbury, whilst the next lot was from Somerley Park, Kingwood. Then of nine dishes of Golden Noble, Mr. Powell had the best from Devon, the second lot coming from Sevenoaks, and the third dish from Exeter. All were handsome samples. *Warner's King* were very fine, and Mr. Turton's dish very clean and good, whilst the next best came from Mr. Bunyard's nursery. There were twelve dishes of these and seven lots of *Peasgood's Nonsuch*, probably the handsomest of kitchen Apples, really wonderful fruits coming from Mr Edwards, of Hereford, whilst Mr. Turton's dish, if a trifle smaller, was more richly coloured. Only four dishes of *Gloria Mundi* were staged, all fine; and but six lots of *Lane's Prince Albert*, the best again coming from Newbury.

Pears were shown in abundance, and really grand samples were shown, especially from Herts, as evidenced by the fact that in the class for fifty dishes there were five collections. Mr. Thomas, of Sittingbourne, came first, Mr. Davies, The Mote, Maidstone, and Mr. Bunyard being second and third. Amongst these collections, very fine, were Pitmaston Duchess, Souvenir du Congrès, Triomphe de Reine, Durandeau, Doyenné Boussoch, Beurré Hardy, Comte de Chambord, Beurré Clairgeau, Beurré Diel, Beurré Rance, Beurré d'Amanlis, &c. Then there were no less than fifteen collections of twelve dishes, Herts again coming first, with Mr. Thomas, and third with Mr. Waterman, of Maidstone, whilst Norfolk came second, through Mr. Allan, of Gunton Park, who is always strong with Pears. In this class were very beautiful samples of Beurré Bachelier, Doyenné du Comice, Hacon's Incomparable, Doyenné Boussoch, Marie Louise, Pitmaston Duchess, Beurré Hardy, Durandeau, British Queen, Gansel's Bergamot, and Souvenir du Congrès. Then there were eighteen lots of six dishes, Mr. Ware, of Tunbridge Wells, again taking the honours to Kent, as also did Mr. R. Smith, of Yalding, for the third place, whilst Mr. A. Smith took the second prize to Loughton, Essex. The first lot comprised beautiful samples of General Tottleben, Doyenné du Comice, Hacon's Incomparable, Beurré Bachelier, Beurré Diel, and Pitmaston Duchess.

Single dish classes of Pears began with *Doyenné du Comice*, of which there were twelve lots, the best coming from Tonbridge and Yalding. Twelve lots of Beurré Superfin were staged, the best coming from Devon, and fifteen dishes of the huge *Pitmaston Duchess* were placed, the finest coming from Sittingbourne, whilst the second and third lots were from Newbury, shown by Messrs. Howe and Ross. *Louise Bonne of Jersey* was represented by seventeen dishes, Mr. Thomas having for the first prize lot beautifully coloured fruits, Herts and Surrey taking the next places. Only six dishes of *Fondante d'Automne* were shown, but there were seventeen dishes of the better known *Beurré Diel*, the first prize dish coming from Kent, the second from Gunton Park, and the third all the way from Hampton Castle. Of the twelve lots of *Beurré Rance* the best came from Maidstone and Yalding. There were but six dishes of *Glou Morceau*, and twenty-four of that beautiful Pear, *Marie Louise*, Maidstone, Powderham Castle, and Hampton Castle taking the prizes. Finally, *Conseiller de la Cour* was represented by seven lots, Margate sending the best samples. A scrutiny of the list of awards will show that Kent has had nearly, if not quite, one half of the prizes awarded.

General collections of Apples and Pears were also a very strong feature, Messrs. Veitch, Chelsea, having some 120 dishes of Apples and about fifty kinds of Pears, all excellent samples of their nursery produce. Messrs. C. Lee, Hammersmith, staged 100 dishes of Apples, all fine fruits, from their Ealing nursery, and included all the best known kinds in cultivation. Messrs. Cheal, Crawley, Sussex, staged about fifty dishes of good samples of Apples and twenty dishes of Pears. Messrs. Paul, Cheshunt, had fifty dishes of Apples, including many rich in colour and fine. Messrs. Lane, Berkhampstead, staged a big collection of some eighty dishes of Apples, and Messrs. W. Paul and Sons, Waltham Cross, had a similar big collection of fine fruits. Very large and interesting collections were shown by the Horticultural Society of Montreal and from growers of Nova Scotia, the former collection specially including many kinds very rich in colour.

Fruit committee.—It was an unusually busy day for this committee, as a large number of exhibits was shown, and of which the following were the principal. A very fine fruit of the new, or rather still uncommon, Lord Carington Pine-apple was shown by Mr Miles, gardener at Wycombe Abbey. It weighed 7 lbs., and was handsomely shaped. The exhibitor well merited the cultural commendation accorded him. Mr. Howe, of Benham Park, showed a seedling Melon named Golden Ball. It is a cross between Hero of Lockinge and Benham Park. The committee desire to see it earlier in the season. Some very fine fruiting branches of the black Bullace were shown by Mr. Harwood, which looked like dense bunches of black Alicante Grapes, so productive were the branches. A large collection of open-air Grapes was shown by Mr. A. Horvath, of Hungary. The collection numbered about twenty sorts, nearly all of which have names strange to us here. There were, however, such familiar sorts as Muscat of Alexandria, Frontignans, Muscat Hamburghs, Chasselas Musque, and others, but very inferior to the same kinds grown here under glass. The flavour of some of the sorts shown was exquisite, notwithstanding their rather forbidding appearance. Mr. Thomas, of Sittingbourne, Kent, showed a large collection of Pears, and also a new Apple named St. Christopher, said to be a first-rate dessert sort. Mr. Jacobs exhibited some extraordinary Pears of various kinds. Among them were twelve fruits of Duchesse d'Angoulême weighing 228 ozs., twelve of Easter Beurré weighing 154 ozs., and a French Pumpkin weighing 187 lbs. Mr. Ford, of Leonardslee, showed his new Apple Ford's Seedling, a handsome-looking fruit. The committee wish to see it later. Mr. Laxton, Bedford, showed fruits of his new Pear Laxton's Bergamot, and another named Richard Thompson, both good-looking fruits. He also sent fruits of his Strawberry Noble in order to show how late it fruits out of doors. The richly coloured Dartmouth Crab was also shown by Mr. Laxton. It is a beautiful Apple, and a tree of it in fruit must be a great ornament. Among vegetables was a new Vegetable Marrow of large, oval shape. It came from Mr. Oxford, Chelford. Mr. Deverill, of Banbury, was awarded a cultural commendation for some wonderfully fine samples of his Rousham Park and Improved Wroxton Onions and Early Exhibition Carrots, while a new Runner Bean, also from him, named Ne Plus Ultra was referred to Chiswick. Mr. R. Dean had a dish of the somewhat rare Nanny Apple grown at Bedfont, and a dish of the fine golden Tomato Prince of Orange. Mr. Rivers, of Sawbridgeworth, showed as late Plums Monarch and Grand Duke, purple; St. Denys, red; and October, yellow—all capital samples. Mr. Laxton, of Girtford, had a collection of white seedling Potatoes, mostly flat or kidney shaped, and some good open air Tomatoes. A remarkable exhibit was a table of 50 feet long, backed by Tomato plants from the open ground in great variety and full of fruit, shown by Messrs. Sutton and Sons, Reading; whilst in fruit were baskets and clusters of all the best kinds, such as Reading Perfection, First Crop, Earliest of All, Chiswick Red, Golden Gage, a yellow cluster kind, and others—really a novel and singularly interesting collection.

Vegetables.

Special prizes.—The collection of eight kinds of vegetables staged in competition for the very liberal prizes offered by Messrs. Sutton and Sons brought a remarkable competition. Not only were eleven collections presented, but the quality was wonderfully even and good; indeed, better has rarely been shown at South Kensington. The samples shown included Autumn Giant Cauliflower, Matchless and New Intermediate Carrots, Rousham Park Onions, Sutton's Seedling, Abundance and Snowdrop Potatoes, Giant White and Leicester Red Celeries, Trophy and Perfection Tomatoes, Brussels Sprouts, Giant Leeks, &c. The prizes went to Messrs. Miles, Wycombe Abbey; Haines, Coleshill, Wilts; Meads, Shrivenham Park; Waite, Esher; and Pope, Highclere Castle—all first-class growers. A class for Sutton's Seedling Onion brought eleven lots—all fine samples, the best (very fine indeed) from Mr. Loder's garden, Wecdon. For the same firm's new Onions of 1886 capital samples were shown, Messrs. Haines, Allen (Hungerford), and Phillips (Meopham) taking the prizes. Messrs. Jas. Carter and Co., High Holborn, offered prizes for their Mont Blanc Cauliflower, the best coming from Mr. Waite. Eleven dishes of their Champion Runner Bean were staged, of which the best were from Mr. Waite also. Several lots of Tennis Ball Onions were also shown.

A list of awards is given in our advertising columns.

Obituary.

Many who knew Mr. Forsyth, gardener at Gunnersbury Park twenty years ago, will regret to learn that he died the other day by his own hand. Mr. Forsyth was one of the best gardeners of his day, and was particularly successful with Pine-apples and Grapes. He retired from the management of the gardens at Gunnersbury Park some sixteen years ago, and, on account of his long services, was allowed a pension by the Rothschild family. He was 73 years of age at the time of his death, which took place at Ealing last week.

The late Mr. Peach.—We are reminded that in the obituary notice of the Rev. C. P. Peach given in The Garden (p. 352) one interestiog fact is omitted, namely, that he was brother to the late Mrs. Miles (wife of the late Rev. Robert Miles, of Bingham), who used to send such artistic sketches of flowers to The Garden (so much appreciated by lovers of hardy flowers), and consequently uncle of Mr. Frank Miles the artist.

Names of plants.—*M. C.*—1, Pardanthus chinensis; 2, Athyrium filix-fœmina Frizelliæ.—*W. Hill (Rosera).*—1, specimen insufficient without fruiting frond; 2, Onychium lucidum; 3, Blechnum occidentale; 4, Asplenium laserpetifolium.—*R. C. Burr.*—Adiantum formosum.—*G. Fleuwell.*—Campanula strigosa, Stapelia variegata, some kind of Crassula.—*W. E.*—Yellow, Helianthus rigidus; white, Pyrethrum serotinum.—*Tahiti.*—Aster Novæ-Angliæ roseus.—*A. Chalmers.*—Cattleya Eldorado, true and a high coloured variety; Oncidium prætextum.—*J. J. Matthews.*—Broad-leaved variety of common Myrtle, sometimes called latifolia.—*B.*—White Dogwood (Cornus alba).—*C. J. H.*—Cannot name.

Names of fruits.—*Mrs. A.*—Simply a wild Crab, and utterly worthless.—*J. H.*—1, Beurre d'Amanlis; 2, Marie Louise; 3, Hessle; 4, Beurre Clairgeau.—*G. J. B.*—1, Marie Louise; 2, Beurre d'Amanlis; 3, Beurre Superfin; 4, Comte de Lamy.—*J. G. Flint.*—A fairly good example of Red Astrachan.—*H. E.*—Royal Somerset.—*Old Sub.*—Seckel.—*G. Thompson.*—Pear not known.—*J. G. R.*—1, Blenheim Orange; 2, Cox's Orange Pippin; 3, King of the Pippins; 4, Wellington.—*Devon.*—Appears to be Beurre de Capiaumont, but specimen poor.—*Scott.*—1, Beurre Rance; 2, Marie Louise; 3, Louise Bonne of Jersey. Plums smashed.—Others will be named next week.

WOODS & FORESTS.

EXTINCTION OF ASH AND SYCAMORE.

If "J." was as familiar with the nursery trade and planting as he appears to be with the timber trade, he would not write about the extinction of either of the above trees, for it is well known that both are now being planted more freely than ever they have been. Hitherto, or until a recent period, the Ash and Sycamore seem to have been left to perpetuate themselves, but now both are raised and sold in nurseries to an enormous extent, and in our woods of the future they are likely to be rather too abundant if anything. At present, I admit, both Ash and Sycamore of large size are comparatively scarce, Sycamores especially, and the price of both has been fairly maintained, while almost any quantity could be sold, but in the course of a generation or two there will be a good supply, as the two species are rapid growers. The present scarcity of Ash and Sycamore and some other trees is due to the want of foresight on the part of British foresters in the past and the needs of game preservers. There are estates in England and Scotland where woods of Ash and Sycamore would have been an invaluable legacy to present occupiers and their heirs, but the timber on which is almost useless, consisting, as it does, chiefly of young Oak and Spruce or inferior Larch.

We need not fear that "half a century must elapse" before a crop of Ash becomes useful. Not long since we knew of 20,000 feet of Ash being sold that was not more than thirty years old, the whole of the small poles going for shaft wood and such like purposes. You can sell Ash as thick as your arm, and find a ready market for stuff from 4 inches to 6 inches quarter-girth, and in good soil and sheltered ravines timber of those dimensions is soon grown. The great enemy to the Ash has been the rabbits. Probably they have destroyed four-fifths of the Ash planted in this country wherever they abound. The treatment the Ash, too, has received from foresters in the past is a sad commentary on their foresight and intelligence. While spending their breath on the advocacy of untried exotic species in the shape of Firs and the like, they have neglected the very trees which they knew they could rely on, and which produced timber of the most generally useful and indispensable description. Now and again some far-seeing writer has lifted his voice against the neglect of the Ash as a timber tree, but our enlightened Scotch and English foresters have gone on planting their rubbishy Spruce, and Scotch Fir, and other doubtful species of the same nature, and you might search far and wide for a plantation of useful Ash that has not sprung into existence by accident. Though scarcely a tool the woodman or the farmer used, nor any useful implement was made without Ash, and it was in common use in many ways besides, the idea of providing a supply of such a useful timber for the future never seems to have concerned planters, and you may read through yards of stupid essays read before sleepy arboricultural associations in which you will find no trace of a thought on the subject. If there be any body of cultivators who needs their wits sharpening it is the so-called British arboriculturist, with his pedantic notions and conceit and invulnerable ignorance which you see every day reflected among woodmen of all degrees and their work. It is just about one hundred years since Marshall wrote of the Ash, that "to enumerate its uses would require a separate volume; the farmer would find it difficult to carry on his business without it, and, indeed, the cooper and the coach-builder would be equally at a loss with the wheelwright should a scarcity of Ash take place, and we know of no species of timber so likely to be worn out in this country as the Ash." Marshall "was concerned to see," even in his time, "among the numerous plantations which have of late years been made, so few of this necessary tree," and thought it "more than probable that no tree would pay better for planting, not in single trees in hedgerows, but in close plantations," where it would grow tall and straight, producing timber of the best description. At the present time, and during all the depression in the timber trade, Ash has been in demand, and many foresters are now economising their supply and using it to help to sell other kinds of timber that has not such a good market. Nothing helps a sale better than a good bit of Ash in it, and the more Sycamore it contains at or above 11 inches quarter-girth the better also. Inasmuch as the timber of these two trees is in greater demand at present than any other class of English timber, it is not going too far to say that those who possess both in abundance on their estates are by far the wealthiest in that respect. YORKSHIREMAN.

PLANTING COVERTS.

I am about to turn some fields into game coverts. The land adjoins some old plantations in the park, and as the spot is within sight of the house, I should like to have the covert ornamental as well as being suitable for game shelter. Could you give me a list of plants other than those usually planted?—R. S. F.

*** There are various ways of making coverts of ornamental shrubs in parks, pleasure grounds, or in home woods that would be effectual for game shelter. Where something more than mere game protection is desired, we should then throw in groups of dwarf evergreen shrubs, so arranged as to produce a pleasing effect. Plants suitable for this purpose are plentiful, but the following are a few good kinds:—

Aucuba japonica	Ivy of sorts
Box, common	Juniperus sabina
Berberis stenophylla	Laurustinus
,, Darwini	Laurel, common
,, Aquifolium	Leycesteria formosa
Cotoneaster microphylla	Ligustrum ovalifolium
,, buxifolia	,, japonicum
,, Simonsi	Tamarix gallica
Holly, green and variegated kinds	Gorse, common and double
Hypericum calycinum	Yew, common

Then, among what are called American plants, there are such shrubs as Andromeda, Erica, Gaultheria Shallon, Kalmia, Ledum, Pernettya, Vaccinium, and Rhododendron. There is a wide field of evergreen shrubs, to which might be added a number of berry bearing plants, foremost among which I would name, for its delicious odour, the Sweet Brier, and numerous climbing Roses, and, above all, the Blackberries. The Snowberry (Symphoricarpus racemosus) is also grateful food for pheasants, though it is not a good covert plant—at least not for winter. One of the most useful plants that can be planted is the Jerusalem Artichoke, and pheasants are specially fond of this. The arrangement of these covert plants must depend upon the taste of the planter. For example, we would not plant a light foliaged plant under a light foliaged tree, neither a dark one near another heavy mass of Evergreens; but would so diversify the planting as to produce an agreeable whole with something of the picturesque about it. For example, the Aucubas and Golden Box and Hollies would give a fine mass of the palest green, or green and gold; while the Berberis would give dark green or, in the case of the most beautiful of all of them, B. Darwini, a very light tinge. Then of Cotoneaster, what can be so beautiful as C. microphylla when studded with its bright scarlet berries? G.

Foresters *v.* gardeners.—Few foresters, I think, will agree with "Y." that the valuing and disposing of timber can be learned in a very short time. On the contrary it requires years of constant practice and careful attention to become an adept at measuring and valuing timber. In these times of depression in all interests connected with land, it is an all-important qualification in a forester that he be able to measure timber correctly, either standing or felled, and have a practical acquaintance with its value. What can a man whose time has been spent in a garden know of the many details which go to make up the work of a forester? How can he tell when a man has done a day's work, say in felling timber, or in planting, or draining, &c.? Because he can manage the home nursery, therefore he is competent at once to manage economically a vast tract of woodlands! Strange reasoning this, and not worthy of the usual character of "Y.'s" writings. I am constrained to think that he does not really believe in the doctrine he preaches. —W. B. H.

THINNING OAK WOODS.

The time for thinning Oak woods, says Mr. Clutton, is when the underwood is cut. The greater part of the timber generally in the south is grown with underwood. The underwood is cut, on an average, once in ten years. At each cutting, trees which have attained a good size, and show symptoms of diminished growth, are felled, and open spaces are thus obtained for a fresh crop. The same opportunity is taken for thinning the young Tellars, and of saving such further young plants as have come up since the last cutting of the underwood, that is, ten years previously. In thinning Tellars and young trees, it is of the utmost importance that the leading trees should be left and the inferior ones cut. For the ultimate crop the trees should stand from 20 feet to 30 feet apart. The great aim of every forester should be to keep the trees thick enough to draw each other up to the height required, so as to have a clear stem of from 20 feet to 40 feet, as the case may be, and so to gradually thin them as not to abruptly admit the wind, and thus cause them to be checked in growth. Any checking of growth is speedily detected by the throwing out of a quantity of "bushy" boughs, as they are called, up to the age of from seventy to eighty years. If the trees have been properly managed the wood will require little further thinning until clearing, unless the timber is left for a longer period than 100 years for large shipbuildings. After a wood has been cleared of a natural crop of Oak, and the underwood has grown for a period of ten years, it will generally be found, at the next cutting, that a good crop of self-sown Oak Tellars is fairly scattered over the ground. The Tellars are usually marked with paint, and are excepted from sale. At this first cutting the young Oak trees will be about the same height as the underwood; and if the underwood is fairly good, the chances are that it will be unnecessary to thin the Tellars at all, more than by a woodman going round and chopping down with a hatchet any inferior trees. During the next five or six cuttings the real work of thinning must be executed.

The periodical cutting of underwood affects the growth of trees, as it affords the only opportunity of thinning woods; thus the thinnings are at longer intervals than perhaps is best for the growth of Oak timber. The custom in the wealds of Surrey, Sussex, and Kent is to cut the underwood at intervals of from eight to twelve years. Underwood is usually sold by auction in November, and in the following spring the Oak trees are inspected, and such thinning as is required is then done. If the timber only was considered, a shorter interval of, say, five or six years would be better, but as the underwood is an important portion of the profits, it is impossible to make the most of it until it becomes large enough for conversion into Hop-poles, hoops, &c. As to the age at which the timber causes injury to underwood, supposing there is a full plant of Tellars at any given fall, for the next two cuttings (say, for twenty years) there will be little difference found in the value of the underwood, which averages from £8 to £10 per acre. The next three cuttings will be reduced, on an average, about one-half, and afterwards the periodical cutting will be sold for a very small sum, viz., £1 to £1 10s. per acre, which will not pay for rates, fencing, and ditching.

Forest preservation in Canada.—The question of the best means of promoting tree planting and forest preservation in different parts of Canada is now exciting considerable interest throughout the Dominion. One proposal, having special reference to Ontario, is meeting with general favour. If this proposal were adopted, a farmer would be encouraged to reserve five,

ten, or fifteen acres of his land in forest by a Government enactment, freeing such portions of his property from taxation, but at the same time rendering him liable for all taxes whenever he ceases to preserve them.

THE MANAGEMENT OF WOODS.

"Omega" (p. 353) needs a word or two of reply. He thinks bred gardeners would be less fit to fill the forester's place than the present race of woodmen. This I take to be what he means. Very well. Our woods, by almost universal consent, are acknowledged to have been grossly mismanaged hitherto, and they have been managed by foresters. Who, then, is to blame? I admit that the landlords are so far to blame in not taking sufficient interest in their woods, but for the setting out, planting, and culture of the plantations the forester has been responsible in a great degree, and there are examples to show that this is true, for the woods on many estates reflect the woodman's management more than anything else, some being ill, some indifferently, and some fairly well managed, just according to the ability of the man. Gardeners are as much subject to the will and caprice of their employers as foresters, and more so, for they have, as a rule, more than one master to please. Yet they manage to leave their mark on the garden in almost all cases, and no one will dispute that their cultural successes are of a high order, far and away ahead of the forester. I do not wish to indulge in comparisons, but there can be no harm in trying to realise our position truly. "Omega" says a forester ought to be a man "not only possessing a knowledge of chemistry, geology, entomology, and botany, but a good knowledge of estate carpentering, land surveying, valuing, and a thorough knowledge of saw-mill management." Well, I content myself with denying that he needs much knowledge of the "ologies" and other sciences above stated; but, granted that he does, how many foresters in a hundred know anything about them? Not one per cent. probably; whereas gardeners worth the name almost all do know something of them, and have means of learning in their abundant experience and literature what they need to know.

As for carpentering, it is much more nearly allied to his department than any other on the estate, but, as a matter of fact, neither the gardener nor the forester need to possess a good knowledge of carpentering. The estate agent himself superintends all estate work of this kind where there is no clerk of works, and he gets on with exceedingly little knowledge of the subject. As to the saw-mill belonging to the woods, there are not many places where such a thing exists, and I find that there are always about a dozen handy labourers ready to take the whole thing in charge when a vacancy occurs. These two items are not worth mentioning. As "Omega" says, the felling and converting of timber and valuing are important matters to the proprietor, but there is nothing difficult or mysterious about them. The forester does not fell the timber himself, and he has only got to satisfy himself that the work is performed in a workman-like manner, and a glance will tell even a novice when that is done if he has once seen a tree properly felled. As to "converting" timber, the word is an exaggeration as applied to the conversion of timber on estates, which, in ninety-nine cases in a hundred means only sawing up rails, a few rough boards now and then, and making posts and stakes.

Valuing timber, too, is soon learned, but all woodmen are not experts at such work. Before timber can be sold, however, it must be grown, and it is in the laying out, selection of trees, and the culture of the plantations in which the forester has failed in the past, and which it is proposed to remedy by putting woods under men who understand tree culture. To this work the gardener brings a fund of experience and skill to which the forester is an entire stranger. He has never come in contact with plant life in the intimate manner the gardener has done, nor mastered the principles on which the latter proceeds, and which are as applicable to wooderaft as to gardening. It is here the mismanagement of our woods is seen, it must be remembered, and not in the disposing of the timber. Yorkshireman.

THE BLACK ITALIAN POPLAR.

This Poplar (Populus monilifera) is perhaps the most rapid growing tree we have in cultivation, and will produce in a given number of years more available timber than any other tree yet introduced. Since the commencement of the Larch disease, this Poplar has become very extensively cultivated, and its wood is now used for various agricultural purposes, as well as for railway wagons, &c. The wood of the Black Italian Poplar, as well as that produced by some of the other species, all being equally free-growing, is worthy of being experimented on for railway sleepers, so as to ascertain its duration when compared with the ordinary sleepers now in use; if prepared, and laid on broken metal, as sleepers generally are, it may last a very long time.

The Black Italian Poplar is admirably fitted for a fence in moist soils. Plants one year old, which are generally about 4 feet in height, will form a tolerably good hedge the first year. If the soil is dug over and manured several months previous to planting, strong cuttings may be inserted about a foot apart, and these will make shoots varying from 3 feet to 5 feet in height during the first season. At the end of the second year, during the month of November, the top of the fence should be regularly reduced with a hedge-bill to the height of 5 feet. This will strengthen the sides of the fence, and consequently increase the stability of the stems. A very good plan is to tie rods of wood to the young trees at 2 feet or 3 feet from the ground, until they have become sufficiently strong of themselves to resist the pressure of cattle. When properly attended to, by keeping them free from weeds, and trimming them regularly every autumn, these fences become highly useful and ornamental, and are at once amongst the cheapest and readiest of any that can be raised. The hedge should be wider at the base than at top, and should be trimmed wedge-shape. J. N.

Spring *v.* autumn planting.—From long and extensive experience in planting in different situations and soils, I am in favour of autumn planting of forest trees, and also evergreen shrubs unless in cold, bleak situations, when the latter are best deferred till spring or early summer. There may be situations where the soil is too wet to admit of early planting, but such is unfit for planting at any season till drained. There is an old saying which in practice I find to be correct, viz., "Plant a tree in autumn and command it to grow, but in spring you must coax it." Some are of opinion that severe frost will injure early planted trees; this I have proved to be a fallacy. In order to test it I left young trees with their roots uncovered during severe frost, and planted them when thawed, and I found that they sustained no injury. There is more risk from drought in spring planting than from frost in autumn or winter planting.—J.

Heart-rot or dry-rot in Larch.—The outward indications of fully-established heart-rot are—the tree becoming perceptibly thickened under about 2 feet from its base; the bark of both stem and branches assuming an unhealthy, dried, and more or less Moss or Lichen-covered appearance, the length and abundance of such covering being in proportion to the atmospheric dampness of the situation; and the stunted, decreasing growth of the annual shoots and foliage till the tree first becomes partly, and ultimately wholly dead. When cut down the internal appearances are—first unhealthy, darkish discolourations of portions of the red or heart-wood, which spread and change to dry rottenness, followed by hollow-heartedness, and finally by total decay; the decrease in the width of the annual wood-layers being proportionate to the increase of rottenness till arrested by death. These symptoms occur at all ages, but are most frequent between ten and thirty-five to forty years, and are attributable to occasional droughts, as well as to occasional over-saturation, to fungoid attacks on the roots, such as emanate from decaying remains in ground previously occupied by Scotch Fir, and to lopping off or otherwise destroying the roots—in fact, to anything that thoroughly checks or materially weakens the root action. The correctness of these remarks being assumed, it follows that the only prevention of dry-rot is to avoid planting Larch in places likely to produce it. The only remedial measures that can be adopted—for cure there is none—are cutting down the trees when it first appears, and re-planting the ground with other more suitable kinds.—W. G.

THE HEMLOCK SPRUCE AT HOME.

(ABIES CANADENSIS.)

One of the loveliest and most graceful of Canadian forest trees is a young Hemlock. As great a contrast does that elegant sapling, with its gay, tender green feathery sprays, bear in its beauty of form and colour to the parent tree, with its rugged stiff and unsightly trunk and ragged top, as the young child in its youthful grace and vigour bears to the old and wrinkled grandsire. The foliage of the young Hemlock in the months of June and July, when the spring shoots have been perfected, is especially beautiful; the tender vivid green of the young shoots at the end of the flat bending branches of the previous year appears more lively and refreshing to the eye in contrast to the older, dark, glossy, more sombre foliage which they serve to brighten and adorn. The Hemlock does not reach the lofty height of the White Pine, though in some situations it becomes a giant in size, with massive trunk and thick, bushy head; the bark is deeply rifted, dark on the outside, but of a deep brick-red within; the branches are flat, the small, oval, soft cones appear later in the summer on the ends of the shoots of the previous season. The timber of the Hemlock is very durable, tough, and somewhat stringy, loose-grained, but is said to resist wet; it is used for granary flooring, rail-ties, and some other purposes in outdoor work. The bark is used largely in tanning. The backwood settlers stack the Hemlock bark while clearing the forest land and carry it in during the sleighing season to the tanneries, receiving a certain value per cord in money or store goods.

Villages and towns now occupy the spots where only the dark forests of Pine and Hemlock, Maple and Beech once grew. The trees disappear indeed before the axe and fire from the site where Nature had placed them, but they reappear now as ornaments, planted by the hand of taste in the gardens, and as shade-trees on the streets of the towns and cities; and this is good, it speaks of taste and culture. The Hemlock, however, is less frequently seen about our dwellings, beautiful as it is, for it is tardy in growth and does not take kindly to cultivation. Its natural soil is dry, rocky, or gravelly land.—*Plant Life in Canada.*

Osier plantations.—The following is the method of planting an Osier bed which has been carried out by an experienced grower on some "warp" land near Stamford Bridge, Yorkshire. The land, which he has had on lease for twenty years, at a low rent is only 3 feet from the ordinary level of the river, and was when he took it a complete bog. However, by cutting a few deep ditches he dried it sufficiently to allow of its being ploughed, after which he let it to be trenched two spadings deep, the top spit to be placed in the bottom, at £6 per acre. Two years ago last March he planted cuttings 14 inches long, of the following varieties of Willow, viz., French, Black German, Spaniards, and Yellow Osiers. The rows of cuttings were 20 inches apart, and the cuttings were put in at a distance of 8 inches from each other in the rows. This is rather nearer than is usually done, but as the land was good, the planter thought it would be more profitable. The first summer he hoed over the ground at least twice to keep down the weeds; afterwards the Grass, &c., was cut out with a sickle, but it was anticipated that the Willows would in two years be able to overcome the undergrowth. The reason that cuttings of such a length as 14 inches were used is, that there had been no frost of sufficient keenness, during the previous winter, to temper the land.—W. H.

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"This is an Art
Which does mend Natnre: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

CLASSIFICATION OF GARDEN ROSES.

In attempting to handle this difficult subject, the very diverse requirements of a botanical classification of species and a convenient arrangement of garden varieties must be kept prominently in view. Mr. Baker, the best possible authority, gives the number of Rose species as sixty-two, a number which is more likely to be reduced than augmented, and of which it is quite possible that not more than twenty are answerable for the great bulk of the varieties now found in gardens. The contention of Rose reformers, however, appears to resolve itself into this: that the very various modes of classification adopted in their catalogues by different nurserymen are inconvenient; and that it is desirable that a uniform arrangement should be made use of in all lists. Apart from the possible comments of the trade-growers as to their perfectability to manage their own business, it may be pointed out that the variations of arrangement in catalogues are not more numerous than the differences of ability and knowledge in those who have gardens to furnish. For the amateur who sees a Rose which he admires, and merely wants to find its cost before ordering it, the simple dictionary of names of varieties with their prices attached is most convenient. The rosarian of wider experience or botanical tendency, on the other hand, demands a catalogue arranged on something like a scientific basis, in which varieties are grouped and classified under the head of the species from which they have sprung. But between these two extremes there is every imaginable class of constituent, to whom, naturally, every form of appeal is made.

What class of growers it is intended to benefit by the suggested alteration of terms is by no means evident. Anyone capable of understanding the somewhat ponderous expression annual blooming shrubs, would probably prefer the simpler term summer Roses that has done duty for so many years. Again, periodical blooming shrubs can hardly be considered a very great improvement on hybrid perpetual. The term perpetual has attained a fairly definite meaning in horticulture, and when a perpetual Rose or a perpetual Strawberry is spoken of, it is understood to mean that the plant flowers or fruits more or less a second time after the normal period of flowering or fruiting. When people speak of perpetual Roses they use the expression as the name of a group of widely-known Roses, which have, in common, the quality of blooming a second time—generally in autumn—to a greater or less extent.

But if the desirability of the suggested terms is open to question, far more so is the possibility of their introduction. When once a nomenclature has been adopted, and especially when its employment has become practically universal, it is pretty nearly hopeless to attempt to effect any substantial alteration. Many of the commonest expressions have long since lost their literal meaning, but are not, therefore, discarded as unintelligible; the fact that the sun does not in reality sink down when day is done was not a discovery of yesterday, yet the phrase "the sun is setting" still survives. "But," says "Hortus," "could perversion of words or misrepresentation of facts go further? Is it not a gross imposture?" Perhaps; but it answers. Sunset, if you will, is the unmeaning name of a common astronomical fact, and Hybrid Perpetual is the unmeaning, but perfectly well understood, name of a well-known group of Roses. There is an excellent old proverb about not throwing away dirty water until clean is forthcoming, which "Hortus" seems to have forgotten in suggesting the necessity of beginning a new arrangement by the abolition of existing Rose names, and really the objection to historical and geographical names is not so very obvious. Persian Yellow is a good enough name for the Rose sent home by Sir Henry Willock in 1837, and in all probability China Roses will be talked about to the end of time. What has been the result of the attempt to supplant the practical Fortune's Yellow by the more picturesque, but not a whit more descriptive name, Beauty of Glazenwood?

The proposed division of Roses into shrubs and climbers would but render confusion worse confounded, for, as "Hortus" points out, innumerable varieties may be equally well grown in either capacity, and the suggestion to supplement this admittedly doubtful classification by reference to such structural details as the prickles comes a little oddly from one so opposed to a botanical basis. The botanist may, perhaps, identify species by the form and position of hairs and prickles, but the gardener classifies his plants chiefly by their flowers, and it is hardly to be supposed that "Hortus" would seriously entertain the notion of putting Baroness Rothschild and Etienne Levet in different classes because one is thorny and the other smooth-wooded, or of separating Alfred Colomb and Marie Baumann because one has only large prickles, while those of the other are of all sizes.

Even the distinction most relied on by Mr. Hewett, namely, the number of times a Rose blooms during one season when considered without regard to the origin of the variety, is by no means dependable, for many varieties bloom more freely in autumn in some places and in some seasons than in others; and recent correspondence has shown that, whereas in certain localities Madame Gabriel Luizet has this year proved a most valuable autumnal bloomer, in other parts not a bloom has been seen since the July flowering. But if the period of a Rose's blooming is to be considered in connection with its race or origin, then Mr. Hewett's threefold division gives us nothing but our old friends the summer Roses, the Hybrid Perpetuals, and the Tea-scented Roses under new and not very attractive names. Concluding, therefore, that it will be impossible to get far away from the existing classification and nomenclature which Mr. Hewett considers so "sadly confused," and "Hortus" finds "uncertain and incomprehensible," it will be well to see how far a case is made out against present arrangements, and what amendments and simplifications it would be possible to effect.

Mr. Hewett's great difficulty seems to be to decide where to class certain recent Hybrid Teas and the Noisette Roses. Let the plan of the National Rose Society be followed of classing the former as Hybrid Perpetuals and the latter with the Teas, and almost the whole of Mr. Hewett's objections disappear. Just as Asia Minor is the general receptacle of the schoolboy for every place of whose exact geographical position he is uncertain, so the group of Hybrid Perpetuals may be made to include all Roses of such mixed origin as not to be referable to any distinct species, provided only they bloom more or less a second time during the season. Again, it might naturally be expected that a hybrid between a Tea and a Musk Rose when hybridised with a Tea would give seedlings very nearly resembling the general habit of the Tea, of whose blood it would have, so to speak, a double strain, and this appears to have been the case with the so-called Noisette Roses. The original Noisette (now believed to be entirely lost) came from a cross between a Tea and a Musk, and this hybrid, being again crossed with Teas, resulted in varieties such as Maréchal Niel, Caroline Kuster, Solfaterre, &c., so nearly of the character of the Teas as to justify their inclusion in the same group. By the way, Mr. Hewett makes a strange remark in asking whether "the yellow shades in our Tea Roses . . . are natural to the species canina;" whereas, of course, all our Tea Roses are derived from R. indica and its varieties. There are no yellow varieties of R. canina, nor does there appear to be any evidence of any cross with R. sulphurea having ever been effected.

"Hortus" says, "it seems physically impossible to make botanical species of Roses the basis of any practically useful nomenclature or classification that shall be understood by rosarians." The use of the term "rosarians" here makes this statement rather self-contradictory, for it is hardly to be believed that the rosarians who have carefully classified all the garden varieties under the heads of the species from which they have sprung have completed an arrangement practically useless and incomprehensible to themselves. But if "Hortus" means to say that beginners in the art of Rose-growing cannot use or understand the Rose catalogues that are arranged upon this botanical basis, the statement may be more or less true according to the way in which such novices approach their task. The catalogues of our large Rose growers are, as a rule, explicit enough for most people; but for beginners a further simplification might be desirable, and there is no doubt that all the varieties of Roses now grown in gardens might for practical purposes be included in the following four groups:—

1. SUMMER ROSES (Roses that never bloom more than once a year).—Provence and Moss, Damask, Gallica, Alba, &c., Hybrid China (so called), Climbers (Ayrshire, Evergreen, Banksian, Boursault). This would form a very brief part of the list, but few varieties being worth growing in an ordinary garden.
2. HYBRID PERPETUAL ROSES (Hybrid Roses which bloom to a greater or less extent more than once), including Hybrid Teas, Bourbons, &c.
3. TEA-SCENTED ROSES (varieties which have not widely departed from the type R. indica), including Noisettes and Chinas.
4. SINGLE AND SEMI-DOUBLE ROSES.—Species: Macartney, Rugosa, Musk, &c. This also would constitute but a short section.

In groups 2 and 3, which would, of course, constitute the bulk of the list, either some device might be employed to indicate the varieties best adapted for exhibition, or each group might be printed in two sections; the one to include the best varieties for exhibition, leading types of which would be, in group 2, A. K. Williams, Lady Mary Fitzwilliam, and Madame Isaac Pèreire; and in group 3, Catherine Mermet, Maréchal Niel, and Caroline Kuster; the other to include what are conventionally called garden Roses—that is, varieties with less perfect flowers, though well adapted in a mass to make an effective display in the garden—leading types of which would be in group 2, Anna Alexieff, Reine Marie Henriette, and Armosa; and in group 3, Madame Falcot, William Allen Richardson, and Cramoisie Superieure.

These four broad divisions form a purely garden arrangement, although originally founded on a

botanical basis, and, if convenient in catalogues, may also advantageously be maintained in a collection of growing plants. The summer Roses should be grown by themselves in the garden because many of them, such as the Mosses, Gallicas, &c., are exceedingly liable to mildew, which is a terribly infectious complaint. The Hybrid Perpetuals may well be grown all together, as none of them, whether called Hybrid Teas, Hybrid Noisettes (such as Boule de Neige), or Bourbons, are admissible in the classes devoted to Teas at Rose shows. The Tea-scented Roses, requiring in many districts a little extra careful treatment and protection, are much more conveniently managed when not mixed up with other kinds of Roses, especially also as they will thrive on lighter soil than that best adapted to Hybrid Perpetuals. The grouping of the single Roses by themselves might be considered unnecessary, seeing that they appeal, unfortunately, only to a limited public as yet; but that is all the more reason in reality for their separation, so that those who do not want them need not be bothered with their inclusion in other parts of the list, while their admirers may at the same time find them without trouble. Still, if the more decorative of these graceful single Rose types be grown more or less apart, or in the wild garden, anywhere where they can have room to grow as they like, the canopy of bloom under which the plants hide themselves from the summer sun cannot fail to win for them increasing admiration from all who see them.

T. W. G.

NOTES OF THE WEEK.

Chrysanthemums in Finsbury Park.—We have been requested to state that the annual display of Chrysanthemums in this park is now open to the public.

Anthuriums.—Of the forms of A. Andreanum that named Reine des Belges differs in the spathe, which is smooth, not wrinkled like the type, whilst the colour is a pleasing bright rose. A. Archiduc Joseph has also a smooth spathe, rosy peach in colour. A. ornatum, a very ornamental kind, has pinkish white spathes, and A. Dechardi, a compact-growing kind, has also white spathes and is almost a perpetual bloomer; all of these plants are now in bloom in the Maida Vale Nursery.

Tuberoses out of doors.—Having read "R. D.'s" remarks on double Tuberoses, I thought it might interest some to know that these flowers can be successfully grown out of doors. We have been cutting blooms here for the last six weeks from bulbs planted out about the first week in May. I enclose a spike, though the flowers are now getting spoiled, the nights being cold and foggy.—W. Thomas, *Aylesford.*

*** A very fine spike indeed of the best double form of Tuberose.—Ed.

Zonal Pelargoniums.—These are exceptionally fine just now at Swanley. Those who have not studied these plants could scarcely believe what great improvements have been made in them during the past few years. Anyone requiring a brilliant display of flowers either in the greenhouse or in a cut state from this time up to Christmas cannot afford to discard Pelargoniums. For this purpose there is absolutely nothing to equal them; beautiful even as are Chrysanthemums, they cannot approach zonal Pelargoniums in brilliancy. Amongst the finest singles adapted for pot culture may be mentioned Lord Rosebery, cerise-red; Lucy Mason, reddish salmon, suffused with orange; Lady Reed, pure white, with a large scarlet centre; Norah, soft blush; Imogen, pure salmon; Queen of the Belgians, large white, retaining its purity under any conditions; Aurore Boreale, light scarlet, tinged with salmon; Edith George, reddish pink, very fine; Nelly Thomas, bright scarlet, upper petals feathered with maroon; Queen Matilda, soft pink, base of upper petals pure white, dwarf, and very effective; Ajax, soft reddish scarlet; Swanley Gem, bright rosy salmon, with a white centre; Mr. H. Cannell, crimson and maroon, white eye; Lady Chesterfield, very deep salmon; and Lord Chesterfield, rich magenta, and trusses large. In the double section there are many fine varieties with broad, even petals, and as double as a Rose. Some of these are largely grown for market purposes, and are extremely valuable when cut, on account of their blooms lasting for a long period; the pips, when wired, are worked up into bouquets and button-holes. The following are the names of a few kinds which stand out conspicuously amongst thousands now in flower. First come the novelties of the season, and amongst these may be named Spade Guinea, orange-scarlet, suffused with yellow, very fine, and from which we may reasonably hope ere long to have a genuine yellow Pelargonium; Australian Gold, cerise-salmon, with a distinct yellow shade; and Blanche Perfecta, pure white. Amongst older varieties are Mr. H. Cannell, a useful sort for market purposes; B. K. Bliss, rich deep scarlet; Eteranthe, large in the truss, and pips large individually, flowers semi-double, rich scarlet; Belle Nancienne, white, edged with salmon, centre red; Sir G. Wolseley, mottled salmon, very fine; Mrs. Cordon, soft rosy cerise; The Lord Mayor, purple-pink; Magenta King, rich pure magenta; James Vick, deep salmon, shaded with pink; Charles Lalande, intense crimson; Le Cygne, pure white; and Madame Leon Dalloy, blush white—all very handsome.

Bromeliads in flower.—Among these beautiful plants which are largely grown at the Pine-apple Nursery, Maida Vale, are Caraguata cardinalis, with large scarlet spikes; Tillandsia Lindeni, rich blue; the old Æchmea fulgens, Billbergia thyrsoidea, Nidularium Meyendorfi and spectabile; whilst such kinds as Encholirion Saundersi, Tillandsia mosaica, and T. zonata and splendens are also conspicuous. The extreme beauty of this class of plants should render them more popular in English gardens than they have hitherto been.

Amaryllis Belladonna.—A border of this in front of one of the plant-houses at Gunnersbury Park, Ealing, presents a sight long to be remembered. The bulbs were put out a few years ago by Mr. Roberts; they were properly planted, and since then they have done amazingly well. The border is 30 feet or so in length, and about 21 inches in width, and it presents to view quite a forest of stout stems bearing very fine trusses of deep rose-coloured flowers. The border faces due south, and the east end of it is nearer the hot-water pipes than the other portions, the result being a succession of plants, those in the warm end coming much earlier into flower than those in the other. The bulbs were placed rather deep in the border, which consists of a rich, but rather light soil. There are many spots in gardens in warm, sunny positions that could be used for the growth of this really grand autumn-flowering plant.

Double Primulas.—These are quite a speciality in Messrs. Henderson's nursery, Maida Vale; they are just now coming into flower, and will continue in bloom throughout the great part of the winter. Apart from their utility and beauty as pot plants, few flowers are more popular for button-hole bouquets than are those of these double Primulas. Besides the old double white, we noticed a Fern-leaved form, with large, rich, crimson flowers, named Emperor; also King of the Purples, purplish crimson; Fairy, white, elegantly fringed; Princess of Wales, very large pure white; Maiden's Blush, white tinged with pink; and Water Nymph, Fern leaved, with white flowers. These are all first-rate sorts.

Begonia Mrs. Haworth-Booth.—Under this name we have received from Col. Haworth-Booth, of Hullbank, Hull, the finest single white Begonia of the tuberous rooted section we have yet seen. The flowers measure just upon 4 inches across, are of thick texture, and the petals are rounded in such a way as to make almost a circular flower. The whole flower is of snowy-whiteness, which is rendered all the more striking by being contrasted with the tassel of golden stamens. There are many white sorts of Begonia, but they have defects, some being flushed with pink; others, again, are defective in form, having petals of unequal size, but this seedling seems to be, as we have just said, the perfection of a first-rate white Begonia. The leaves are large and of fleshy texture, and we presume the habit of the plant is strong and dwarf. It was raised by Mr. Lawrie, the gardener at Hullbank.

Chrysanthemum La Vierge.—Some flowers of this beautiful early Chrysanthemum have been sent to us by Mr. Henderson, of Corstorphine, Midlothian, who states that the blooms were cut from plants lifted from the open ground and potted last month. The flowers are as fine as those of Elaine, and absolutely pure white. It is in every way superior to such kinds as Madame Desgrange for purposes for which pure white flowers are required.

Tercentenary of the introduction of the Potato into England.—it is proposed, says *Nature*, to hold a Tercentenary Potato Exhibition at the St. Stephen's Hall, Westminster, from Wednesday, December 1, to Saturday, December 4, and to appoint one of those days for a conference, when some of the unsettled questions relative to the history, &c., of the Potato may be discussed. The exhibition will consist of four sections:—(1) An historic and scientific collection, to include early works on botany, in which the Potato is figured; maps showing the European knowledge of the New World three hundred years ago, and the proximity of Potato-growing districts to the ports most frequented; early books on travels and voyages in which reference to the Potato occur; works and papers in which attempts to define the different species are made; illustrations of the species and varieties; contemporary references to the voyages of Hawkins, Drake, Greenville, and Raleigh. (2) Illustrations of Potato disease, and works on the subject. (Sections 1 and 2 will be arranged under the advice of a committee of scientific gentlemen who have consented to give their co-operation.) (3) Methods for storing, preserving, and using partly diseased Potatoes, &c. (4) A display of tubers of all the various varieties grown. (In this section, gold, silver, and bronze medals will be awarded. Each exhibit must be accompanied by a statement of date of planting, locality, nature of soil, &c.)

QUESTIONS.

5524.—**Preserving Filberts.**—What is the best way of preserving these and other nuts? I find that mine are shrivelling, though picked ripe and put in a dry place.—E. G.

5525.—**Moth traps.**—May I ask "G. S. S." to give me the correct name of the plant which acts as a moth trap? I should like to procure some.—Entomologist.

5526.—**Pistia Stratiotes.**—Will some reader of The Garden, who is a good grower of this aquatic, kindly give me some details as to its culture? I have a small plant or two floating in a Lily tank, but they seem to be dwindling away.—M. H.

5527.—**Too leafy Violets.**—How can I prevent Violets producing an over-quantity of leaves compared with the amount of flowers? Mine look green and healthy, throwing out quantities of leaves and runners, but the flowers are few. The soil is good, calcareous in subsoil and well manured.—Enquirer.

5528.—**Diseased Clematises.**—For these two or three years past, large-flowered Clematises in my garden at Weybridge have been so much diseased, that I am no longer going to attempt to grow them. It affects both Jackman's varieties and those raised by other growers, planted in different parts of the garden; the plants die off suddenly without any apparent reason. I should be glad to know if there are any large varieties proof against it, and if the disease is general.—Old Subscriber.

SHORT NOTES—VARIOUS.

5523.—**Label wires.**—Do not hang Acme labels by copper wire; galvanic action is set up between the zinc and the copper, and the zinc label very soon gets cut through and drops off. I speak from experience.—R. C. B.

Seedling Begonias (*G. H. M.*).—Very good blooms, but not superior to those of other sorts raised in nurseries in or near London. Your double sort is, we consider, the finest, but one with flowers very similar was shown at South Kensington the other day.

Anagallis cærulea and arvensis are identical, except in colour; therefore one is a variety of the other. A. indica from Nepaul is distinct. The large-flowered kinds from the Mediterranean require protection in winter. There is a white variety of A. Monelli.—S. A.

Fungus (*E. S and S.*).—The fungus which you send is not a truffle, though often mistaken for one. It is a kind of puff-ball named Scleroderma vulgare, and, if not poisonous, quite worthless for the table. It is, however, sometimes used for stuffing turkeys, sausages, &c., by the keepers of the commoner sorts of French-dining rooms in London. Its taste is by no means pleasant, but being black in colour it passes for truffle with some unfortunate diners.—W. G. S.

Flower Garden.

OX-EYE DAISIES.

There seems still to be a good deal of confusion prevalent about the synonyms and characters of several Ox-eye Daisies which are more or less common in English gardens and nurseries. The remarks I here make are founded upon the best botanical authorities, and upon an examination of specimens in the herbarium at Kew.

Chrysanthemum (Leucanthemum) maximum (De Candolle).—This is the plant figured on p. 333 of The Garden by the name of L. atratum. Plants of it came to me about five years ago named C. atratum, but, suspecting their genuineness, I sent them to Kew, and received a reply signed by the highest authority there saying, "Your Daisy is clearly Chrysanthemum maximum." Since that time I have distributed it largely under its true name. It grows 2 feet or 3 feet high or more, has a spreading habit upwards, but a close growth at the base, produces very large flowers in June and July, and is succeeded by

Chrysanthemum (Leucanthemum) latifolium (De Candolle).—This is the plant which is grown in many gardens and nurseries as C. maximum. It begins to flower just as the true C. maximum ends and grows twice as high, reaching in this garden a height of from 5 feet to 7 feet. In its native country (Portugal), I am told by those who have seen it, and have sent me seeds of it, that it grows to a height of 10 feet. The flowers are often as large as those of C. maximum, but the stalk is thicker, and the plant in every way coarser and inferior, but it has the merit of making a succession in the mixed border. Plants from the same lot of seed vary much in the form of the flower, the width and length of the rays, and the relative size of the disc; but there is a gap between latifolium and the nearest form of maximum to it which I have never seen bridged over. I first received this plant from the late Mr. Harpur Crewe by the name of C. lacustre, which is Brotero's name given by De Candolle as synonymous with his C. latifolium.

Chrysanthemum (Leucanthemum) atratum (De Candolle).—The characters of this plant do not agree exactly with those of any plant I have seen in cultivation in English gardens. The specimens, of which there are many, in Kew herbarium lead me to think it would be no acquisition, and in no respect superior as a garden plant to our common Ox-eye Daisy, C. vulgare, of which many botanists take it to be a mere variety. The leaves are narrow at the base, very obtuse at the apex, with three or five deep indentations. The name atratum, "blackened," refers to the outline of the back of the involucral bracts. In all the Ox-eye Daisies this is often marked with brown, but in C. atratum it is a distinct black line. In other respects the flower resembles that of C. vulgare, or of

C. montanum, a plant I had ten or twelve years ago from Ware's nursery, and, as far as I have been able to investigate it, it was correctly named. Generally speaking, it is hardly distinguishable from large forms of C. vulgare, and is hardly worth cultivating where C. vulgare is common. But either of these plants may be made to produce large flowers and tall stalks by high cultivation, or, by planting in rock without soil, to assume a neat and dwarf growth, not exceeding 3 inches or 4 inches high. Of these five species I have seen four in cultivation in England, C. atratum being the exception. There are many other white-flowered Chrysanthemums, but they are not so liable to be confused. I may add that the botanical character of the presence or absence of a pappus above the achene of the ray flowers, upon which some botanists depend for the distinction of these species, is thought by others to be less trustworthy. C. Wolley Dod.

Edge Hall.

P.S.—I hear from Mr. Loder, of Floore, that he had the Daisy lately figured in The Garden from me, and that I sent it as Chrysanthemum atratum. This is explained above.—C. W. D.

The Pyrenean Saxifrage (Saxifraga longifolia). Engraved from a photograph for The Garden.

THE PYRENEAN SAXIFRAGE.

(saxifraga longifolia)

The noblest of the silvery Saxifrages, and a most satisfactory plant in all stages. It is interesting to watch the gradual increase of the young rosette of stiff symmetrical foliage for two, or even three years, and finally the growth of the great flower-spike, when, after due ripening of the seed, the plant dies. Unlike other Saxifrages of this section, it makes no offsets, and young plants can only be got from seed. The plume of flower from which the engraving was taken was some 20 inches long, and nearly a foot wide at the base.

The white Mallow.—I have before me a vase filled with a bunch of the Malva moschata alba, with just a few flowers of a single dark red Gaillardia dropped in to give colour. This is, I take it, a rather uncommon bouquet, if it may be so termed, and yet a very pretty one. The Mallow flowers close up at night, and expand again in the morning; thus they are more enduring and escape that dust which settles so freely upon flowers after the gas is lighted. Unexpanded blooms at the time of cutting will open some two or three days later in water. I think, were this Mallow generally known and cultivated in gardens, it would be found of inestimable value for cutting purposes, and would be highly esteemed by ladies, as it is so pleasing and bright. Plants come freely from seed. They are perfectly hardy. During the winter the prettily cut foliage is very ornamental, and the plants will grow anywhere.—D.

Hybrid Gladioli.—Allow me to demur to a few of the opinions expressed by "Delta" (p. 336) in reference to the culture of Gladioli. I have been a grower of all the newer varieties I could procure for many years, and, therefore, am not unacquainted with their culture. In speaking of the natural advantages enjoyed by Mr. Burrell at Cambridge, "Delta" says the rainfall is 10 inches less than at Kelway's, in Somerset, that the soil is good loam, and that the autumns are dry, thus approximating comparatively to Fontainebleau. The climate in Cambridge, as a matter of fact, is considerably different from that of Fontainebleau; probably, so far as one could judge by visiting both in autumn, there is a difference of half-a-dozen degrees in temperature, and this tells vastly as regards the ripening process, which I look upon as one of the vital secrets of success. A southern aspect, too, tells vastly in the same direction. Take the same locality, plant Gladioli on a slope facing the south, and success is certain. Plant corresponding corms facing the north, where ripening from sun-heat is difficult or impossible, and failure and degeneration are equally assured. That is my experience, and I have grown spikes as fine as those I noticed in the magnificent stand of 120 varieties shown from Langport at the Royal Horticultural Society's show, at South Kensington, on the 24th of August last. As to moisture, I believe that Gladioli, especially in summer, are exceedingly fond of it. I have had as fine spikes as ever I saw within the past month, the majority of them being the rarer purples, pinks, and shades thereof, with the exception of Christopher Columbus, Cherub, Samuel Jennings, and James Macintosh—and yet rain, it raineth every day! As to soil, that of a rich sandy formation is by far the best. Sand I have found to be a great antidote to degeneration. I put a handful of clean river sand both above and below the corms; but where the soil naturally contains a large per-centage of it, there should, everything else being equal, be a distinct advantage. I manure heavily at the same time, and give frequent doses of liquid manure in summer.—W. J. Murphy, *Clonmel.*

Gaillardias.—Effective and fine as are many of the rich yellow and buff-coloured kinds, none are more useful than the deep red or reddish maroon forms, which seem to be rather scarce, perhaps from lack of selection. One of the darkest I have seen, and which has some semi-double features, as a few petals are thrown up in many of the blooms over the eye, is a seedling from the double Lorenziana, which in colour is quite a rich reddish

crimson, or perhaps chocolate. Not only do Gaillardias bloom over a long season and quite into the winter, but they are very easily propagated by cuttings, or may be raised from seed. Whilst the singles will perhaps prove the most acceptable for vase dressing, the doubles are very effective in beds or for common cut-flower uses.—A. D.

HELIANTHUS MULTIFLORUS SIMPLEX MAXIMUS.

With all due regard for "Veronica's" feelings, pray let me protest, and I am sure The Garden will join me, against this awful name. If Helianthus multiflorus really has garden varieties worth naming, let them have such names as Sunflower Dorothy, or Sunflower Mikado, instead of giving names offensive to science. To add simplex to the name of a flower is going out of one's way to make a long name, for it is only an abnormal departure from the type in the way of doubling—generally expressed by the letters fl.-pl., standing for flore-pleno, *i.e.*, with a double flower—which botanists ever think it necessary to note. But *apropos* of this H. multiflorus, Asa Gray tells us that the plant itself is a garden variety of H. decapetalus, though I have strong reasons for believing it to be a hybrid between H. annuus and H. decapetalus. However this may be, and wherever the original plant was produced, I believe that all the so called varieties of it are mere variations depending upon culture. With the same treatment all the single forms after a year or two produce in my garden flowers of the same size, about 5 inches across, more or less. Not a year passes that I have not plants of it producing single and double flowers on the same root, and I have seen the same thing in other gardens. What makes them revert from double to single, or become double, I have never been able to find out. The form of the double flowers varies much, the distinctive ray flowers being often absent, and the ligules of the disc differing in shape and size; but these differences, too, depend upon cultural conditions. I see no reason to doubt that every variety of H. multiflorus now in gardens might be from the increase of a single plant produced by an accidental cross and afterwards varied by cultivation. Has anyone ever found a fertile seed on H. multiflorus?

Edge Hall, Malpas. C. Wolley Dod.

Carnations from seed.—I have just had a communication from an old floricultural friend, an enthusiast in the matter of Carnations and Picotees, especially of the fancy varieties. He is especially interested in raising seedlings from Continental strains, in the hope of getting something new and distinct. "I have just received," he says, "for sowing next spring 500 seeds of fancy Carnations, 500 seeds of yellow-ground Picotees, 500 seeds of mixed varieties of Carnations, 500 seeds of mixed varieties of Picotees, 500 seeds of scarlet Grenadin, and 100 seeds of dwarf perpetual; in all 2000 seeds." What a garden of Carnations and Picotees they will make! What pleasure there will be in watching the expanding of the flowers even if hundreds of disappointments should be the result! It is only true enthusiasm that could carry through to the end such a trial as this.—R. D.

Varieties of Caucasian Scabious.—I have had sent me one of the most varied collections of this Scabious that ever came under my notice by Mr. Calthorpe, gardener to the Hon. Dudley Fortescue, Summerville, Dunmore East, with the following remark: "I wonder what the editor of The Garden would think of this strain for cutting purposes?" As the blooms were forwarded in a wooden box, they will hardly bear re-transmission to enable you to answer the query yourself, but you may permit me to refer to them. The blooms measure from 2 inches to 2½ inches across, and two-thirds of the thirty forwarded more or less differ from each other. Some are single; some double; some have a single row of guard florets around the margin; others are doubled; the colours range from pure white to perfect black, and there are numbers of intermediate shades of rose, purple, and crimson; others, again, have shades of blue and yellow, as in S. graminifolia; many have more than half-a-dozen shades of colour on one head alone. Remembering that this is one of the hardiest of all perennials, and that it succeeds with very limited attention, surely no garden should be without it, though all may not succeed in getting as good a strain as that at Summerville. —W. J. Murphy, *Clonmel.*

GRASS LAWNS.

The beauty of a lawn consists in the evenness of its surface, whether level or sloped, the absence of worm-casts, and of every kind of obnoxious plants, such as the Daisy, Plantain, Crowfoot, &c. A lawn should also be free from coarse Grasses, which greatly disfigure a smooth sward. Moss, too, is undesirable, although in the estimation of some it renders the turf soft and springy. To preserve a lawn in high keeping, considerable labour and attention are necessary, particularly during the summer months. In order to have a fine lawn, three things are necessary, viz., deep soil, proper kinds of Grasses, and frequent mowings and rollings. As regards deep soil, let it be borne in mind that verdure, the chief point of beauty in a lawn, has to be maintained through the summer when the weather is at times hot and dry, and, therefore, there must be depth of soil into which the Grass can strike root. It is reported that the roots of common Clover in trenched ground descend to a depth of 4 feet. One of the best lawns I ever saw was laid down upon soil—a good yellow loam of some depth—that had been deeply dug and then allowed to settle; on this was placed a layer of 2 inches of chalk broken fine, and the interstices between the chalk were filled up with the fine sweepings from a gravelled road. This was well beaten down until the surface was perfectly level, and then the turf—cut from a neighbouring common on which cattle grazed—was laid. This was the finest, softest, greenest, and most springy lawn I ever saw. A rich soil is not at all necessary, because that would cause the Grasses to grow rank; what is wanted is a short growth and soft herbage. Let the soil, therefore, be good, but not rich; depth and the capacity to retain moisture are the needful qualities. If the land be light and sandy, a mixture of a rather retentive loam should be added.

In selecting turf to make a lawn, that from a common or roadside, as free from weeds as possible, should be employed. Downs or common lands grazed by sheep supply excellent turf. If it has to be obtained from a distance, and if it has to be taken to some extent on trust, it should be stipulated that it comes as near as possible to the character just given. If seeds are to be used, the ground should be prepared and levelled in August, so that the seeds may be sown early in September. A lawn should not be laid down upon a piece of ground that requires draining; but if so, then it should be properly drained. Then let it be dug and made level, and rolled in order to make the surface as smooth as possible. As to the proper kinds of Grasses, I may remark that the following sorts are recommended as most suitable for producing a close, velvety turf:—

Crested Dog's-tail (Cynosurus cristatus)	Woodside Meadow Grass (Poa nemoralis)
Sheep's Fescue (Festuca ovina)	Yellow Trefoil (Medicago lupulina)
Fine-leaved Fescue (Festuca tenuifolia)	Bird's-foot Trefoil (Lotus corniculatus)
Dwarf Perennial Rye Grass (Lolium perenne)	Perennial White Clover (Trifolium repens perenne)
Smooth-stalked Meadow Grass (Poa pratensis)	Yellow Suckling (Trifolium minus)
Evergreen Meadow Grass (Poa sempervirens)	

These should be mixed in their proper proportions, and not less than three bushels of them will be required per statute acre, or one gallon to six rods or perches. Grasses best suited for lawns do not tiller (*i.e.*, put forth shoots from the roots) so much as some varieties which are valuable in a pasture do, and, therefore, the more thickly crowded, the finer will be the turf. Clovers do not wear so well as Grasses, and they have the additional objection of retaining moisture longer. On tennis grounds, therefore, it is advisable to sow Grasses only, unless the soil is liable to scorch in dry weather; in that case, it may be desirable to include Clover also, for Clover bears drought much longer than Grass. To secure an even plant, instead of sowing all the seed at once, let it be done twice. In the first sowing, travel up and down the land, and on the second occasion go across it at right angles. This will produce more uniform results than is possible from a single effort, no matter how skilful or practised the sower may be. As the seeds of fine Grasses are small and light, they are easily blown to some distance by a high wind; therefore choose a quiet time, if possible, and in sowing keep the hand low. When the task is accomplished, give another very careful raking, in order to cover as many seeds as possible. Finally, roll down, and if the work has been done well, there will be a surface as level as that of a billiard table. Sowing seeds may be done in the spring as well as in the autumn—from the middle of March to the end of April is the best time.

My third point is frequent mowing and rolling, say once a week or every ten days; without constant mowing a lawn will soon degenerate into a coarse meadow; while rolling will render it firmer, closer, shorter, and finer every time it is repeated. In the case of a lawn that has been sown as above directed, as soon as the young plants have attained a height of 2 inches or 3 inches, they should be carefully gone over with a scythe or mowing machine that is sharp enough to make a clean cut without bruising or uprooting the herbage. The scythe is preferable to the machine while the plant is in an early stage of growth. It is also necessary that the soil be kept in good condition, or as it is sometimes termed in "good heart," as it will, from various causes, become impoverished, and a close growth of Moss will be the result. There are some who, as has already been stated, like Moss on a lawn, contending that it makes it soft and elastic; but it is a sign of impoverishment, nevertheless; the beautiful verdure of the Grass is decidedly to be preferred. Lawns that have become impoverished and require renovation, if a fresh sowing is not required, will be greatly helped by having spread over them a thin layer of finely pulverised manure from an old hotbed; and it is best that this be applied late in the autumn when mowing has ceased; and prior to its being applied the garden-rake may be used to scratch over the surface, so that the manure may be the more readily incorporated with the soil. In about a fortnight after the manure has been applied the roller may be employed to make the surface level; but this should be done on a dry day, when the manure and earth do not stick to the roller. In selecting the manure for a surface dressing, it should be as free from the seeds of weeds as possible. A dressing of soot is of great advantage; when used with caution it produces a beautiful verdure, and it has this further recommendation, that it is free from weeds.

Where lawns require renovation, seeds should be sown, at the rate of one bushel per acre, either in spring or autumn. Before doing this, well rake the surface with a small-toothed rake, and do not be frightened at the apparent ruin which will result from this operation; the turf will speedily recover. Then sow, and either rake again or sift some fine soil over the surface, and afterwards carefully roll. On lawns that are in the main perfect there may, from a variety of causes, occur bare spots. In such cases the soil should be loosened with a rake, and a handful of seeds may be sown at any time from March till September.

Moss on lawns is generally, as has just been said, a sign of poverty in the soil, or that it requires draining. In removing the Moss, rake off

as much of it as possible; apply a top-dressing of quicklime mixed with rich compost in the winter, and sow more seed in spring, or top-dress with soot. Thus, by encouraging the growth of Grass, the Moss will be destroyed. Weeds on lawns, if numerous, should be dug up with an old knife—a tedious, but efficacious process. The holes so made may be filled up with finely-sifted soil, and the roller applied afterwards. A sure destroyer of weeds is "Bellicide," a new introduction that destroys weeds and fertilises the Grass at the same time; it should be applied in moist, not in dry weather. I have seen it applied, and am convinced it is an excellent and safe weed-destroyer.

The lawn should be swept and rolled before it is mown. Sweeping, when properly done with a Birch or Heath broom, is of great advantage, but when improperly swept with an old stubby broom positive harm is done. Rolling should be done only when the atmosphere is dry, otherwise worm-casts and loose leaves adhere to the roller and mar the efficiency of the operation. R.

THE FLOWER GARDEN IN WINTER.

Bare flower beds have a dreary look, and they are specially objectionable if immediately under the windows where they are seen daily. There are many ways of filling flower beds in winter, and any kind of vegetation is better than barrenness. The question really is one of ways and means, as if done well it will cost money in proportion to the costliness of the materials used. But there is no real necessity to employ costly materials. A few light-foliaged shrubs will be required for centres and occasional groups, foremost among which may be named the Lawson Cypress and its varieties. These, if taken care of and removed to the reserve garden as soon as their presence in the flower beds is no longer required, will last many years; the frequent removal will keep them small in size. The variegated Boxes, again, and the Aucubas and the Euonymus may be had in considerable variety, and would of themselves give warmth of tone and colouring if no other plants were used; and they may all be rooted from cuttings at home if desired, and this is the time to propagate them. The Boxes will strike very well in a shady border, but the Euonymuses, Aucubas, and Cypresses should be sheltered with glass. The tree Ivies are excellent for this work, especially when they have acquired age and size. I bought a collection about six years ago. There were in all seven varieties, including two with variegated foliage, and they are now very pretty little bushes loaded with flowers, and the foliage is of the darkest green. The variegated kinds have made less growth, but they also are full of blossom, and very pleasant to look upon. I should recommend these Ivies to the town gardener. The Barberries are handsome winter shrubs, but do not move well. Cryptomeria elegans has a pretty effect when young, and as a contrast Thuja Vervæneana would be serviceable, the latter having a pretty golden tint, and the Cryptomeria a deep-toned bronze. The Japanese Privets in a small state, especially the handsome variegated kinds, would be useful, as would also be some of the Japanese Cypresses, including Retinospora plumosa aurea, R. obtusa aurea nana and R. squarrosa. These last-named should only be taken on trial at first, as I do not think they will be serviceable everywhere. The Golden Yews both the golden Irish, and Taxus baccata elegantissima are pretty, and move well. Vinca elegantissima and Yuccas will also be very serviceable. Hollies, especially the variegated varieties, will be very valuable in large beds. Winter beds should not be wholly destitute of blossom. The Christmas Rose commences to bloom with us in November, especially the large variety of niger. This makes great clusters; both foliage and flowers are much larger than those of the type, and they lift without the least check. Clumps of the common white Pink have a pretty effect in winter; its tint of green is so distinct and lively. Winter Aconites, Snowdrops, Sternbergia lutea, Crocuses, and even Daffodils will come in sheltered places before the winter has left us, and Wallflowers, Pansies, Violets, Primroses, and Daisies are a host in themselves. The common hardy Heaths will grow anywhere in light soil, and large tufts are very interesting. Among low-growing hardy plants that are useful for winter effect are Golden Feather, Cineraria maritima, Cerastium tomentosum, Santolina incana, Festuca glauca, Stachys lanata, Arabis albida variegata, and various Saxifrages, Sedums, and Sempervivums.

E. H.

DAHLIAS IN OCTOBER.

It is not often that Dahlias of all sorts are so good late in September and up to the middle of October as they have been this season. Hundreds of bushels of blooms have recently been cut in various district for Harvest Thanksgivings, yet no amount of thinning out is long observable, the buds unfolding very rapidly even at this time of year. A fondness for Dahlias would appear to be reviving. When at Salisbury, on October 6, a party of us, all gardeners, spent some time among the Dahlias in the nurseries there, and came away more impressed than we went with the value of Dahlias for decorative purposes, either as plants in borders or in a cut state. Several acres of well-manured and trenched ground are here devoted to them, and every plant has abundance of room. Never before have I seen such grand foliage on Dahlias or such fine blooms. Every Dahlia catalogue contains a bewildering list of varieties in almost each section. The following notes and selections, therefore, made on the spot, may be of service to intending cultivators next season:—

Show varieties.—Of those distributed in 1886, one of the best is Richard Dean, deep purple, and an extra fine flower. Harry Keith, rosy purple, and Mrs. Alexander Campbell, pale yellow, are also very fine free-flowering sorts, and of good habit. Mrs. W. Slack, blush white edged with purple, will prove a useful sort either for exhibition or for decorative purposes; and the same may be said of Thomas Hobbs, purplish rose. Of those sent out in 1885, the best is Mrs. Langtry, cream colour edged with crimson—a truly beautiful flower, perfect in habit. Among the older sorts, the most striking are James Vick, purplish maroon, and a handsome flower; James Cocker, purple, and deservedly a favourite; Constancy, yellow ground edged with crimson-red, and very pretty; Buttercup, yellow tinged with red at the edges, a useful variety; Hon. Mrs. Percy Wyndham, yellow ground edged with rosy purple, a desirable sort; Georgina, creamy white and a large flower set on erect stems; Emily Edwards, blush white, fine in form and habit; James Stephen, orange-scarlet, a striking variety; Hope, rosy lilac, a reliable sort; Henry Walton, yellow ground edged with bright red and very handsome; Ethel Britton, blush white edged with purple, good in form; Herbert Turner, French white, very large and good; Joseph Ashby, orange, a good show flower; Imperial, deep purple, shaded lilac, one of the best in cultivation; Mrs. Gladstone, blush, remarkably handsome and good in every respect; Prince Arthur, clear yellow; Miss Cannell, creamy ground, edged with purplish crimson and very pretty; Joseph Green, bright crimson, finely formed; Lord Chelmsford, dark maroon, large and good; Mrs. Stancombe, rich yellow, handsome; Prince of Denmark, maroon, shaded with crimson, very fine; Rosetta, purple, a reliable sort; Thomas Goodwin, dark purple, most distinct and good; Royal Queen, creamy ground, edged with crimson, a fine large flower; Seraph, blush, noble erect flower; and Senator, deep purple, and good in every respect.

Fancy varieties.—Pelican, pure white, sent out in 1886, is extra good; and another novelty, Salamander, yellow, striped with red, will be found to be excellent; General Gordon, yellow, striped with scarlet, sent out in 1885, is perhaps the best in the section to which it belongs, being sturdy and very floriferous in habit, and with blooms large and full—altogether a most attractive variety. Among older sorts that can be recommended are Charles Wyatt, deep rose, flaked with crimson and purple, with occasional self blooms of purple and lilac; Gaiety, yellow, striped with red and beautifully tipped with the same colour, associated with various other combinations, as many as seven colours being discernible in some of the flowers, while others have only one colour (selfs), &c.; Adventure, Carnation-like, good; Chorister, fawn colour, striped with crimson, constant; George Barnes, lilac, striped with crimson, a very fine flower; Mrs. Saunders, yellow, tipped with white, one of the best; Mandarin, yellow, mottled with purplish crimson, reliable; John Forbes, fawn colour, striped with maroon, good in every respect; Fanny Sturt, red, tipped with white, very pretty; Henry Eckford, yellow, striped with scarlet, constant and good; James O'Brien, yellow, striped with crimson and red; Henry Glasscock, buff, striped and spotted with crimson, a fine show flower; Hugh Austin, orange-scarlet, striped with red; Hercules, yellow ground striped and speckled with crimson, an excellent sort; Madame Soubeyre, rosy lilac, striped with carmine, a fine variety; Miss Annie Melsome, yellow, white lip, exceptionally good; Professor Fawcett, dark lilac, striped with chocolate; Monsieur Chauvière, lilac striped, and spotted with dark crimson, one of the best; and Rebecca, lilac, striped with crimson.

Pompon, or bouquet Dahlias.—For general effect, and for affording a profusion of useful sized blooms, this class of Dahlias is pre-eminently serviceable. One variety not yet in commerce, and named Lælia, is destined to become popular, as it is singularly distinct and beautiful. Among those first distributed last season the most noteworthy are, Brilliant, deep crimson; Catherine, yellow; Darkness, very dark purple; Fashion, light orange; Profusion, crimson, tipped with white; and Rosalie, primrose, frequently edged with pink, all good in habit and very profuse bloomers. Nearly all the older sorts grown were in excellent condition, and the list will be rather lengthy accordingly. Brunette, red, frequently blotched and tipped with white, was very attractive, none more so, in fact; and several whites, such as Guiding Star, or White Aster Lady Blanche, and White Button, gave unmistakable proofs of their value for cutting. Other good sorts are Cupid, white, tipped, and suffused with rose, dwarf habit; E. F. Junker, a small amber flower; Dora, yellow and white; Favourite, dark maroon, with crimson edges, a fine flower; Flora Macdonald, primrose; Fortmeister Gschwina, dark crimson; Garnet, orange-scarlet, dwarf and very free; Gem, rich scarlet; Glowworm, yellow, edged with red; Hebe, blush-edged with rose; Hedwig Pollwiz, red, tipped with white; Isabel, bright orange-scarlet, very showy; Little Bobby, rich crimson; Little Dear, blush white, tipped with rose; Little Duchess, white, crimson edges, very pretty; Little Princess, white, tipped with rose; Little Wag, white, edged with purple; Mabel, lilac; Nemesis, maroon, sometimes tipped with white; Northern Light, rich scarlet; Prince of Liliputians, maroon; Rosetta, purplish magenta; Rougier Chauvière, light blush, one of the freest; Royalty, orange edged with crimson and quilled, good; Sappho, dark crimson; Sunshine, bright scarlet; The Khedive, rich crimson, suffused with white at the base of each petal, free flowering; and Wilhelm Nitsche, red, tipped with white.

Single Dahlias.—Of these there are innumerable varieties, and each season considerable numbers find their way to the rubbish heap, though as much may be said of the hundreds of seedlings of double varieties that are annually tried and found wanting. Paragon is still one of the best types of single Dahlias, and will outlive numbers of those that are extra large, flabby, and shapeless. Some of the best to be seen at Salisbury are Defiance, bright scarlet; Aurata, yellow; Acquisition, crimson, with scarlet bars at the edge of each petal; Evening Star, maroon; Fire King, rich crimson; Flavius, yellow, dwarf habit; Grandee, purple; Lucifer, good scarlet; Lutea, yellow; Lucy Ireland, magenta, suffused

with crimson, distinct and good; Magnificence, pale pink, of good form and habit; Paragon, dark velvety maroon; Picturata, rose; Purple Prince, very free; Red Gauntlet, crimson-scarlet; Stella Bianca, white; Terra-cotta, very distinct; Velvet Mantle, very rich crimson; Vesuvius, scarlet, dwarf habit; White Queen, the best white; and Yellow Queen, also good.

Other kinds.—The well-known Cactus Dahlia (Juarezi) was strikingly grand. Constance, also included in the list of Cactus or semi-Cactus varieties, is perhaps the most serviceable of all Dahlias. The blooms are beautifully white late in the autumn; in fact, it is usually at its best when frosts set in, and its blooms in a cut state never look out of place along with the choicest of flowers. Mrs. Tait somewhat resembles it; the petals of this variety, however, are much serrated; the newer Mrs. Hawkins, pale yellow, shading off to white, is also very beautiful. Other good semi-Cactus varieties are Cochineal, dark crimson, and scarlet and crimson Glare of the Garden, all of which are very profuse bloomers, and particularly to be recommended to those who require abundance of cut bloom. Of bedding Dahlias the best are George Thomson, pure white; Mont Blanc, white; Roustapand, yellow; and White Bedder; the first and last are especially good. W. I.

NOTES ON HARDY PLANTS.

Water Lilies (Nymphæa alba).—There are two varieties of this, the best of our native hardy aquatics. In the "English Flower Garden" one only, N. alba, is mentioned; but I have read elsewhere that there used to be a variety at Hampton Court with flowers as large again as those of the common sort. We have two sorts here, one of which I got from the late Mr. Speed, of Chatsworth, and which he called "candidissima;" this differs from the common kind in having larger flowers; otherwise the two plants are much alike. Both these Water Lilies are accommodating subjects, but they appreciate good culture, like other plants, and are affected by the depth of the water in which they grow. They will live and grow with just sufficient water to cover their roots; and I know one place where they are grown in a large outdoor cistern or reservoir, where their leaves stand erect like Docks, but they are stiffer and smaller than when floating and the flowers are few and small. When the plants get crowded they will throw their leaves out of the water even when 9 inches or 1 foot deep; hence the water should never be less than from 1 foot to 18 inches deep. Then the leaves and flowers are seen in their natural position and look better. Good loam and cow manure occasionally added to their bed improves the plants; and it is a good plan to lift and replant them now and then where practicable. I wonder these Nymphæas are not more extensively grown, seeing that their culture is so simple and that they grow so fast. They have not wonderful leaves, like the exotic Victoria Lily, but they are far more satisfactory subjects to grow, because they yield a profusion of magnificent flowers, unique in their way, and grand subjects for vases when set up by themselves.

Tritoma Uvaria.—This is a much more sensitive subject than it is generally thought to be. I have never seen such fine groups of it as there used to be in one or two places in East Lothian, where it had not been disturbed for several years, and consequently had got established. The soil there was dry and warm. In some parts of Yorkshire, on the other hand, it is not quite hardy, and only lives and does well on the most favourably exposed borders. I once thought it was a likely subject for naturalisation in woods and near lakes in parks, but unless the site is dry and warm it does not live. In gardens both Tritoma caulescens and Uvaria are the better for protection in the shape of dry litter or leaves tucked round the collars in winter, but not so as to smother the leaves or part of the plant. It is a subject that does best by itself. When planted in mixed borders, its trailing leaves, which are blown about by the wind, are rather a nuisance to its neighbours. The Tritoma and Cape Hyacinth appear to me to be about equally hardy.

Aster Amellus (Italian Starwort).—If I was reduced to the choice of one Michaelmas Daisy, I think I should stick to this one. The plant is neat, bushy, and green at this season; the pretty blue flowers are amongst the largest and showiest of their class, and they are excellent for cutting. One cannot get up much enthusiasm for these plants generally, but this is a really good useful variety. It has been in flower in our cool climate for a long time, and is still fresh in flower and foliage, notwithstanding the rain and cold. It soon makes good stools, and one divided as far as it will go will fill quite a large bed in a year or two. It needs no stakes nor tying, as here at least it does not grow above 15 inches high, or thereabouts, and makes a dense bush. I ought to state that I am speaking of a variety which I got for Amellus, but there is so much confusion in the names of hardy plants, that one cannot always depend upon getting them true. Only the other day I saw the most awful jumble of names attached to a collection sent from a London nursery, some of the plants not having the most remote resemblance to the species they were intended to represent. S. W.

The English Iris (Iris xiphioides). From a photograph.

Spring bedding.—Where a good display of spring flowers is desired, no time should now be lost in having plants for that purpose placed in their winter quarters. Owing to almost an entire absence of early frosts, summer-bedding plants in many places are still bright and gay; therefore they are allowed by many to exist undisturbed. But at any time now we may expect frost, and Pelargoniums and other summer-bedding plants will then have to be lifted in a hurry; beds and borders will have to be manured and dug in haste, and such plants as Aubrietias, Forget-me-nots, Polyanthuses, Violas, Wallflowers, &c., will have to be speedily planted. Therefore, should bad weather set in, such plants will have little or no chance of getting established before winter. Under such circumstances, should the winter be a hard one, they will suffer severely. Unless well rooted before winter, spring-blooming plants never repay any attention that may be bestowed on them. If Hyacinths, Tulips, and other spring bulbous plants are expected to look well, they, too, should be planted in October, which is much better than leaving that operation to be done later. Early planting gives the bulbs time to push out roots, and thereby enables them the better to withstand severe weather. Pelargoniums, moreover, and other soft-wooded plants that are wanted for another year should be lifted at once before they become crippled by frost.—B. O. Leach, *Albury Park.*

ENGLISH AND SPANISH IRISES.

English Iris (Iris xiphioides).—The large bulbous Iris of Spain and the Pyrenees, known as the English Iris, just follows the Spanish Iris in time of flowering. Though its range of colouring is not so great, it is still more effective as a garden plant from the large size of the flowers and the broad, finely waved lower petals. Its colours are pure white, splendid purple, and deepest violet-blue, with many shades of mauve. In some cases these colours are pure, but in many of the varieties they are splashed and flaked with markings a shade darker than the ground colour. All the varieties are beautiful, and worthy of a place in the garden.

Spanish Iris (Iris Xiphium).—Though June is the month most full of flowers, we could not, among the hosts of other garden beauties, spare the Spanish Irises—beautiful alike in their varied colourings and in their shape, which presents a remarkable combination of strength of structure and delicate grace of form. Their colours are nearly white, yellow and blue separately, and mixtures of these colours with shades of purple-bronze. One of the most beautiful is a clear yellow. The grand and well-named Thunderbolt is a near relation, whose mysterious lurid colouring makes one think of muttering thunder.

IRISH DAFFODILS.

Will "G. H. E." excuse me if I take exception to some of his criticisms on my little book? If "G. H. E." will tell me where in Ireland typical English pseudo-Narcissus is naturalised as in England, it will be knowledge hitherto unknown to me, quantity being in Ireland represented by various forms of princeps, as pseudo-Narcissus is in England. Then if princeps be naturalised from its native country (Italy) in Ireland, and not in England in the same proportion, it proves that the Emerald Isle has had an advantage as regards flowers as well as primitive civilisation. As to princeps being naturally hybridised, the late Mr. Nelson mentioned before his death that cross-fertilisation was not resorted to in this case. M. de Graaff's best seedlings, of which he has numbers, are wind-fertilised or chance hybrids; and the late Mr. Backhouse wrote in a contemporary, in 1865, that results were the same under artificial crosses and chance fertilisation. Double obvallaris.—I will send "G. H. E." what I believe to be correct blooms of this in spring. N. Ard-Righ.—There are three varieties of Irish spurius, of which I will send "G. H. E." flowers marked Nos. 1, 2, 3 in spring if spared. Now for a bit of history about this fine Irish introduction. A certain prominent member of the Daffodil committee got flowers from Ireland in 1884, also in the spring of 1885, probably for trial. I knew it to be named at the conference, but, being isolated, could not ascertain what it was called. Afterwards, in the autumn of 1885, when my book was printed, I was asked by a London firm to quote Yellow King by the thousand. This I would have done, but the request came too late, so I had to let the name of Golden Dragon stand, and see what else fitted Yellow or Irish King, so I fixed on Ard-Righ. Not one

in England has been imposed upon in regard to this matter; quite the contrary, for the bulb last year, as Yellow King, was priced at 2s. 6d. each, and may now be had for a fifth of the money. Of Narcissus nanus varieties, Haworth said we had seven or eight. There are certainly six varieties now planted at Temple Hill, including a pale canary-yellow.

White Daffodils and confusion.—Well, sir, if the consignment from Ireland was not put into the most admired disorder at the 14th of last April's sitting of the Daffodil committee I am a Dutchman, and there were some of these folks there too. The facts are these: A certain lady from Ireland had brought over a varied collection for naming. The committee, prior to attacking them, adjourned for luncheon, and when they got back to the "sitting," someone had been trying his "'prentice hand" and mixed the whole lot—whether purposely or not I cannot say. It was a hopeless case of confusion, and was about being abandoned when I ventured to separate them and put them into their original state. The question of names then cropped up. Taking the one most abundantly represented, I said to the chairman, "I know this Daffodil to be tortuosus tenuifolius; note its perfume, as of Oak timber, and foliage." It was arranged to drop the Latin. I was then asked for a name and suggested White Swan. This was objected to, but the chairman mentioned Leda. Therefore our Irish tortuosus tenuifolius got characterised there and then as Leda. I know typical tortuosus, having had it from Mr. Barr three years ago, and it is quite distinct. Here "G. H. E." and Mr. Barr are both in error. The one has been going by sight; the other by smell. If "G. H. E." got tortuosus tenuifolius from Ireland in 1885, he has got Leda.

Ard-Righ and Sir Watkin.—Let "G. H. E." select his finest flower of the former; cut the crown clean out, curtail it by half an inch, and lay it flat on paper with the crown inserted. If it does not resemble the big Welshman, my vision is like that of Sam Weller.

The doubling of Daffodils.—If "G. H. E." will read what has been said on this subject in the back pages of The Garden, he will see where it is alleged that double Lent Lilies were dug up in Devonshire and sent to the north of England, and are now, or have been, proved to grow into Telamonius plenus, my argument being that this is impossible, else we would have the single Lent Lily becoming a giant under like conditions.

Rip Van Winkle.—I often wish this and its patron had slept a little longer. We have scarlet Turban Ranunculuses, scarlet and yellow double Tulips; in Daffodils, double cernuus, common double Telamonius, and that most beautiful of all double forms, capax; all such will run to single flowers under certain conditions of soil and situation. I suppose the soil has something to do with it, but I can send "G. H. E." Master Rip with flowers as yellow and double as those of Kerria japonica, and that will be this coming spring if he writes for them. The secret with this Daffodil is to grow it on light turfy soil and in Grass. If in beds, let them be raised mounds, with seeds of Crested Dog's-tail shaken over them and well beaten down afterwards. The same rule applies to the typical and scarce double Lent Lily of Gerard; starve both, and both are beauties.

One word for Bishop Mann. I found this Daffodil where Leda could not possibly live, but would have died out, viz., in an old garden at Bishopstown, near Cork, and where the border was covered over with Laurels, Ivies, Mahonias, Hypericums, &c. I removed the bulbs, that had been planted for 150 years, to my residence some years since. This garden was the old palace grounds attached to the see at St. Fin Barrs, and Bishop Mann was the last resident and was very fond of flowers. The bulbs were growing in between huge roots of Beech trees at least 200 years old, and we had to use crowbar and pick-axe to get at them, and lost or mangled many. It is quite distinct from Leda, as alleged by "G. H. E.," very tall, most healthy, and the best white Daffodil known to me. W. B. H.

Temple Hill, Cork.

HARDY FLOWERS IN OCTOBER.

The merits of hardy flowers compared with such tender subjects as Pelargoniums, Calceolarias, and Lobelias are becoming more and more apparent. The fine masses of Dahlias, Marigolds, Pentstemons, Veronicas, Anemones, Rudbeckias, and old-fashioned Asters—better known as Michaelmas Daisies—which may be seen in many gardens during this month, form a striking contrast to the formal clipped lines of Golden Feather, Mentha Pulegium, Sedums, and other dwarf plants which are employed in the formation of carpet beds. I have not a word to say against carpet beds where suitable for the position; I can admire even their trimness and the skill displayed in

The Spanish Iris (I. Xiphium). Engraved from a photograph for The Garden.

arranging and blending their various colours, yet carpet beds in the flower garden proper are too artificial. Our garden flora is so rich, that even at this season we ought to have abundance of flowers to cut for indoor decoration. Perhaps the most conspicuous plants in bloom at this time of the year are Dahlias. The single varieties and the Pompons are the most useful for mixing with other flowers, while large double sorts are valuable for specimen glasses. Another useful class of plants, and one exceedingly valuable for cutting purposes, is the autumn-flowering Windflowers, or Anemones. We have three varieties, viz., A. japonica, which grows from 24 inches to 30 inches high and produces red-coloured flowers; A. japonica hybrida, 2 feet high, with rose-coloured flowers; and A. japonica alba, or, more properly speaking, Honorine Jobert, with pure white flowers. These Anemones bloom in great profusion throughout September and October. Of the three, the white is the best, and if there is only room for one sort, I should most certainly grow the white kind. These Anemones are all increased by root division, an operation which may be performed at any time during winter. So valuable are white Anemone flowers, that the plants are worthy of pot culture, or, in cold localities, of being covered with cold frames; by this means the flowers expand more freely, and, not being disfigured by wind or rain, they are of a purer white.

Next in importance as autumn-flowering plants come the perennial Asters, or Michaelmas Daisies. Of these, more than 200 varieties are known to botanists, but many of them are but little better than weeds; yet, by making a judicious selection, some grand forms may be had for autumn decoration. These Asters or Daisies need but little attention; they will thrive and bloom profusely in any light garden soil and produce an ample supply of flowers for cutting. They may be propagated by means of cuttings taken in spring, or by dividing the roots in winter. Six or eight good sorts will be found to be ample for most mixed borders. The best variety with which I am acquainted is A. formosus, which has fine large mauve-coloured flowers, quite equal to those of some of the best Cinerarias grown in our greenhouses. It grows about 2 feet high, and is a most profuse bloomer. A. grandiflorus grows from 3 feet to 4 feet high, and bears large flowers, the rays of which are purple. It is a most effective variety. A. alpinus is a dwarf plant, neat in habit, and very attractive. It is more suitable for a rockery than a herbaceous border. Others, such as Chapmanni, bright lavender; elegans, purple and white; versicolor, white and reddish-coloured; and ericoides, dwarf and white-flowered, are all good. The last is neat in habit and an abundant bloomer. Rudbeckia Newmanni is an effective autumn-blooming plant; it has yellow florets with a dark disc, and lasts long in good condition when cut. Then we have R. hirta and R. scorotina, both good October flowers, the former producing large, bright yellow flowers, with broad, spreading ray florets; the latter, flowers of a purplish red colour. Stenactis speciosa is also a fine autumn plant, which produces large showy pale purple Aster-like flowers with a yellow centre. The finest blooming plant in the garden just now is, however, Sedum spectabile, which has been in bloom for the last six weeks. It produces great heads of rose-coloured flowers, forming a solid mass of bloom, perfectly distinct from that of all other hardy plants.

Tritoma Uvaria and T. Rooperi are always welcome during this month; their fine spikes of bloom and warm colours are invaluable at this season. Senecio pulcher, known as Tyerman's Groundsel, is, where it does well, one of the finest autumn perennials in cultivation. It is perfectly hardy, and produces an abundance of golden-centred magenta-coloured flowers. Some few of the Veronicas have continued to bloom freely well into October; for instance, V. spicata, with its long elegant spikes of the most striking blue, and V. longifolia, 2 feet high, with dense, erect spikes of the richest deep blue, are two of the best plants on the hardy border. Erodium Manescavi is a showy, autumn-flowering plant, the foliage of which resembles that of an Oak-leaf Geranium, and its flowers are reddish purple. Helianthus multiflorus fl.-pl. is likewise a grand border plant, its fine yellow flowers being very welcome at this season. It is very showy and effective. Echinops ruthenicus is a singular Thistle-like plant, furnished with globular heads of rich blue flowers. In addition to the above we have stray plants of Tradescantia virginica rubra, Helenium pumilum, Statice latifolia, Pentstemons rather past their best, and Centranthus ruber. Some few annuals have been very fine during the early part of the month, especially Helichrysums and African Marigolds. Q. R. S.

Pleasley Vale, Mansfield, Notts.

White Trumpet Daffodils.—I have read Mr. Douglas's remarks (p. 358). Having a good many varieties of white Trumpet Daffodils, and being

also very anxious that some certainty may be arrived at as to their nomenclature (which I am afraid the Narcissus committee has as yet hardly achieved), I shall be very glad to send bulbs of what I think to be each variety of those I have to be grown on trial at Chiswick, but as it is so late in the season, all my bulbs being already planted, I would suggest that all growers of white Trumpet Daffodils should send a written promise to Mr. Scrase-Dickins undertaking to send bulbs to Chiswick not later than the 1st of August, 1887; if taken up now the bulbs would suffer and the flowers probably not show their wonted character from want of vigour caused by removal at a wrong time.—D. E. Wemyss, *Torrie House, Dunfermline.*

NOTES.

Flowers of October.—The chilly nights of mid-October, especially if accompanied by dripping skies and violent gales, make rather short work of the hardy flowers, but still there are plenty in good condition. Single Dahlias, especially the white kinds, are very useful; so also are Chrysanthemums, and especially the white Madame Castex Desgrange, which is undoubtedly one of the very best introductions of recent years. Michaelmas Daisies are yet useful for indoor vases, and there are even a few buds and blossoms on the big-leaved Magnolias by the walls. Senecio pulcher is at its best; so also are the latest buds of Souvenir de la Malmaison Rose. Sunflowers, Gaillardias, and different kinds of Coreopsis are still fresh and beautiful; also the shrubby Veronicas and Fuchsias of many kinds, the old white-petalled Madame Cornellissen being one of the best. The Belladonna Lily, where it does well, is hard to surpass amongst hardy blossoms at this season, and it forms a good companion for the great Colchicum speciosum, which is still opening its latest buds. Just as the last of the Roses are dying away the Wallflowers and Anemones and seedling Primroses are coming into flower, and as the leaves fall gradually from the deciduous trees we begin the more to appreciate the fresh green and golden-leaved Hollies, the bright-berried Cotoneasters, and the glossy Ivies on the old grey walls. So, too, amongst the dying Brake Fern the Bamboos stand up fresh and green and happy in the rain. The scarlet Schizostylis is sending up its budded wands, and its relatives, the Gladioli, linger on bright and beautiful, as if quite loath to go to rest for the winter, while Mignonette is never sweeter than thus late in the year.

Waste in gardens.—Professor Goldwin Smith tells us that, excepting the Americans, we are the most wasteful people in the whole world, and he further points out that the more perfect utilisation of our wasted products is one way in which we may meet foreign competition and depression of trade. When I read the above it occurred to me to ask if there is not much waste in our modern gardening. At any rate, of one thing I feel sure, and that is, that the more self-supporting a garden can be made, the better is it for the country, but more especially for the gardener. Of course, if the actual owner of a garden so wills it, he may keep up his garden purely for pleasure, just as he keeps his yacht or his hounds. On the other hand, if he so desires, he has as much right to sell part or the whole of the produce of his garden as he has to sell the young colts or shorthorns from his farm, or his pictures and books if he should tire of them. If labour is honourable, then trade is honourable, and any methods or means by which waste products can be utilised should be adopted in the garden. Young gardeners more especially should keep their eyes open, for the garden requirements of the next twenty years will be very different from those of the twenty years just passed. Even the rage for Orchids is but little compared with the ever-growing and wide-spread liking for all sorts of beautiful hardy flowers. These last may be grown by a cotter or in a farmer's garden, but they are being sought for and cherished everywhere throughout the length and breadth of this country. They have solved the cut-flower difficulty; they have done much towards making our gardens generally more interesting as well as more beautiful for nine months out of the twelve. The more extended culture of hardy flowers, together with the economical growth or disposal of glasshouse products seems to be the storm-warning of our present-day management in the garden.

Eryngium serra.—As distinct and handsome-foliaged plants some of the more stately of the exotic Sea Hollies could ill be spared. E. pandanifolium, E. yuccæfolium, and others are now largely used in some public gardens, but E. Serra is perhaps less often seen. It has broad foliage about 2 feet long and 2 inches in breadth, arranged in rosette fashion, from the centre of which rises a slender wand-like flower-stem 8 ft. or 10 feet in height, the upper portion of which is branched, and the branchlets tipped with greyish knob-like clusters of buds and flowers. It is a hardy, strong-growing species, the rosettes of which may be divided and replanted during the spring-time with success. As a class, we find nearly all the Eryngos, both native and foreign, handsome plants when well grown in the garden, one of the dwarfest, but by no means the least handsome, being our native Sea Holly (E. maritimum). If its roots be well planted amongst sea-sand and stones, it forms a pretty patch of colour every year. E. amethystinum, E. Oliverianum, E. giganteum, and E. campestre are other well-known kinds. Nearly all the species, if cut just before their flowers expand, dry well if hung up, and are useful for mixing with plumes of Pampas, or Arundo, and with the black-topped wands of the Typha and fruits of Physalis, or Honesty, for winter decoration.

Schizostylis coccinea.—One of the very best of all the hardy flowers of October and November is this near relative of the Gladioli, or Sword-flowers of the Cape. I saw some fine large clumps of it throwing up numerous flower-spikes in the flower garden at Powerscourt the other day, where soil and situation seem to suit it exactly, but, as a rule, this plant succeeds better and flowers stronger if the old clumps are divided and re-planted every spring. If planted out in rows or in beds in a sunny position and protected with frames or wicker hurdles and mats during sharp frosty nights, a supply of flowers may be had all through November, and even until Christmas or the new year. In some places the flowering clumps are dug up carefully, and are potted for greenhouse or conservatory decoration. On warm, rich soils near the sea this plant flowers nearly all winter without any protection, yielding a good supply of flowers on stems 2 feet or more in height. I do not recollect if this plant is much grown in Scilly or in Cornwall, but one would imagine it to be a likely and profitable crop in such a climate. It is most easy to propagate or increase, every little shoot transplanted in spring forming a plant which generally sends up a spike in the autumn. A good handful of its flowers, cut with long stalks and arranged either with its own foliage or with the leaves of Reineckia carnea, forms a pretty group in a slender vase or glass.

Pæonia corallina.—On the rocky side of the Steep Holme, a little island in the British Channel, this robust, broad-leaved Pæony finds a home, the only one of which it can boast as being its natural one in the British Islands. It exists here and there in gardens, but is by no means common, although a vigorous grower, and by no means difficult to increase by seeds or by division of the roots. It flowers in May, bears single, rosy purple blossoms among its bronzy green leafage, and it is just now again made beautiful by its brownish woolly capsules having burst open, thus revealing its blue-black seeds, the size of Peas, amongst numerous abortive ones which are of a bright red or scarlet hue. It is well worth a place in all gardens where distinct hardy plants are valued for its own sake, apart altogether from its interest as a reputed native plant. In De la Torre's "Tourists' Guide" it is said to be found in Upper Bavaria, Reichenhall, Styria, and also in Carniola, and he also mentions that it was united with P. officinalis by Linnæus. The P. officinalis of our gardens to-day is a different plant, and is the P. pelegrina of Miller. Now that all the Pæonies are becoming most popular in gardens, it would be a good thing if someone with means and leisure would produce a monograph with good figures. Mr. Barr and Mr. Ware have good collections, and in Continental gardens the varieties are very numerous. In the Salon every year we see pictures of these fine flowers in plenty, which is, in a way, an indication of their popularity abroad.

Rudbeckia Newmanni.—As Rudbeckia chrysolora this plant has been grown in some old gardens for many years. I only know of one dark-eyed, gold-rayed Composite which surpasses it, and that is Helianthella uniflora, as given to me by Mr. Archer-Hind. When well grown, we have but few, if any, late autumnal Daisy flowers which can equal this old favourite of other days. Like most of its Order, it enjoys fresh soil or change of place, viz., replanting every second spring at the farthest, and as so treated in good, deep loamy soil, it grows in masses a yard high, and is very brilliant as seen in the October's sunshine. A good handful of its flowering stems, cut rather long, so as to allow the flowers to spread out freely, makes a pretty picture in a deep vase or bit of old bronze. I saw a big pot filled with these flowers the other day, the long stems having been thrust down through a few flattish sprays of Mahonia leaves, just now changing from green to brownish crimson, and the effect was distinct and very good. Inula Hookeri is another good thing, having large pale yellow flowers, with a much-gashed or fimbriated series of ray-florets, but at present it does not seem very plentiful. Just as I write, a friend sends me a nice plant of "an Erigeron from India, bearing blue flowers almost as big as those of the perennial Sunflower." This would seem to be a good thing. What can it be? Perhaps a very good form of E. multiradiatus. At any rate, I shall take great care of it until it blooms, and may then have more to say concerning it from personal experience.

Single Hollyhocks.—Twenty years ago it was often said that the Hollyhock was the only garden or florist's flower capable of producing any appreciable effect in the garden landscape. About that period, or earlier, one often saw drawings and wood engravings showing groups of Hollyhocks nestling near the door of some country cottage, or by the beehives in the garden, with their tops level with the upper windows or touching the thatched eaves. If I remember rightly, Birket Foster used to draw lovely groups of them. At that time the flower was popular, and we used to admire the fine spikes or choice double blossoms—like satin rosettes they were—which the late Mr. Chater, of Saffron Walden, used to bring to the meetings of the Royal Horticultural Society at South Kensington.

Those were golden days for the enthusiast in Hollyhock culture; but alas! an enemy came in the shape of the Mallow fungus or rust (Puccinia Malvacearum), and these beautiful old blossoms vanished from our gardens as if by magic. Far and near the scourge spread until even the very staunchest lovers of the flower gave up its culture in despair. But we now see the Hollyhock creeping back again into public favour. At Glasnevin recently I saw some lovely single-flowered kinds, seedlings of 1885, and most lovely they were, varying from pure white and pale sulphur and buff to salmon-pink, rose, crimson-red, and in another garden I saw some with purplish black flowers. Seeds sown now in a cold frame would yield plants for next year's blooming, and seedlings, as we know by experience, best withstand the disease. We have no other Mallow or Althæa so easily grown or so beautiful as are the forms innumerable of A. rosea, and it is to be hoped that it will regain its former status in the garden, and especially do I plead for the culture of single-flowered kinds.

Cordyline australis.—In Southern England, near the sea, and in Scilly, and also in many parts of Ireland, this New Zealand Dracæna is perfectly hardy, and forms fine healthy plants 10 feet to 15 feet or more in height, and branched or unbranched, as the case may be. If it be accidentally wind-topped, or cut down by a more than ordinarily severe frost, the result is often a much-branched, tuft of young shoots instead of the more usual and natural single-stemmed individual. If reared from seeds sown as soon as ripe the plant is increased quickly; the young seedlings, if potted and kept in a cold frame in summer, and secured from frost during winter, soon become of a useful size for various decorative uses. When two years old they may be planted out permanently where they are intended to remain. On light sandy or peaty soils they are very handsome as grouped among Rhododendrons and hardy Ericas, amongst Furze or Broom, and under the shelter of high banks or sunny rocks. One result of raising this plant from seed is that the individuals vary, some being more dense and stubborn in habit and more hardy than others. Some have red veins (C. Veitchi), others green ones and broader, longer leaves, approaching C. Banksi in habit and coloration. In planting out the seedlings in order to establish them, the middle of May is the best time to select for the operation. Planted at that season, a whole summer's growth enables the plants to gain a deep and thorough root-anchorage before winter time, and a few shovelfuls of ashes or dry peat or bog-mould (called turf in Ireland) are generally sufficient to preserve the lower part of the stem and the roots alive, even if the tops are killed. After the first winter there is less risk, but out of a dozen or so some are sure to survive.

Tyerman's Groundsel.—On soils and in suitable climates this Senecio pulcher holds its own as a distinct Composite, and a free-flowering one to boot. On cold, clay soils it may not prove so effective, but here on a deep and rich sandy soil we have nothing like it amongst hardy flowers at this late season of the year. In some places its spikes appear so late that they are cut off by the first frost, but if the plants be carefully dug up and potted they will feel the check but little, and go on flowering all through November in a sunny greenhouse. Its flowers are most brilliant by artificial light, as arranged with white Pyrethrums, Asters, or Chrysanthemums. If a good stock of such a useful thing be desirable, now is the time to insert root cuttings. Drain and fill a seed-pan with sandy soil as if for ordinary cuttings; then dig up a plant or two of the Senecio and select the thickest of its white quill-like roots. These should be cut into inch-long lengths and inserted thick end uppermost into the sandy soil of the seed-pan. Let the tops of the cuttings be just level with the surface of the soil, so that when the whole is watered a small portion—say the eighth of an inch of the cutting—is bare and exposed to the light. Place the pan on a shelf near the light in a warm greenhouse or pit. The first symptoms of growth are shown by the ends of the cuttings turning green; then they split down one side, and from the crack a new shoot soon appears. The cuttings are ready for planting out next June.

Veronica.

Ferns.

Canadian Ferns suitable for England.

It frequently happens that Canadians are applied to, by their friends in the Old Country, for roots of our native Ferns, for cultivation in ferneries and conservatories, and it is not infrequently the case that these requests are not complied with, either from a lack of knowledge as to what species would be acceptable, or from the mistaken notion that because a Fern is exceedingly abundant here it must also be so in Great Britain. As a guide to those who may be anxious to delight the hearts of their Old Country friends by sending them living roots of Canadian Ferns, I append lists—first, of those which are not found growing indigenously in Great Britain at all; and secondly, of those which, although found there, are very rare, or which present differences in appearance from our forms, in consequence of which they would be acceptable to all Fern growers and collectors for comparison.

In the cultivation of Ferns there are one or two points which must always be borne in mind. First, it must be remembered that Ferns, unlike most other plants, shun the sunlight and court the shade and a moist atmosphere. Although some species may be occasionally found growing in open spots, it will generally be found that they are more luxuriant when in the shade and under the shelter of trees. Many Ferns will succeed well in flower-pots, but they require constant care and attention. One of the most important requirements of Ferns is perfect drainage; and this can only be attained at the risk of allowing the roots to become too dry, unless regularly watched. A liberal supply of drainage, in the shape of broken pots, pieces of old mortar, or bricks, should be placed in the bottom of the pot, and on the top of this a thin layer of Moss, to prevent the fine mould, which is necessary, from running down into the drainage. The mould should be light and finely sifted. A useful mixture for most Ferns is the following: Fibrous peat, leaf-mould, loam and white sand, in equal proportions. The roots bear transplanting better in the autumn than at any other time, but should not be forced to grow at once on arrival in Britain; they should be put by in a cool place until the next spring.

The facilities for the transmission of small parcels to Britain are now so great, that there is no excuse for our not sending large numbers of these lovely plants, many of which, although common with us, are, nevertheless, highly prized on the other side of the Atlantic.

Canadian Ferns not Wild in Great Britain.

Fairy Fern (Adiantum pedatum).—An exceedingly desirable species, of great beauty and easy culture; there is, perhaps, no species of the large family of Maiden-hairs, from all the different parts of the world, which surpasses our native species in grace and elegance.

Rock Brake (Pellæa gracilis).—This charming little species has yellow, fleshy root-stocks, which contain much oil, and it is doubtless this character which renders it capable of withstanding drought for a long time. Its natural habitat is in crevices and under overhanging ledges of limestone rocks, where it shoots out its delicate fronds in the month of June. At this time of the year the rocks in such localities as it frequents—on river banks and lake shores—are constantly wet from the snow water, which has not yet dried up in the woods; but is constantly trickling down over the surface of the rocks, and which, penetrating into the little cracks and crannies, gives the moisture which is necessary, with the warmth of spring, to quicken into life the lovely rock Ferns which grow there. After the end of July the fronds dry up and the plant again lies dormant until the next June. This Fern could be moved easily when in the dormant state, and should be cultivated with ease.

Cliff Brake (Pellæa atropurpurea).—A very attractive plant of small size, found in the crevices of dry rocks and cliffs; it should transplant easily, and, with care, would succeed in artificial rockwork where there was not too much moisture.

Chain Fern (Woodwardia virginica).—This would perhaps hardly succeed so well in cultivation as many of our other Ferns, as it is a vigorous growing, coarse plant, with large and long root-stocks, which grows in peat bogs and Tamarac swamps. Its fine appearance, however, makes it worthy of a trial.

Ebony Spleen-wort (Asplenium ebeneum).—Great care must be taken in the removal of this and all the Spleen-worts of the same class from their native rocks. These rock-loving Spleen-worts will, however, generally succeed well if their roots are taken up intact, and if they are planted in crevices of rockwork, or even in flower pots if well drained. On rockwork they should have an upper position, but should not be kept too dry. They generally succeed better if planted in a horizontal manner between two stones; when grown in pots, the soil should be a light sandy loam mixed with leaf-mould, and among this, about the roots, should be placed some pieces of old mortar or sandstone.

Narrow-leaved Spleen-wort (Asplenium angustifolium).—This is an exceedingly handsome Fern, well suited for conservatories. It requires good rich leaf-mould or peat and plenty of moisture, when the large, delicate, light green fronds would be produced in abundance and form a charming contrast with the darker hue of other Ferns. The name of this Fern is perhaps a little deceiving. Although narrow-leaved, it is one o our largest Spleen-worts, the fertile fronds frequently exceeding 2 feet in length.

Silvery Spleen-wort (Asplenium thelypteroides).—This is another of the large-fronded moisture-loving Spleen-worts. Its natural habitat is in the deep forest or in swampy woods. It is well fitted for conservatory and greenhouse culture, and, like the preceding, should have deep leaf-mould and plenty of moisture. The fronds are very handsome, of a deep green, and, as the name implies, the plant has much the appearance of the Marsh Fern (Aspidium Thelypteris) and grows much in the same manner, throwing up clumps or clusters of tall graceful fronds.

Walking Fern (Camptosorus rhizophyllus).—This is a particularly acceptable species, found on shaded limestone rocks. It is an Evergreen, is easy to cultivate, and has a very distinct appearance, quite different from any British Fern. It will transplant at any time of the year, and if given a shady corner with good leaf-mould, plenty of moisture, and sufficient room to spread out its fronds, will grow luxuriantly, and increase rapidly by taking root and making young plants at the tips of the fronds.

Broad Beech Fern (Phegopteris hexagonoptera).—This resemble the British Beech Fern

(Phegopteris polypodioides) very closely, but is a larger and handsomer plant with fronds of a delicate light green. It is easily cultivated, but must have good deep leaf-mould and shade.

Christmas Fern (Aspidium acrostichoides).—This is a dark handsome Fern, of a deep full green. A very desirable species, hardy and easy of culture, and has a very effective appearance among other more delicate Ferns. It is always to be obtained without difficulty in rocky woods, growing in clumps or small beds. It has somewhat the appearance of the Holly Fern, but is more showy.

New York Fern (Aspidium noveboracense).—A delicate and attractive species, not difficult of culture. Should have light soil and plenty of moisture; but must be well drained. This Fern is always acceptable, both from the delicacy of its foliage and its soft green colour.

Goldie's Shield Fern (Aspidium Goldieanum).—A large, rich, and handsome species, with dark foliage, that has lighter shades down the centres of the pinnæ, which give it a pretty, variegated appearance. It is of easy culture, and well suited for the back of a rockery. It succeeds better when supplied with a liberal allowance of peat and leaf-mould, but is very hardy, and will grow in almost any soil, with shade and moisture; it becomes stunted, and seldom produces fertile fronds unless provided with good soil, moisture, and shade. There is no Fern in Britain that has the same appearance as this, and this fact makes it a desirable species.

Marginal Shield Fern (Aspidium marginale).—A handsome Fern, but bearing too close a general resemblance to A. Filix-mas to make it a desirable species for transmission to Britain. A. Filix-mas, although so rare on this continent, like Scolopendrium vulgare, is one of the most abundant species all over Great Britain.

. Evergreen Wood Fern (Aspidium spinulosum var. intermedium).—This common variety of A. spinulosum, which is found everywhere in our woods, is not among these which grow in England. It is the A. americanum of Davenport, and is a graceful plant, which should be included in all collections of Ferns sent to Europe. It is hardy, very easy of culture, and easily obtained. The fronds are evergreen and of a bright colour.

Boot's Wood Fern (Aspidium spinulosum var. Bootii).—This is a much rarer Fern than the preceding, with thicker and less cut-up foliage, sometimes resembling A. cristatum as much as A. spinulosum in appearance, and much more like the British form of A. cristatum than the Canadian; it is considered, however, to be a variety of A. spinulosum. It requires a good depth of leaf-mould, shade, and a liberal supply of moisture.

Clinton's Crested Shield Fern (Aspidium cristatum var. Clintonianum).—This handsome Fern is quite unlike any European form of A. cristatum, and in some respects bears a much closer resemblance to our own A. Goldieanum. Its habitat is wet, swampy woods and in the deep forest, where it sometimes grows to a large size. It is a very desirable species for European collectors to compare with their own forms of A. cristatum.

Scented Shield Fern (Aspidium fragrans).—There are few of our native Ferns more attractive than this; the deep blue-green fronds hang in rich clusters from the crevices of rocks where it grows. It is considered one of our rare species, but is generally to be found in abundance where it occurs. The Lake Superior region seems to be the centre of its distribution; there it is most abundant, growing on trap rocks. The close compact growth of the plant and the abundance of the sori, with their lead-coloured indusia, give this Fern a very rich appearance, and its agreeable scent makes it still more a desirable species. It would probably be rather shy of cultivation, but might be treated in the same manner as the Rock Spleen-worts.

Trailing Fern (Cystopteris bulbifera).—No collection of Canadian Ferns would be complete without this common, but charming species. It is undoubtedly one of our most elegant Ferns; the slender, elongated fronds of light green, with their ruddy, semi-transparent stipes, render it most valuable for contrast. It is very easy of culture, and will flourish luxuriantly if planted on a wet wall or near a waterfall. It grows easily in a flower-pot in a conservatory, but cannot bear sunlight. It should have a light peaty soil and plenty of moisture, both in the atmosphere and at its roots. It would probably grow better if small pieces of rock were placed among and about its roots.

Oak-leaved Fern (Onoclea sensibilis).—There are few of our Ferns which are greater favourites in Europe than this common species. It has long been known there as a greenhouse plant, where it is prized as well for its graceful foliage as for the ease with which it can be cultivated. With light soil, shade, and moisture it grows well in Europe and increases rapidly, but seldom produces the fertile fronds so abundant here. It is always acceptable.

Ostrich Feather Fern (Onoclea Struthiopteris)—This stately plant is valuable for the back of a rockery. If supplied with a good depth of leaf-mould it grows easily and throws up its lofty plumes to the height of 3 feet or 4 feet or even more. There is no Fern which resembles it in Great Britain. It bears transplantation well, and will grow vigorously in a flower-pot in the house, when it becomes a useful and graceful ornament for a drawing room.

Northern Woodsia (Woodsia hyperborea).—All Woodsias are welcome additions to a European collection. Unluckily, however, all of our species, with the exception of W. ilvensis, are very rare. W. hyperborea is only found on high cliffs and near waterfalls. The culture should be the same as for the Rock Spleen-worts, the chief essential being perfect drainage, together with plenty of moisture and light soil.

Smooth Woodsia (Woodsia glabella).—This species is found in similar localities with the above, and should be cultivated under the same conditions.

Gossamer Fern (Dicksonia pilosiuscula).—This lovely scented Fern, with its delicate fronds of tender green, is a charming object as it grows in its native woods, where it is generally found on a cold, sandy loam. It is, however, rather shy of cultivation. The root-stocks are very wide-spreading, and in transplanting specimens, small and young plants should always be taken. A sandy loam, with about one-fourth leaf-mould, is the best soil for this Fern. Although difficult to grow, its beauty well repays any trouble expended upon it.

Interrupted Fern (Osmunda Claytoniana).—This Fern and the next are always welcome additions to European collections, not only for their own beauty, but because they are so different from the royal flowering Fern (Osmunda regalis), which is well known there. The Interrupted Fern is well suited for planting in fountains and on the borders of ornamental ponds, where its curious, graceful fronds are shown off to great advantage.

Cinnamon Fern (Osmunda cinnamomea).—This is another handsome Fern, generally found in slightly wetter places than the preceding, but it is hardier and may be grown under the same circumstances. The foliage is not so handsome, but it is always an acceptable plant and grows easily.

Rattlesnake Fern (Botrychium virginianum).—This is a great favourite with British collectors. It is very different from the European B. Lunaria, grows easily, is of convenient size and compact growth. Light soil, about half leaf-mould, is the best for this Fern. It succeeds well when single plants are grown separately in flower-pots.

Grape Fern (Botrychium simplex).—This rare Fern has more the appearance of B. Lunaria than any of our American representatives of the genus. It, like Botrychium matricariæfolium and B. lanceolatum, is difficult to cultivate, and the only way to succeed with these species is to remove a large quantity of the soil with them from their native haunts so as not to disturb the roots. When growing in turf in meadows this is not difficult, but when in the light leaf-mould of the forest it is not so easy.

Ternate Moonwort (Botrychium ternatum).—This is a very handsome, dark green, fleshy Fern, found in open grassy spaces near woodlands. It has thick fleshy roots, but is rather difficult to move unless a piece of sod is taken up with the plant. The fertile frond is large and conspicuous, and is a great ornament to the plant when the spores are mature. It is an Evergreen, and takes a rich bronze tinge of colour from the winter's frost.—*Mrs. Traill's "Canadian Plant Life."*

Garden Flora.

PLATE 567.

BIGNONIA PURPUREA.*

Amongst the numerous species of Bignonia, some have flowers possessed of great beauty, but it is often difficult to get the plants into flowering condition. The plant herewith figured belongs to the few which are pre-eminently useful garden plants. It is a free grower; its habit is such as gardeners like in climbing plants, and it never fails to flower profusely under ordinary stove treatment. In an account of the garden kinds of Bignonia, given in The Garden (Vol. XXVI., p. 521), and accompanied by a plate of the grand greenhouse kind named B. Cherere, it is stated that B. purpurea is closely related to B. speciosa, a statement confirmed by the representation here given, in which the resemblance is apparent enough. Where the one thrives the other may be grown; but although the two are much alike in general characters, they differ in a point of much importance, viz., the time of flowering. B. speciosa produces its numerous masses of pale purple or lilac flowers early in spring, whilst B. purpurea flowers about August and September, when the large specimen of it in the Palm house at Kew is usually a perfect curtain of bloom. It has a climbing habit, the old shoots pushing from their axils numerous long string-like pendent branches, which ought not to be tied up, but allowed to hang naturally. Its leaves, which are opposite, are produced in pairs 6 inches apart, and are composed of two obliquely ovate leaflets and a terminal one, which, however, is almost always modified into a long hooked or spiral tendril, whose purpose is to enable the plant to climb. Its flowers are borne in short axillary panicles at every node on the lowest yard or so of each shoot; they number about six in each panicle, so that in the case of well-managed plants about a dozen flowers cluster round each pair of leaves. The flower-tube is 1½ inches long, widening upwards; the limb, which is composed of five rounded segments, with a sinus in the apex of each, spreads to a width of 2 inches. Its colour, as will be seen, is purplish lilac, with a few lines of red running down the tube, the inside of which is almost pure white.

The cultivation of B. purpurea is of the easiest description. It should be planted out in a bed or border of rich loamy soil, and kept well watered all summer. The only point to be specially observed is that of pruning, which should be done after the flowering is over, and after that, except perhaps a little thinning out of the new growth, no further pruning should be done. During winter very little water should be given, but absolute drought must be avoided. For draping pillars, or even for forming curtains or

* Drawn in the Royal Gardens, Kew, in August, 1885.

BIGNONIA PURPUREA.

screens against unsightly walls, this Bignonia is one of the most useful of stove climbers. It may be readily propagated by means of cuttings made of the ripened shoots. B.

WORK DONE IN WEEK ENDING OCT. 19.

October 13 to 19.

The sudden change to wet and boisterous weather has at one stroke sounded the death-knell of open-air flower gardening for this year. Every plant was looking so well, and flowering just as freely as at any time during the summer, that our regret at such an ending is very great; but regrets do not mend matters, and, though not with a very good grace, we have again to bow to the inevitable and set about repairing the damage by starting in earnest to put the beds in winter dress, but as yet little progress can be made in that direction by reason of the weather, which continues wet and stormy. All the hardy plants, such as Sedums, Saxifrages, Herniaria, Pyrethrum (Gold Feather), Veronica incana, Yuccas, Phormiums, and small evergreen shrubs that have formed part of the summer arrangement remain as before, and the tender plants are replaced by other small shrubs, mainly supplemented with Hyacinths and Tulips, these being planted with dibbers on a groundwork of Sedums, &c., that remain as during the summer. The following are a few of the best shrubs for this purpose. I name them in order of preference: Retinosporas (various kinds), Cupressus Lawsoniana erecta viridis (fine for dot plants), Thujopsis borealis, Euonymuses (all the kinds), Cotoneasters, Mahonia Aquifolium, Golden Yews, variegated Box, variegated Periwinkle, variegated Ivy, Aucuba variegata, Portugal Laurel, variegated Hollies, Laurustinus, Andromedas, and small Rhododendrons. The lifting of the bulk of herbaceous plants for the trenching and renewal of soil and re-arrangement of plants being contemplated, such clumps and roots as are not well known when stemless are being labelled, and their heights and spread of growth marked in addition to the name as an aid to us when the plants are being arranged in the borders. Except trenching, it has not been possible to do any kitchen garden work, or, in fact, open-air work of any description, other than cleaning up the *débris* on lawns, walks, and roads that the severe gales of the 14th, 15th, and 16th inst. scattered in every direction. The few Apples and Pears we had not harvested were nearly all blown down, and are only fit for immediate use. What few remain we shall gather the first dry day. Fruit rooms have again been overhauled and made to look their best, and during this damp weather the ventilators are kept quite close. Grapes hanging on the Vines have required almost daily examination to cut out bad berries; all the laterals were cut off the Vines long ago for the better admission of light and air, and a little artificial warmth is constantly kept up to ensure the internal air being lighter than that outside. Vineries from which the Grapes have been used are now filled with flowering plants—Chrysanthemums mainly—and to prevent the flowers damping we have, contrary to our wish, been obliged to have recourse to slight warmth in the pipes, of course, accompanied with as full an amount of air as is possible in such wet weather. As might be expected, under such weather-conditions, the foliage of some of the weaker-growing varieties of Chrysanthemums is falling a prey to mildew, and repeated dustings of sulphur have to be applied to keep the parasite in check. Much time is now taken up in finding space for and arranging bedding and stock plants for the winter, our aim always being to get all we can into heated structures, to save the labour of covering up of frames and pits in severe weather. Preparation is now being made for potting and otherwise housing all old plants that are to be saved from the flower garden. Fuchsias, tuberous Begonias, and Cannas we pack closely together in cocoa fibre in a frost-proof cellar. Herbaceous Lobelias and fibrous-rooted Begonias are planted closely together in boxes, and afforded room in Peach or other fruit houses from which frost is excluded. In anticipation of frost, autumn-struck Pelargoniums are being got into frost-proof quarters in frames that in mild weather can be thrown fully open.

Hants.

FRUITS UNDER GLASS.

Melons.

We are still cutting good fruit of Golden Perfection, Highcross Hybrid, and Reading Hero, but, having plenty of Pears, a clearance of the Melons will be a relief, as Cucumbers are now pressing for space. A few there are who are obliged to have very late Melons, and as some sorts do much better than others, a note for another year's guidance may not be out of place. The three just named are good setters, swell and ripen quickly, and are perhaps as good flavoured as any I have yet met with. For all-the-year-round use, where high flavour is the test of merit, I have found Golden Perfection the best; Highcross Hybrid comes next, but its pale, smooth skin is against it, for with me, no matter how large or well the fruits are grown, it rarely puts on the slightest resemblance of netting. Reading Hero, on the other hand, lays on its beautiful bread lines irrespective of size or quantity of fruit which individual plants are allowed to carry. Moreover, it keeps sound and perfect in a dry, moderately warm room or vinery for a considerable time after it is cut and fit for table. Like the old Golden Gem, this is a most excellent market grower's Melon, as it can be got in very early; its size can be regulated by thinning as every fruit sets, and the rich golden colour which the masses cannot resist will always sell it. From these remarks it must not be inferred that the flavour is deficient, as I look upon it as the best all-round white-fleshed Melon of recent introduction. Some of the scarlet or orange-fleshed varieties, too, are very good autumn Melons, but, never so rich as the greens, they fall off rapidly when sun-heat becomes weak and fitful. The well-known Blenheim Orange, when grown as Mr. Crump, the raiser, still grows it, is a host, and a very handsome host, in itself, but it must have plenty of light and heat, and these he is able to give by plunging the pots in tan and training the vines under a very steep, lightly-timbered roof. Another good and handsome Melon is Sutton's Invincible. Read's Scarlet still holds its own, and for rich flavour Turner's Scarlet Gem has not yet been beaten. All these varieties are good for early or late forcing, and will give satisfaction wherever they are properly grown. For early or late use the roots should be entirely under control; hence the advantage of growing them in pots, boxes, or narrow troughs, surrounded with fermenting material, and from which superfluous moisture can be quickly withdrawn.

Cucumbers.

Unless pits and frames are extra good, well situated, and the fermenting material is assisted by hot-water pipes, the fruit which they will produce will now be of little value; therefore, if the plants can be dispensed with, these structures may be turned to better account for stores of winter Lettuce, Violets, and a host of things which revel in a little latent heat. If, on the other hand, they cannot be cleared of their summer occupants, and fire-heat is not available, old linings must be pulled down and replaced with fresh fermenting stable manure, care being taken that all crevices are well stopped to keep out noxious steam, and good covering with thick dry mats, or, better still, waterproof canvas, must be employed during the hours of darkness. Meantime the first batch of early plants in span-roofed houses must be pushed forward, as their work will be over when the main crop comes in, say in January. The weather so far has been highly favourable, and plants from seeds and cuttings with us would produce any quantity of fruit, but the latter being of little value, they are only allowed to carry sufficient for daily use. Grossness at the outset being objectionable, plants in this stage should not be overdone with liquid; better water freely when they require it with warm, soft water, and top-dress lightly with fresh maiden turf and lumps of old lime rubble; also crop lightly, and keep them free from all male and superfluous female blossoms. As growth becomes weaker and more fruit is wanted, the pots or hills being full of healthy roots, diluted liquid, guano, and clarified soot water may be given with advantage, as there will be thousands of mouths ready to consume, and the plants will be in a fit state to assimilate mild stimulants. The first and last may also be used for damping the surface of the beds, but unless spider is present, direct syringing must be discontinued.

The main crop.—As dark, dull November steals upon us, plants in various stages of growth will be found occupying the positions in which they will remain throughout the season, that is, provided they escape the many accidents winter Cucumbers are always liable to. A good start in bright, clean, efficiently heated pits is a very important matter, but something more is needed; daily and nightly attention to the simplest rules and smallest details must not be neglected, otherwise checks to foliage or roots will speedily close the most promising plant's existence. With fresh fermenting material, new maiden soil, and wholesome, well-ventilated structures to grow in, plants put out in October make satisfactory progress so long as they have plenty of room for extension; the proper degrees of heat and moisture are maintained, and premature fruiting is not indulged in. The first thing to be guarded against is a sudden check, no matter whether it is brought about by too much or too little heat; the second to be decided upon is the range of temperature, and this the cultivator must fix for himself. Some can afford to start at a night heat of 70° and a bottom-heat of 80°. Others are obliged to be content with a lower minimum, and although their progress may not be so rapid, it may be equally sure and perhaps most satisfactory in the long run. The first can dispense with night covering; the second must run down waterproof blinds, not only to economise fire-heat, but also to keep their lower temperature steady, and husband moisture by checking radiation. To lay down hard and fast lines for either of these cultivators would be simply impossible, but, speaking in general terms, they will not go far wrong if, from fermenting material or hot-air chambers, they secure a bottom-heat of 75° to 80°, and, aided by hot-water pipes and covering, the pits range from 65° to 70° through the night. The maximum, it is hardly necessary to say, should run 10° above the lowest point, and as much higher as gleams of sunshine on bright afternoons will carry it. When the young plants have nearly reached the top of the trellis, the points should be pinched out of the leaders; all side shoots should be trained horizontally and in order to increase their strength, all female and male blossoms should be removed as they appear. Plants in pots or on hills will grow quite strong enough in good compost without the assistance of animal manure, provided they are regularly top-dressed with rough pieces of light turf, charcoal, or lime rubble, and warm soft water in sufficient quantity to reach the lowest roots is given with a liberal hand. Direct syringing should not be necessary during November and December, as ventilation will be reduced to a mere chink at the apex for a short time on the brightest days, but atmospheric moisture must be regularly supplied by damping the paths, walls, and other surfaces several times during the hours of daylight. I have often pointed out the importance of keeping the atmosphere sweet and healthy by the removal of all decaying vegetable matter, by a frequent dash of whitewash round the walls; and last, but not least, by light dressings of fresh loam to which burnt earth or charcoal may be added. When the plants begin to bear fruit, a few only of the most promising must be allowed to swell, and these should be cut when 12 inches to 14 inches in length, as nothing so severely saps the constitution as allowing winter fruit to form seeds whilst hanging upon the plants.

Figs.

The trees in early houses may now be pruned, cleansed, and tied in ready for starting in November. Being subject to insect pests, this work cannot be too carefully performed; therefore, if the roof has not been stripped and the lights painted, the latter should now be well scrubbed with strong soap water, when the walls may be washed with a solution of quicklime and sulphur. If bug has gained a footing, a small quantity of turpentine may be added, not only to this wash, but also to the water with which the trees are cleansed. Many people paint their trees with favourite mixtures of soap, sulphur, tobacco water, and clay, but, judging from the perplexing way in which a few finely developed representatives of the family sally forth when they are least wanted, it is evident that a thick coating of paint is not quite so efficacious as one could wish. At least, this is my experience in the cleansing of old trees full of knots and gnarls, and from which large branches have been removed in years gone by. Better wash them twice over and stop every hole with pure Gishurst, and then it will be necessary to keep a sharp watch for the parents of a fresh race should they emerge from their impenetrable hiding-places in the spring. If pot trees are standing or lying on their sides out of doors, no time must be lost in getting them washed and housed. A little frost does them no harm, neither does it do them any good; therefore, if thoroughly rested, their arrangement on the pedestals in a dry, airy house will be found the best place, especially if the mild autumn has forced the embryo fruits into prominence.

Succession houses in which the trees occupy internal borders may now be kept dry and cool, as they have a good two months' rest before them. With us the trees are barely clear of their foliage, and until this has fallen naturally and the buds are well hardened, washing and training will be deferred. When root-pruning is put off until the wood is ripe, the leaves fall quickly, but I prefer giving them the annual check as soon as the last ripe Fig is gathered, and whilst the foliage is sufficiently fresh to favour the formation of new rootlets. The leaves then fall gradually, and the few roots which they have assisted in forming are ready for their work when the stored-up sap is exhausted in the dark, dull months of January and February. Root-pruning is a very important operation, as Figs in permanent borders soon become gross and unfruitful where it is neglected; therefore, it is better to prune late than not at all. Start the trees gradually, or a little later, and make up for lost time under solar influence in the spring.

Branch-pruning.—The pruning of Vines, Peach, and other fruit trees upon the extension or spur systems is generally understood and carried out in a satisfactory way, but the Fig in many gardens, both under glass and on open walls, is still an enigma to a great number of cultivators, and simply refuses to be reduced to fertility by the unmerciful use of the knife. When planted in dry, sunny corners and space is unlimited, it grows itself into a fruitful condition, and not unfrequently produces immense crops for a great number of years. In course of time it forms a complete bower of tangled branches and pushes forth thousands of Figs, nine-tenths of which, owing to obstructed sun and light, never reach maturity. In cold, wet seasons, large, but crowded, trees on south walls, even in Sussex, never ripen a fruit, and I have been told a good aspect within two miles of the sea does not suit them. My reply has been, the leave-alone system, which has been allowed to obtain in houses as well as on walls, is the prime cause of failure. With spades and forks strike a blow at the roots—the larder, a well-known writer might say—cut off the supplies, limit the root space, and relay the roots in light, rich soil resting on good drainage. Let this work be performed before the leaves fall, but do not rush in with the knife immediately; give the superfluous shoots time to assist in the formation of new rootlets, and when this stage is reached thin out the branches. If the trees are on open walls or in cold, unheated houses, defer pruning until all danger of severe frost has passed away; then thin out all gross, unwieldy branches and lay in the best short-jointed, spur-like pieces of wood with good points sufficiently wide apart to admit a relay of summer growths. If any part of the tree is destitute of fruit-bearing wood, cut back shoots that have reached the extremity of the wall or trellis, and latent buds in plenty will break and finish during the summer. Keep these—indeed, all growths—closely nailed or tied in, pinch before July any that are growing too strong, and thin out all weak spray when and wherever there is danger of sun-heat being shut out from the brickwork.

Where, under the impression that Figs in hot houses do not require pruning, and a dense labyrinth has been formed, the knife may follow root-pruning in November or December. The fan training of old negected trees being the only practicable system, branch-pruning, or cutting out shoots that have reached the extreme limits of the trellis, answers better than continuous pinching and shortening back to make room for summer growths, which in their turn must be pinched when the trellis, before the first crop is ripe, becomes crowded to confusion. To avoid this, a goodly number of the most promising branches should be retained to form the framework of the tree, and all that are bare of spurs or superfluous should be pruned back to a good break or cut out altogether. Wisdom will dictate the retention of as many spur-like pieces of wood as can be laid in, but these should be evenly placed, with plenty of room for extension, as the finest Figs are obtained from shoots which can be trained forward without becoming crowded or requiring pinching. In course of time, perhaps not in one year, the most abandoned trees can be brought into fair shape, when the annual removal of a few of the least promising shoots will induce back breaks, from which the second crop of fruit will be gathered; and although the Figs will be as fine and good, the trees will not be so handsome as young ones which the modern grower manipulates with the finger and thumb and trains upon an improved principle.

W. Coleman.

Eastnor Castle, Ledbury.

Trees and Shrubs.

The Redwood Tree.

(Taxodium sempervirens.)

"G." (p. 370) anticipates a fair future for the timber of this fast-growing tree, but I am doubtful if owners of land in this country will ever plant it in sufficient quantity to make it pay. They need not, however, wait for English-grown trees to set the matter at rest, as I believe balks from its native habitat are already in commerce. In course of conversation with two friends—the one a timber merchant, the other a large builder—a year ago, I learned that a quantity of a new timber called the redwood had been imported from California, but whether or not this handsome Conifer produced it I am not prepared to say. After trying all his persuasive powers, the man of balks left without a line for redwood, and I learned from my friend that it might prove as useful as Memel Pine for inside work, but he was not particularly in favour of it. Of its durability he knew nothing; consequently his refusal to buy cannot be set down as an argument against it. It is just possible it does not suit his trade, also that the redwood of commerce may not be the redwood of our pinetums at all. One thing is certain: the Taxodium with us is a faster grower than the Wellingtonia, and, judging from the way in which it holds its girth, a circumstance which may be due to the frequent loss of its leader, it is probable that it will make more cubic feet of timber in a given time. Some forty years ago the late Lord Somers planted this tree rather extensively, both on the limestone marl and on light, rich soil resting on broken igneous rock. The trees on the limestone have made the largest specimens, but then they are well sheltered from west winds, and the soil being deep and moist, they do not suffer in dry seasons. Here even the leaders suffer, and sometimes the flat-spreading branches get broken by heavy falls of snow. I have just measured a very fine lawn tree which was planted forty years ago, and although it has lost three leaders within the last quarter of a century, its height is exactly 70 feet, and it girths 10 feet 6 inches 3 feet from the ground. The fine branches sweep the turf, and its lovely red-barked trunk, as straight as an arrow, is a marvel of beauty. Several trees on the red soil have, I have no doubt, equally fine trunks, and the branches, equally healthy, take a greater sweep, but being fully exposed to western gales the leaders are frequently carried away. Although leaders are constantly snapping, the trees keep laying on wood and soon send up fresh ones, which require reducing to the strongest and best, but, quickly as they recuperate, each decapitation must represent a loss of at least 10 feet. This calculation may be wrong, and I stand open to correction; but, assuming that I am within or near the mark, our limestone tree, had it escaped the gales, would now have measured 100 feet in height. One quality in Taxodium "G." has overlooked, or perhaps not noticed, and that is, its adaptability for game covert. Many I know have planted Scotch Spruce and other fast-growing Conifers, and cut out the leaders at a given height, but they soon become bare and hollow near the ground. Not so the Taxodium, as vigorous young trees can be cut over with knife or billhook a foot or more from the ground line, and the more they are cut the more they stool, throwing up numerous shoots or leaders thickly clothed with their lovely grass-green foliage. The tree is cheap, tolerably, if not quite, hardy when planted in game coverts throughout Britain, and, being a rapid grower on almost all soils, this quality cannot be too widely known. Cupressus Lawsoniana and Thuja Lobbi, now called gigantea—two fast-growing trees from California, and hardy as English Oaks—are equally accommodating, and quite as well suited to ornamental covert planting. Some twenty years ago I purchased 500 of each, and used them for nursing purposes, but, finding they overtopped the trees they were intended to shelter, some, not all of them, were sawn off 2 feet or 3 feet from the ground. The side shoots soon became strong leaders, when they also were headed back, and these broad-spreading stools not only keep down weeds, but form very handsome under-covert for game.

W. Coleman.

Eastnor Castle, Ledbury.

Sea Buckthorn.—I saw this the other day growing in great luxuriance on the sandy seashore of Courtown demesne, Co. Wexford, covering vast tracts of sand, and at first sight forcibly recalling the Olive woods of the Mediterranean coast. Lord Courtown informed me that it had been introduced by the late earl, his father, from the east of Scotland, and that it made an excellent hedge where the "Quickset" (Hawthorn) refused to grow. "J. T. P." may be interested in learning that it bears its pretty orange berries freely, often so much as to produce orange patches against the grey foliage when seen a little way off. This year I learned it was not fruiting as well as usual.—Greenwood Pim.

Retinospora filifera.—This Japanese Conifer is distinct from any of the others; indeed, with the exception of Biota pendula and a thread-branched form of Cupressus Lawsoniana, there is nothing among Conifers at all approaching it. When allowed sufficient space in which to develop itself, R. filifera forms a rounded bush, broad at the base in proportion to its height, and narrowing upwards but slightly. At times the regularity of this arrangement is broken up by some of the branches being more vigorous than others, and when such is the case the long thread-like character of the spray is even more noticeable than in a compact specimen, though at all times a healthy plant of this is a beautiful object. The colour of the foliage is a sort of ashen

green. This Retinospora is well suited as an isolated specimen on small lawns, and also for planting in cemeteries, as it will not soon outgrow its bounds, and the long pendulous shoots suggest themselves emblematical of grief in the same way as the Weeping Willow. Another point worth consideration is that it may be easily kept within bounds by pruning, as it can be readily pruned without detracting from its beauty if the operation is carefully performed. Cuttings of Retinospora can be struck without difficulty if put in during the autumn and kept in a close frame till rooted. True, they will not strike as easily as some of the Retinosporas, ericoides and squarrosa, for instance (which are about the least difficult of all Conifers to increase in this way), but filifera is, in this respect, about on a par with R. plumosa, R. pisifera, and the varieties thereof. T.

MAGNOLIAS AT HOME AND ABROAD.

Few hardy trees have more claims upon the planter than Magnolias. Michaux, who in his "Sylva" has described and figured all the fine species indigenous to America, is unbounded in his praise of them. M. macrophylla he carried home with him to the Empress Josephine, in whose garden at Malmaison it bloomed for the first time in 1811. "The Magnolias are all natives of North America and Asia, none yet having been found in Europe or Australia. They also occupy nearly the same parallels of latitude, from the 28th to the 42nd. Michaux states, that of the thirteen species known to exist when he published his work (1814), eight were from America and five from Asia; but Loudon, in his 'Arboretum' (1842), only enumerates twelve species, and one of them a doubtful one, viz, M. pyramidata. Adopting his classification, seven are natives of America, viz., M. grandiflora, glauca, tripetala, macrophylla, acuminata, cordata, and auriculata, and four of Asia, viz., M. conspicua, purpurea, gracilis, and fuscata. But there are many varieties and hybrids of the above, numbering in all about twenty." M. A. Mongredien, in his "Trees and Shrubs for English Plantations," describes eight species only.

One circumstance appears to have militated against planting Magnolias, and that is, an impression that most, if not all, of them are partially tender and difficult to manage. Unfortunately, the most majestic of all the species, M. grandiflora, is the tenderest, requiring some slight protection, such as that of a south wall. The Asiatic species appear to be quite hardy. They are, however, of low growth compared with the others, but, nevertheless, very beautiful, particularly M. conspicua, which, in a favourable position, grows into a large tree, fine specimens of which may be seen in some parts of this country. The American species which attracted the attention of the first botanists who went over to examine the riches of the transatlantic flora were transplanted to the gardens of England and France a century and a half or so ago. M. acuminata, known as the Cucumber Magnolia, is one of the hardiest of the species, as well as one of the most beautiful, equalling in altitude and dimensions M. grandiflora. It indeed often exceeds 80 feet in height in its native forests; the northern limit of its growth is Lake Erie, and it abounds along the whole range of the Alleghanies to the southward, where it is found in rich mountain acclivities and moist sheltered valleys. The leaves, which are large, are 6 inches or 7 inches long and 3 inches or 4 inches broad, even on old trees and on young and vigorous ones nearly twice that size. They are oval, entire, and very acuminate. The flowers are from 5 inches to 6 inches in diameter, of various tints, from bluish green to white, with a tint of yellow and have a slight odour. In its native state the cones or fruits are about 3 inches long, nearly cylindrical in shape, and when green resemble a Cucumber, and hence the American name, Cucumber Magnolia. This species Michaux characterises "as one of the finest trees of the American forests." Its large flowers, abundantly displayed amid its superb foliage, have a fine effect, and render it one of the most desirable of the larger growing kinds. In its native habitat it grows most abundantly on the declivities of mountains, where the soil is deep and fertile and the air moist. It is not found within 100 miles of the Atlantic coast, which Michaux attributes to the nature of the soil and the extreme heat, and we have it on his authority that most of the inhabitants bordering on the Alleghanies gather the Cucumber-shaped cones about midsummer when they are half ripe, and steep them in whisky; the liquor produced they take as an antidote against the fevers prevalent in those districts. The wood of the tree is of a fine grain and of an orange colour. M. auriculata is regarded next in size and grandeur to M. acuminata, attaining, according to Michaux, a height of from 40 to 50 feet. It is quite as remarkable for the beauty of its foliage and the size of its flowers as the preceding, with this addition, that they possess an agreeable odour; they are of white or yellowish white colour. The leaves are narrow, 8 inches or 9 inches long, and from 4 inches to 6 inches broad, and in young trees one-third longer; the base of the leaf is divided into rounded lobes, and hence its specific name. The cones are 3 inches to 4 inches long and of a beautiful rose colour at maturity. M. auriculata is found growing only in a small tract of country, in the Alleghanies which traverse the Southern States, 300 miles from the sea, and on the banks of the rivers which flow into the Ohio, from Kentucky and Tennessee. Bartram discovered it in 1786. It is most abundant in the lofty mountains of North Carolina. It is said to be hardier than M. acuminata, and in the most northerly parts of our island only requires the precaution of training it to a wall.

M. tripetala, the Umbrella Magnolia, is found in the northern part of New York State, but more abundantly further south; it is also plentiful in the Western States. It is a smaller tree than either of the two already described, rarely growing more than from 30 feet to 40 feet high. Its leaves are, however, larger, being 18 inches to 20 inches long, and 7 inches or 8 inches broad, and often displayed in rays at the ends of the vigorous shoots, like an umbrella, and hence its American name. The flowers are also large, 7 inches to 8 inches in diameter, white, produced at the ends of the shoots, and scarcely so fragrant as those of the others. The fruit is conical, 4 inches to 5 inches long, and they assume a fine rose colour in autumn. It makes a superb tree; its long smooth shoots, its huge foliage, its elegant flowers and showy fruit formed successively through the year are objects of the most attractive interest. Its growth is rapid and it flowers when comparatively young; it is very hardy, but rather short-lived. It is found to thrive tolerably well in the northern parts of this island.

M. cordata, the Heart-leaved Magnolia, has been confounded with M. acuminata. Loudon states that it is only a variety of that species, but Mr. A. J. Downing considers it to be a distinct species. It attains about the same altitude as M. tripetala, and only differs in its broader leaves, which are 4 inches to 6 inches in length and 3 inches to 5 inches in breadth, and its flowers, which are lemon-yellow, marked inside with a few reddish lines. The cones are 3 inches long, green, and the seeds deep red. M. cordata was discovered by the elder Michaux, who found it on the banks of the river Savannah, in Upper Georgia, and on those of the streams which traverse the back part of South Carolina. It never makes its appearance in forests, but only in isolated situations along the banks of rivers. This species is rarely met with in cultivation, and is less known than either of the foregoing, though Michaux speaks of it as "resisting an intense degree of cold," and, therefore, an interesting and suitable one for amateurs. It flowers abundantly, will sometimes produce two crops in one season, and it will flourish in any good locality throughout England, and probably further north.

M. macrophylla is a remarkable species, generally considered rather tender, though by some thought to be quite hardy. It is rather tender north of New York. It loves a good, generous soil, and a dry substratum, but soon perishes if the roots penetrate a wet subsoil. It is the most rare of all the American Magnolias, being only found on the mountains of North Carolina and in Tennessee, always sparingly dispersed, only a few trees being found together. In its general appearance it is like M. tripetala, and is always accompanied in its native forests by that species. The leaves are very large, often measuring 35 inches long and 9 inches or 10 inches broad; they are oblong-oval, and heart-shaped at the base. The flowers are the largest of all the Magnolias, being frequently 8 inches or 9 inches in diameter and of a fine white, with a small deep purple spot on the interior base of the petals, which are six in number; they also diffuse a fragrant odour. Nothing can excel the magnificence of its numerous blossoms, set off by the rich and luxuriant foliage which surrounds them. This species, remarkable for its gigantic foliage and flowers, is of slow growth and delicate constitution when young, but once well started and in a congenial situation, it puts forth its magnificent foliage with great luxuriance, as well as its noble blossoms, both which unfortunately, however, expose so large a surface to the wind as rarely to remain long unscathed. In the more northerly latitudes of this country its growth becomes slow and stunted. The tree attains only a secondary size, and is distinguished in winter by the whiteness of its bark compared with that of the others.

M. grandiflora, the large evergreen Magnolia or the Big Laurel of America, is the one perhaps best known in this country, and it is peculiarly indigenous to that portion of the United States south of North Carolina, where its stately trunk—often 70 feet in height—and superb pyramid of deep green foliage render it one of the most majestic of trees. Certainly, as regards majesty of form, magnificence of foliage, and elegance of flowers, it may be regarded as one of the finest trees in the world. Bartram says that its trunk represents a "beautiful column," and its dark green foliage is silvered over with "milk-white flowers." The leaves, which are evergreen and somewhat resemble those of the Laurel in form, are generally 8 inches or so in length, thick in texture, and brilliantly polished on the upper surface. The highly fragrant flowers are composed of about six petals, opening in a wide cup like form, of the most snowy whiteness of colour. Scattered among the rich foliage their effect is remarkably fine. There are several varieties of this which have been raised from seeds of the species; the most beautiful is the Exmouth Magnolia, or M. exoniensis, with fine foliage, rusty beneath; it produces flowers much earlier and more abundantly than the original form. It is often met with in this country mantling the walls of ancient mansions with its noble Laurel-like leaves and gigantic white flowers. It is the only species of Magnolia which is evergreen. It perhaps grows best in cool, shady places where the soil is loose and fertile. The growth is slower in the north than in the south and more southerly midland districts. The specimens found in Scotland are generally small and stunted. M. grandiflora is one of those shrubs which have a bad name because of the baneful emanations proceeding from them. As we have stated, its large white flowers emit a powerful fragrance. When wafted to a distance upon the air the scent is delicious, but when inhaled in the immediate neighbourhood of a group of Magnolias in flower it becomes overpowering. The Indians carefully avoid sleeping under a Magnolia in blossom, and it is stated that so powerful is the perfume of the flowers, that a single blossom placed in a bedroom is very injurious.

M. glauca (the Beaverwood of North America, the Magnolia of the swamps of New Jersey and the South) grows rather in the form of a large bush than a tree, with shining green leaves, 4 inches or 5 inches long, somewhat mealy or glaucous beneath. The blossoms, about 3 inches broad, are snowy white, and so fragrant that it is

said, where they abound in the swamps, the perfume is often perceptible for the distance of a quarter of a mile.

Of the Asiatic Magnolias, M. conspicua (the Yulan or Chinese white Magnolia) heads the list. This species is said to have been first cultivated in China as remote as the year 627, and has ever since that time held the first rank as an ornamental tree in Chinese gardens. In its native country, when fully grown, it attains the height of 30 feet and 40 feet; it also attains a good size in this country. The largest plant in Great Britain, fifty years ago, when it was measured by the late Mr. Loudon, was 27 feet high, and had at that time open 5000 blossoms. It would probably not be very difficult to match this tree in the present day. M. conspicua assumes a somewhat conical shape, with numerous branches and twigs, and the flowers, which are milk-white, expand before the leaves in April and May. It blossoms when only 2 feet or 3 feet high, and grows so well as to reach the height of 10 feet in six or eight years. Unfortunately, M. conspicua is liable to have its vernal beauty impaired by the late spring frosts that are so common to this country. It is a perfectly hardy species, standing a temperature of 25° below zero without the least injury. It grows readily, preferring a deep, rich, mellow soil, in a rather dry locality, and while quite small, if in a bleak place, may be protected, but as soon as well established it needs no more care than the hardiest shrub. It should find a place in every garden commensurate with its requirements.

M. purpurea, the Chinese purple Magnolia, a smaller growing species than M. conspicua, is found in China and Japan, and was introduced to England about 1790. When full grown it reaches a height of about 10 feet; the stems are numerous, not much branched; leaves large deep green; flowers large, purple on the outside of the petals, and nearly white within, the contrast of the two colours rendering them peculiarly beautiful; it flowers early. It should have a light, rich earth to grow in, and a dry subsoil, in which it proves quite hardy and a highly ornamental plant.

M. Soulangeana (Soulange's Magnolia) is said to be a hybrid between the two foregoing, and was raised at Froment, near Paris, by the late Chevalier Soulange Bodin. It so closely resembles M. conspicua when not in flower, that it is difficult to distinguish it; its flowers differ in being slightly tinged with purple. It is a fine shrub, and well deserving attention. M. Lenné is regarded as a fine, large, dark-flowered variety of M. conspicua by some, by others as a variety of M. purpurea, with larger blossoms; by others again it is believed to be a hybrid between M. conspicua and M. purpurea.

M. Campbelli is an arborescent species from the Himalayan Mountains, with magnificent foliage and flowers, with red petals, and larger than those of M. grandiflora. It was introduced in 1870, but is yet somewhat rare in gardens, and in all probability its hardiness has not been thoroughly tested.

Generally, it may be stated, that in order to thrive well, Magnolias require a deep, rich soil, which, in nearly all cases to secure their luxuriance, should be improved by adding thereto some leaf-mould or decayed vegetable matter from the woods. When transplanted from the nursery, they should be preferred of small, or only moderate size, as their succulent roots are easily injured, and they recover slowly when large. As lawn trees, their large and striking flowers and rich summer garniture of luxuriant foliage make them superb objects. If possible, situations somewhat sheltered either by buildings or other trees should be chosen for all the species, though acuminata will thrive in almost any aspect not directly open to violent gales of wind. W.

Conifers at Berkhampstead.—Among other Conifers to be seen in Lane's nursery are some Araucarias from seed produced in the nursery. They appear equally as vigorous as plants obtained from seeds imported from their native country; indeed, they may in all probability be found to withstand the variations in our climate even better than plants from foreign seeds. Thujopsis dolabrata, its variegated form, and the variety lætevirens are somewhat slow in growth everywhere; but if, as here, the situation is slightly sheltered and the soil good retentive loam, they soon become mature ornamental specimens. Cryptomeria elegans, another handsome Conifer, is now assuming its beautiful autumn tint. The Parasol Pine (Sciadopitys verticillata), although ultimately attaining a height of 100 feet, is perhaps the most distinct member of the Japanese Conifers; it is extremely handsome in a young state, and does not rapidly become too large for gardens of small dimensions. The larger growing members of this Order are represented by many handsome specimens, the soil and situation apparently suiting them admirably. —W. H. G.

Kitchen Garden.

GARDEN BEETS.

I was surprised to find the other day our old acquaintance, Dell's Crimson, brought out again as a new variety. How many diverse appellations this excellent sort has had given to it during the last twenty years it would be hard to say. That selection of any kind can do much to keep a stock pure and good is well known, and such stock is entitled to due honour if it be kept carefully selected; but its purity does not justify the appellation of Exhibition, Perfection, Superb, or some other exceedingly laudatory term, which may be just enough, but is still wrong, because it is not a new variety. My attention was first drawn to Dell's Crimson Beet in a garden in Hampshire full twenty years since. The stock was a remarkably good one, and its true or original name was not known, but it was being sent out by a local seedsman under some other designation. The stock then being well cared for was as good as the best of to-day, and I do not think that, whilst selection has kept it true, it has done anything more. That the kind owes very much to the beauty and rich dark metallic hue of its foliage there can be no doubt. It was this feature which years back gave it such prominence as a ribbon-border plant, and, without doubt, those partial to that style of decorative gardening find it hard to beat its outdoor foliage effects. The leafage is on strong roots, from 12 inches to 14 inches in height, and the leaf-surface is about 6 inches or a little more in length, and very elegantly reflexed or drooping. In small plants the rich dark hue is not found so readily as in larger ones, but those who wish to find this Beet true and deep coloured should raise some plants under glass, and when strong enough dibble them out where they are needed to grow. Not only is a perfectly even line of plants thus secured, but the coloration is even throughout the season. The comparatively hardy nature of Beet is one recommendation for its use in the flower garden, because it will remain effective a long time after Coleus plants have disappeared. Very pleasing effects are often obtained in kitchen gardens by sowing Crimson Beet and Carrots in alternate lines, as the Carrot foliage, if but green, is still very light and graceful. Whilst the colour of the flesh of Dell's Crimson is of a deep violet-purple, that of the old Pine-apple—the most widely grown kind for the London market—is of a rich blood-red, or really crimson, and the roots, as a rule, are rather larger than those of the preceding kind. The tops, however, lack that effective habit which the other possesses, as in the Pine-apple they are almost flat and spreading. The foliage is pointed and of a reddish hue, though usually green early in the season. For market purposes colour goes for so much, that the handsomest Beet in the world would not be acceptable unless the roots gave the desired deep crimson colour. It does not at all follow that crimson-hued roots are softer or better flavoured than purple ones, but the colour is that which gives the most general satisfaction. A very distinct and handsome kind is the Covent Garden. A well-selected stock shows good-sized, handsome tapering roots of a very rich crimson hue, tender, and good flavoured. The foliage is comparatively dwarf, the leaves evenly placed, and of a very pleasing reddish maroon colour. The leaf surfaces are shortish, almost rounded, and somewhat abruptly fashioned. The stock of this kind does not appear to be largely known, but it seems to be first rate, and if it can escape the general tendency on the part of seedsmen to re-christen Beets, it will probably have a long life as the Selected Covent Garden. Very good reputations have been enjoyed by Beets under the various designations Dewar's Dark Red, Cattell's Dwarf, Nutting's Dwarf Red, &c., but it is doubtful whether we have more than half a dozen really distinct good garden sorts with tapering roots, and if they are good, that number is ample. The Turnip-rooted kind is too distinct to be otherwise named, and it is useful enough for very early use, but otherwise it will not be widely grown. Form or beauty in Beet very materially depends upon soil, but something is due also to time of sowing, because to produce clean tapering roots quick growth is essential. If the seed be sown too early, the plants often become set or stagnant in their youthful stage, and then fork or produce side or lateral roots when renewed growth ensues. As a rule, the last week in April or early in May is quite early enough for Beet sowing, as from that time onward growth is more even and rapid. It will, however, be noticed that very often more growth is made by the roots in the cool autumn than during the hot summer. It is an undoubted advantage that with this root-growth continuing so late in good soil even very late sowings often produce fine handsome roots. Seed should be selected before sowing, the smallest being thrown away. Thin sowing in drills 15 inches apart is better than thick sowing with much smaller seed; and should there be vacancies, plants will transplant admirably if ordinary care be taken. A. D.

Mushrooms have been unusually scarce with us in this neighbourhood during the present autumn. What we have had, however, were of exceptionally large size; one was brought in to me last evening, from a field close at hand, which measured 10 inches in diameter, 2 feet 5 inches in circumference and weighed 1 lb. 1 oz.; it was a true Agaricus campestris in perfect condition. I may remark that in the first week of this month Mushrooms were profusely abundant in the fields around Spa, in Belgium, but were uniformly of extremely small size.—R. Milne-Redhead, *Holden Clough, Bolton-by-Bowland, Clitheroe.*

Lettuces in frames.—The time when good Lettuces are usually scarce is in February and March, and the Brown Cos, though hardy and excellent, is notoriously slow in turning in in spring, unless artificial heat can be employed to induce it to do so. And even then if warmth can be supplied, other kinds, such as the Paris Market and Tom Thumb, will turn into use much quicker. Considering the requirements of even moderate establishments, but few gardens are so well supplied with movable glass frames as they should be to make the most of things. Tom Thumb Lettuces set out now in glazed frames become very useful in February, and the Brown Cos might be planted for succession. If planted in the warm soil from which Melons and Cucumbers have just been removed, an impetus will be given them that will be useful, as there is no time now to be lost in the matter. The Tom Thumb should be planted 6 inches apart and Brown Cos 10 inches. The soil must be moistened when necessary, and frequently stirred between the plants during winter.—E.

Field market crops.—The very delightful weather experienced during the past few weeks has proved somewhat detrimental to green crops and Turnips, the latter in many places suffering greatly from the attacks of aphis; indeed, I have seen one big patch of some two acres literally cleared of every plant, the foliage being entirely eaten up by this pest. The Turnip beetle has not been troublesome appreciably, but, in addition to the attacks of aphis, drought is again telling upon the plants. We have had either hot days, or, if cold, attended with dry, cold winds, and almost always with clear, cold nights. These have not been at all favourable to growth, and Turnips are not good if not quickly grown. With respect to Broccoli, and especially Autumn Giant

Cauliflowers, aphis is unusually abundant, and heavy rains are sadly needed to wash the plants. Caterpillars have also arisen in great abundance; they suddenly spring up as it were in a day, the first evidence of their presence perhaps being a patch of plants almost denuded of leaves. In large breadths of several acres it is evident much harm may be done before such insects' ravages are discovered or checked. Their presence, too, in ever so slight a degree in any of the Cabbage tribe is not only very objectionable but detrimental to sale; as it is, no doubt all kinds of field greens will be very cheap, and in spite of the dry weather such seems to be the fate of Runner Beans, for I have recently heard of growers bringing back many bushels from market and throwing them upon the manure heap, simply because no offer was made for them. It is not merely in fruit that the market is glutted; the same thing exists with regard to common vegetables, and growers are being driven to their wits' ends to know what to do under such adverse circumstances.—A. D.

NEW KINDS OF POTATOES.

Judging by the number of new or seedling kinds of Potatoes grown at Chiswick this year, and also by the fact that several certificates of merit have already been awarded to selected kinds, it is evident that raisers are not checked in their interesting work by any coldness with which new kinds are sometimes regarded. Very probably one-half the gardeners in the kingdom know little about the numerous kinds which the enterprise of raisers has put into commerce. We have finer and more prolific Potatoes now than were dreamed of twenty years ago, and these fine kinds may be materially excelled twenty years hence. None are perfect, though all are good, and in all there is room for some improvement or other. What is almost an evil in one sense has grown out of this wealth of fine and prolific kinds. Potatoes are a great crop and wondrously cheap; indeed, it would seem, judging by the past few years' experience, that we shall never know what a Potato famine is again. The sudden appearance of the disease-spots in the tops, and which spread with such rapidity in many places as to literally sweep off entire breadths of haulm in a short time, seems now to have been checked, and where growths have been only partially hit or escaped, there is still luxuriance and comparative health. Tubers have not been materially injured, the worst evidence of disease, as usual, being found in strong-manured soils; but on the whole so far, disease in the tuber is but partial and trifling. Thus we have a great prospect again this year of a heavy crop, considerable size in the tubers, and, having regard to the comparative dryness of the soil, quality should be excellent. Under the circumstances it does seem as if Potato raising was hardly a promising occupation, but past successes rather more than present prospects seem to stimulate efforts in the development of new kinds. Certainly raisers who produce their score or even hundred seedlings every year can and do say that even if all turn out indifferent, none are wasted, as they can be eaten, and that fact encourages many to continue. Again, any new kind—and to be worth preserving it must be very prolific—is rapidly increased. The seed of the spring will perhaps give two pounds of tubers the same year, thirty pounds perhaps the second season, and the next year perhaps three or four bushels, or more, so that in a very short period a big stock is obtained. If any kind does not increase rapidly it is of doubtful value, except in the case of very early ones. The raising of what may be termed natural seedlings is sheer waste of time, and those who purpose producing seedlings should effect their own crosses if they are to aim at some special result, and also find special pleasure in their labours.

It will be remarked that all the kinds certificated the other day at Chiswick were white ones. No doubt, for general purposes, white kinds are the most popular, but we should be sorry to see colour totally eliminated from Potatoes, for many, in addition to capital quality, have great beauty, not only in form, but in colour also. A couple of handsome flattish oval rounds, white of skin, and having in the one case carmine, and in the other purple blotches or markings, give not only distinctness but beauty, great crops, and fine quality. These certainly are worthy of praise. A well selected collection of twenty-four dishes of tubers is quite a picture, and unquestionably beautiful. Because beautiful, certain people decry table quality, but that is absurd. The very same kinds under widely different circumstances and in some other soils might be rough-skinned enough, and not be a whit superior in quality. In spite of criticisms, enthusiastic Potato raisers will still go on producing new kinds in plenty. A. D.

Ceropegia elegans. Flowers white, blotched with brown.

SHORT NOTE.—KITCHEN.

Peas in America.—An American paper states that of all the sorts of Peas of recent introduction, Carter's Stratagem, Sharp's Early Paragon, and Invincible are the best. Stratagem is described as a new green wrinkled Pea of great merit, and probably the handsomest and most productive of its class. It grows about 2 feet in height, and bears immense pods, filled with Peas of the largest size, of the finest quality for the table. This variety has invariably taken the first prize during the season whenever it has been put in competition.

INDOOR GARDEN.

CEROPEGIAS AND THEIR CULTURE.

The plants belonging to this genus are for the most part small-growing, slender climbers, with tuberous roots. They have a beauty peculiarly their own, but are not frequently found in cultivation, except in gardens where large collections of plants are maintained; this is much to be regretted, as they form charming ornaments, and are excellent companions for the smaller kinds of Aristolochia, such as A. ridicula and A. elegans, recently noticed in The Garden.

These curious and remarkable plants usually inhabit rough, stony ground, and scramble amongst the low bushes which are to be found near them. We have found them to be very effective when allowed to grow amongst sprays of Birch or other twigs; these their branches overgrow and festoon in a very pleasing manner, and the flowers show themselves to the best advantage when thus allowed freedom of growth. For soil we have found a mixture of about two parts loam to one of peat, with the addition of some sharp sand and broken brick rubbish, to suit them admirably. The temperature of an intermediate house is sufficient for their development, but they enjoy full exposure to sun and light.

The genus contains a great number of species, some of which do not recommend themselves to the horiculturist; the kinds which we enumerate, however, are all distinct and well deserving attention; we have grown handsome specimens of them under the conditions here given. C. Gardneri, from Ceylon, is an elegant twining plant, with stems slightly stouter than a wheat straw; the opposite leaves are borne upon short footstalks, and are between 3 inches and 4 inches long, sharply lanceolate in shape, deep green on the upper side, tinged with slaty purple beneath. The flowers grow in small clusters upon short footstalks, which spring from the base of the leaves, and are about 2 inches long; they are tubular, slightly swollen at the base, with a narrow neck, and a large spreading five-lobed limb; these, just before opening, bear a strong resemblance to an open flower of a Stapelia, but when open these lobes remain joined at their points. A good idea of their appearance may be gleaned from the accompanying figure. The flowers are creamy-white, spotted all over with brownish purple like a cheetah; the edges of the lobes are fringed with numerous small hairs which turn inwards. It blooms during the greater part of the summer. C. vincæfolia, from Western India, is a more robust plant than the preceding; otherwise it resembles it in general appearance. The tube of the corolla is narrow in the middle, creamy white freckled and dotted with crimson, base of the lobes green; the limb is reflexed, not jointed in the edges, and dull purple in colour. It blooms during late summer and through the autumn months. C. Bowkeri, from Caffraria, can scarcely be called a climber, although it delights to grow through and about twiggy brushwood. The stems are very slender, furnished with narrowly-linear, opposite leaves some 3 inches in length, and pale green in colour. Flowers mostly solitary, borne upon short foot-stalks; tube of corolla narrow in the middle, brownish purple within; the lobes of the corolla are free, longer than the tube, and reflexed; ground colour yellowish green, over which are numerous blisters of emerald green, the edges being ornamented with short hairs. It is a summer bloomer. C. elegans is a plant which much resembles Gardneri in size and habit. The flowers, although similar in shape, are somewhat smaller; they are also more in-

flated at the base. The neck, which is very narrow, is blackish purple; the limb is united at the edges of the lobes, where they are fringed with long black erect hairs. Corolla blackish purple, blotched and spotted with creamy yellow; inside it is sparingly dotted with purple. It comes from the Madras hills, and flowers during summer. C. sororia is a South African species from Caffraria. It has a slender twining stem bearing very narrow leaves, which are some 5 inches or 6 inches long, deep green on the upper side, paler and slightly glaucous beneath. Flowers solitary, on long foot-stalks; tube tapering upwards from the base, pale green, dotted with red towards the upper part; lobes of the corolla reflexed and free, about an inch long above, deep green transversely barred with purplish black, the under side of a uniform soft rosy mauve. It blooms during summer and early autumn. C. Cumingiana is a robust plant for a member of this family, with dark green egg-shaped leaves, which taper to a long point. The flowers are borne five or ten together and are funnel-shaped, the lobes not puffed out as in Gardneri, tube creamy white, the corolla dull brown tinged with red, the lobes joined at the edges, but destitute of hairs. It comes from Java and Luzon, and blooms during the autumn months. C. Sandersoni is also a robust plant, with a similar habit to the preceding, but is a native of Natal. The flowers are some 2 inches long, and are produced throughout the summer months; tube swollen at the base, with a contracted neck and spreading corolla; the lobes are joined at the edges and puffed outwards, forming a parasol-like covering to the mouth of the tube; ground colour yellowish green spotted with bright green, fringed at the edges with short erect hairs. W. H. G.

WINTER-FLOWERING PLANTS.

Eucharis amazonica.—This may be said to flower at no particular season; well-established plants of it will flower freely once during winter and again in spring, and where many are cultivated a few blooms are usually available at almost any time of the year. About four years ago we had a wretched stock of this lovely bulbous plant, and were thankful to obtain from them a few odd flower-spikes at rather wide intervals. At present we have an house full of healthy plants, some in large and some in small pots, and from these we obtain three good crops of strong blooms without any extra efforts on our part. The bulk of the plants are now pushing up more bloom than they ever have done before, though unfortunately this is a month earlier than they are required, but it is almost needless to add Eucharises are welcome whenever they are forthcoming. What we have achieved anyone else similarly situated may easily do. According to my experience, Eucharises when in bad health are not quickly recovered, and, on the other hand, healthy, well-rooted plants will stand a large amount of rough treatment before they eventually give signs of being injured. Half the instances cited of failures owing to the attacks of the Eucharis mite are really the result of bad treatment, arising from being left too long in a cool house for the purpose of resting them, and following it up by a sudden change to strong heat. Thus treated they will perhaps bloom strongly, but the roots may have perished, and a plentiful supply of water, as well as strong liquid manure, usually given during the flowering time effectually completes the work of destruction. Hotbeds have also much to answer for in the case of this plant; these, if excessively hot, cook the roots, and render them unfit to withstand rough treatment of any kind. The stock of plants found here were plunged in a hotbed, or what had been one, for the heating material was quite rotten, and so also were the roots of the Eucharis. My first thought on seeing these sickly-looking plants was that they were suffering from Eucharis mite. There were insects on the roots, as there usually are on almost any decaying matter, and had I been so disposed we might easily have credited ourselves with effecting a cure. There is, however, no cure for Eucharis mite. Our plants were sickly, owing to their having lost their roots, and a mass of sour soil surrounding the bulbs was not likely to induce the formation of fresh ones.

The best remedy in our case, and in any similar case, is to at once shake the bulbs clear of the soil. This may be done now, or any other time of the year; then repot in good fresh compost. If it is desirable to largely increase the stock then one strong bulb is sufficient for a 4½-inch pot, and three smaller bulbs should go in the same sized pot, but if bulbs be plentiful about six should go to a 9-inch pot. Some place a great number of bulbs in much larger pots, but, according to my experience, they become established more readily in smaller sizes, and can then be shifted gradually into larger pots. The pots in every case should be quite clean and well drained; we have had Eucharises do well in small pots without any drainage at all, but it was only for a time, as an overdose of water afterwards destroyed many of their roots. They require, when in good health, plenty of water, but it should pass away freely. If good fibrous loam is available, this should be broken up roughly, and be used at the rate of two parts to one of good leaf soil and decayed manure, with plenty of sharp sand and a sprinkling of charcoal. Our loam being of a heavy character and comparatively fibreless, we employ less of it, that is to say, at the rate of one half of the heap, and substitute one part good fibrous peat. A little bone meal, or even half-inch bones may be added to the compost with advantage, and a surface-sprinkling or top-dressing of bone-meal produced a marked improvement in the appearance of some of the weakest pots which we have. Washing the half-dead roots is of little use; we are content to pot them without that attention, the bulbs being imbedded in sand, and about three-parts buried in the well-firmed soil. Bulbs thus treated, whether for increasing the stock, or for rendering healthier, should be returned to an ordinary stove temperature. They should be very carefully watered till such times as they are well rooted, and should be carefully shaded from bright sunshine. The check sustained not unfrequently causes the stronger bulbs to throw up a flower-stem, but if the bulbs are not in good health, they ought not to be allowed to expend their remaining vigour on perfecting flowers; their removal would certainly expedite recovery. Single bulbs soon form suckers, and if when the pots are well filled with roots, and before they are root-bound, they are shifted into 8-inch pots, a strong clump of bulbs will be quickly obtained. We quite recently shifted a number into 8 inch pots, and already the fresh soil is occupied with roots. This fact further tends to confirm me in the idea that autumn is the best time in which to repot Eucharises. At one time we exposed our plants to too much sunshine, and the leaves were thin and flabby in consequence, but now we shade rather heavily in hot, clear weather with the best of results. Although Eucharises cannot stand sunshine, they delight in plenty of heat and a moist atmosphere during summer. For two seasons no air has been admitted through the ventilators, and with shade and frequent overhead syringings, the walls, staging, and floors being well damped at the same time, their progress is far more satisfactory than when treated in more orthodox fashion. It is the usual practice with many cultivators to either transfer the plants to a cool house or pit, giving much less water at the same time, or else to keep them where they always are, but giving them very little water, this being done for about six weeks. A sudden transition to heat and moisture, or a change to moisture at the roots only, has the effect, as I have just stated, of causing many of the bulbs to flower, and in this manner they can be timed to bloom at a time when their blossoms are most wanted. This system may be advisable, and doubtless answers well in the case of bulbs grown principally on hotbeds or even standing on a moist bottom, especially if at all crowded, but ours flower periodically and without any peculiar treatment in the way of resting. Nor are we at all singular in this respect, and it is my firm belief that it is not those experimental cultivators that secure the most bloom in a year. Let the plants never suffer from want of water, and if they are not often repotted they ought to receive frequent supplies of moderately strong liquid manure at blooming and at all other times. Without this aid they cannot reasonably be expected to flower strongly so many times in a year. Of the various uses to which Eucharis blooms are put but little need be said, as nearly everyone knows that they are invaluable for bouquets, wreaths, crosses, for dinner-table decoration, and for ladies to wear. For a button-hole the smaller flowers of Eucharis candida are preferable to those of amazonica.

Dipladenia boliviensis.—Although not so showy as the rest of the Dipladenias, this may be said to be the most generally useful, as it can be successfully cultivated in positions unsuited to the choicer varieties, and by those who cannot succeed with them. It is also the most continuous flowering; in fact, in well-heated stoves there is no reason why a few or many blooms cannot be had at any time of the year. It is strictly evergreen, and anything in the shape of drying off ought not to be attempted, though it should be understood that much less water is required during the winter months; nor do they require much pot room, a 10-inch pot being capable of holding sufficient soil to support quite a large plant. Ours receive a shift each spring, and good fibrous peat, with sand, crocks, and charcoal added, suits them. If extra good fibrous loam is available, equal parts of this and peat answer well, but, unless the loam is really good—that is to say, full of fibre and not clayey—it is advisable to dispense with it entirely. What is wanted is a pot full of roots and plenty of water, and frequent supplies of liquid manure can then be given with safety. In the autumn a top-dressing of rough peat and a sprinkling of bone-meal prove beneficial, keeping the roots active in a position where the genial atmosphere of the house is bound to reach and assist them. Unlike the other Dipladenias, this variety will bloom freely at a considerable distance from the glass. We have plants rooting in 9 inch pots that are trained up the iron supports of the roof of a plant stove, and here they bloom well during the summer, in spite of the shade afforded by a Stephanotis overhead. In the autumn, when the latter ceases to bloom, the Dipladenias are encouraged to ramble among it, and here they seem particularly happy. If a single plant is trained to one wire across the house, it soon becomes remarkably showy, as the main growth or growths push out lateral flowering shoots throughout the whole length of the plant. This will be found a better plan than training the growths in a random fashion over the roof trellis. It also succeeds admirably when planted out in a well-prepared, narrow border and trained up the back wall, and I have seen a whole thicket of lovely wreaths hanging from the back portion of a three-quarter span-roofed plant stove. Mealy bug is its greatest enemy, and if this is attacked with any insecticide strong enough to kill it, much harm will also be done to the Dipladenia. A pointed stick, a sponge, and soapy water are the best remedy, but this must be persevered with or the plants will never be clean. I have frequently used the blooms in bouquets and wreaths, and they can also be mounted and several blooms be formed into a spray for a lady, and on the whole they are more durable than their appearance would suggest.

Allamandas.—These are not usually classed as winter-flowering plants, but in many places they are kept in bloom till mid-winter and sometimes later. It is not the half-starved pot plants that are so continuous flowering, but the much more vigorous examples rooted in small borders. The leading branches of these if kept thinly trained, all superfluous growth being removed as fast as it is formed, produce strong flowering spikes, and

these continue to lengthen till some of them are 2 feet long and upwards, and it is the final flowers that we get during the early part of the winter. For some time much less water is given at the roots, the plants in reality being gradually ripened, though this does not interfere with the blooming, and by the time the last flowers are gathered there is no reason why pruning should not be completed. A. Hendersoni is our favourite variety. W. I. M.

PLANTS FOR COOL HOUSES.

Owners of gardens in which heated structures are plentiful find little difficulty in getting abundance of flowers at mid-winter; but those who have only cool houses have to be more careful in their selection of flowers to grow in quantity. It is useless, under such circumstances, trying to get plants to bloom during the darkest period of the year that require artificial heat to enable them to do so. There are, however, some striking exceptions to the list of heat-loving plants. First on the list may be named the Chrysanthemums, a host in themselves. Coming as they do into bloom at the very time when outdoor gardens are looking most dreary, they only need the protection of a glass roof to flower them in the greatest perfection, and by growing the latest blooming section, of which Meg Merrilies and Ethel are types, to succeed the ordinary show kinds, a succession may be kept up till Christmas, and even later. Schizostylis coccinea is also a real gem for cool house decoration; its value, indeed, has not yet been fully realised. It begins to send up its brilliant spikes of scarlet flowers in October, and continues to produce them for months together. Last season we lifted a quantity of this plant from the open ground in October, and planted them in an inside Vine border, where they continued to flower the whole winter through. They were planted out again in March under the partial shade of fruit trees, and they are now producing spikes of bloom that promise to be exceptionally fine and plentiful; they also make excellent pot plants. Iris reticulata, which is one of the winter-flowering bulbs that has of late deservedly attracted attention, has a great future in store for it, its blooms being of the most lovely purple imaginable, prettily streaked with orange, a fitting companion for the most costly Orchid. If potted in August or September, it will be in full bloom in January. We put three bulbs in 4-inch pots, and five bulbs in 6-inch pots, and very pretty plants they make. Veronica Andersoni only needs the protection of glass to insure its flowering freely throughout the winter months; plants of it are now covered with flower-spikes in various stages of growth. If fully exposed, they soon present a weather-beaten appearance; but under glass they continue to produce their purple blossoms for months in succession. The common Christmas Rose and its varieties, although often in bloom in the open air during the most inclement seasons, are nevertheless vastly improved by being under glass, as alternate frosts and thaws spoil the purity of their flowers, for which they are justly prized. The Laurustinus flowers profusely enough in the open air on the south coast during winter, but it is at the same time a really good cold-house plant, its blooms being much whiter and expanding much more fully under glass than out of doors. Dwarf standards, with heads covered with snowy clusters of bloom, are by no means unattractive plants in cool houses. Cape Heaths, too, in great variety are specially suited for cold-house decoration. Erica hyemalis and others of that type dislike fire-heat in any shape, and are much more lasting in cold than in hot houses. Many other equally useful plants might be mentioned, but the above cannot fail to give satisfaction. J. G.

Tuberoses.—I have grown these for several years without heat, as follows: In March I get some boxes about 1 foot wide, and 2 feet long, and 5 inches deep. I bore some holes in the bottom, which I cover with turfy soil broken into pieces about the size of an Apple; I then fill up the boxes with soil, and into this I put the bulbs about 3 inches apart, covering them over with soil. They are then placed in a cold frame and given no water until they have shown signs of growth, when they get some, and their supply is increased according to the amount of growth which they make. Thus treated they always flower well. This year I have had some of the boxes outside in a north aspect, and the Tuberoses are now flowering as finely as those which I get in May in heat. I have one box planted in July just starting; this I shall put in a warm house in November, in order to get a few flowers at Christmas. The compost which I use is two parts turfy loam, one of leaf-soil, one of road grit. The little attention which Tuberoses require and the reasonable price at which dry bulbs of them may be bought place them within the reach of all who love sweet-scented flowers. I might add that I bring the boxes into a cold house when the buds appear on the spikes, to open the flowers and protect them from rain. Treated in this way anyone may grow Tuberoses.—B. Phillips, *Ludgrove, Barnet.*

JAPAN LILIES IN POTS.

The different varieties of Lilium speciosum are among the best of Lilies for pot culture; they retain their foliage well under this mode of treatment, which is not the case with all Lilies, and, besides, they flower at a time when the choice of plants for greenhouse or conservatory decoration is but limited. These Lilies may be cultivated in pots with very little trouble. When growth commences, they may be plunged in the open ground and allowed to remain there till the blooms are on the point of expanding, when they must be taken under cover. Where large specimens are grown (that is to say, a number of bulbs in one pot), they must not be exposed to heavy rains in the early part of the season before the pots get filled with roots, as the soil will become saturated, and the plants suffer in consequence. For general purposes a good way is to pot the bulbs singly in 6-inch pots, as when in bloom they can be readily shifted about when required, and the flowers under this treatment are equally fine as those whose rooting space is not so restricted. We grow a considerable quantity for decorative purposes in this way. When the bulbs are received they are laid on an outside border and just covered with some sandy soil; then as the roots at the base commence to push freely they are potted, using for the purpose a soil composed of loam, well decayed manure, and sand. The bulbs must be kept well down, so as to leave a space at the top for some additional soil later in the season, when the stem-roots develop themselves. After potting, they should be placed on a bed of ashes and covered to a depth of 3 inches or 4 inches with the same material; then, just as the tops are about to start through the soil, the covering should be removed, and the pots plunged in a bed in the open ground, where they will remain till the flowers are on the point of expanding. A little care will be needed in removing the covering, as, if allowed to remain till the shoots make their appearance above ground, they will be blanched, and consequently must be protected, or are liable to fall a prey to frost; while, if exposed before the tops are above ground, they then push away sturdily from the first, and resist the cold better.

By growing them in this manner, not only is the glass at liberty for other things in spring, but the Lilies are rather later in flowering, and are consequently more useful, unless required earlier for some particular purpose. During summer all the attention needed will be to water when necessary, and as the pots get full of roots a top-dressing will be of advantage. As the buds make their appearance, a little manure water about once a week will increase the size of the blooms. In a general way they are not attacked by insect pests, but occasionally a few aphides make their appearance. These can, however, be easily got rid of by syringing with Tobacco water. As the stems increase in height, a few may need some support; and if such is the case, the stick must not be put in too close to the stem, as, if that is done, the probability is that the bulb will be injured. The varieties of Lilium speciosum announced in various catalogues are very numerous; but in reality the difference between some of them is so slight, that they are to all intents and purposes one and the same thing. For instance, the varieties roseum and rubrum, as imported from Holland, are usually both alike, and in some of the others it is impossible to tell where one begins and the other ends. Of white flowers we have album, album corymbiflorum, and Krætzeri, the latter being a Lily that has had a good deal of attention directed to it of late years. The flower-stems of this variety are green, and the outside of the bloom before expansion suffused with the same colour. The blossoms are elegantly reflexed, and a distinct greenish stripe down the centre of each petal is characteristic of this variety. In album the flower-stems are of a brownish hue, and the buds slightly tinged with the same colour. The flower has not the pleasing reflex of that of Krætzeri, while the whole contour of the plant is stiffer and less graceful. In album corymbiflorum the blooms are collected into a clustered head, but it is only worth growing as a curiosity. A distinct variety is punctatum, the blooms of which are white, or faintly suffused with blush, and studded with pink dots. Of deeper coloured flowers there is a long array of names, including roseum, rubrum, purpureum, cruentum, Schrymakersi, superbum, and rubrum corymbiflorum; while Melpomene, the supposed American hybrid between L. speciosum and auratum, is at all events, as generally met with in this country, only a good dark form of L. speciosum, for neither in foliage, flower, nor bulb does it suggest any relationship to L. auratum. Apart from the supplies of this Lily that are obtained from Holland, considerable importations reach this country from Japan, and occasionally amongst them are to be found some of the finest forms of L. speciosum that it has been my good fortune to see. The deepest coloured, as far as my experience goes, are characterised by good stout foliage, rather rounder than that of any of the other kinds, and very dark stems—indeed, a sort of reddish mahogany hue—and fine bold blooms. The distinguishing characters of the varieties roseum and rubrum are, that in roseum the stems and flower-stalks are green, while in rubrum they are of a reddish brown tint; but as above noticed, the two names are, generally speaking, used indiscriminately. Schrymakersi is a very good form of roseum, while purpureum, cruentum, and superbum all bear a near resemblance to rubrum. To rubrum corymbiflorum the same remarks apply as to the clustered form of album.

It will thus be seen that a selection of a few varieties will give greater satisfaction than if a long list of so-called kinds is grown. For myself, I am quite content with Krætzeri as a white, Schrymakersi as representing the best type of roseum, a good dark kind the same as that usually grown as Melpomene, and a few of punctatum, it being a distinct, but not very showy variety. I cannot help thinking (and that opinion is shared my many to whom I have spoken on the subject) that of late years a very inferior form of L. speciosum is imported into this country much more frequently than was the case some years ago. T.

Lifting and potting Chrysanthemums.—Many are of opinion that autumn and winter flowering Chrysanthemums succeed best when planted out-of-doors in summer, besides saving labour in watering in hot weather, which is certainly an advantage in the case of planted-out specimens. Where they have been planted out in this way, the time has now come when they should be lifted and potted. If this operation is delayed too long, or until the flower buds have almost opened, the blossoms are sure to be checked, and will not be first-rate. It is the danger of experiencing this check that causes us to retain our best kinds in pots, but if carefully lifted they will not suffer much. The ball of soil moved with the roots should be as large as can be got, and the roots should not be cut or beaten about in any way. At the same time superfluous soil should not be lifted with them, as a compact ball of roots only is wanted. The pots should always be sufficiently large to hold the roots easily, and some good rich sandy

soil should be rammed round them when put into the pots. They should also be staked and tied up firmly, and watered thoroughly immediately after potting. They must also be shaded for a week or ten days, and kept rather close until they have caught hold of the new soil. If they droop much they should be syringed daily; but care must be taken that this is not overdone, or the bloom buds may damp off in consequence. In cases where the balls of roots are very large, it may be most convenient to place them in boxes of various sizes, which answer the purpose just as well as pots.—CAMBRIAN.

Camellias as stove plants.—I see that "Hortus" takes exception to my note upon Camellias grown as stove plants at Beddington House, Surrey. I have watched these plants for several years, fully expecting that their end would speedily come, but, to my astonishment, they still continue not only to live, but to flourish and bloom annually in the most profuse manner. This, as far as my memory serves me, is the only time I have seen Camellias thrive under such conditions. The wall against which they are trained is 30 feet long and 10 feet high, and is quite covered with Camellias. The plants were put into the border about twelve years ago, and it is about seven years since the house was converted from a greenhouse to a stove. Flowers of all sorts are largely in request at this establishment for church decoration at Christmas, and the Camellias under stove treatment can always be depended upon for a supply at that season.—W. H. G.

Bouvardias in autumn and winter.—What Ixoras are in summer, Bouvardias are in autumn and winter, and the form of their flowers is not unlike that of an Ixora, while their blooms are equally attractive. Bouvardias make most effective pot plants, and as subjects for supplying cut flowers they are almost unique. Their blossoms are admirably adapted for button-hole bouquets, and also for all kinds of vase decoration of the choicest kind. In short, it is impossible to over-estimate their value, and, as they are produced freely in autumn and winter, this is another point greatly in their favour. We have grown quantities of Bouvardias for many years, and nothing could surpass them in usefulness. Some growers plant them out in summer and lift and pot them in the autumn, but I never found this plan to possess any advantage over that of constantly growing them in pots, which is what we practise. They will, however, succeed very well indeed in a cool frame in summer, and when grown in this and well exposed to the sun, they invariably bloom well in autumn and winter. They are not quite greenhouse plants in winter, nor yet are they wholly stove subjects; an intermediate temperature suits them nicely. The whole of them should now be moved into an intermediate house—*i.e.*, if still in frames or in any other cool place. The backward buds, in a temperature of from 60° to 65°, will soon open, and, as these fall off or wither, fresh shoots will be produced, and these will bring forth a new crop of flowers. They require to be freely watered at the root, and a damp atmosphere does not disagree with them, but a close atmosphere does not suit them at all, and must be avoided. Flowers which open in a close place fall off almost as soon as formed, and we have generally seen those which adhere until put in glasses fall immediately afterwards. This is not, however, the case with flowers opened in a bracing atmosphere; these remain fresh and beautiful for a week or more after being cut.—J. M.

SHORT NOTES.—VARIOUS.

Ipomæa Bona-nox.—Among some seeds which we got from South America was this Ipomæa, a flower of which we send you. We have grown it all along in a stove temperature. It only opens its flowers after sunset, and some of them have a sweet Jasmine-like perfume.—J. NICHOLSON, *Sewardstone Lodge, Chingford.*

*** A grand specimen of this too rarely seen species of Ipomæa, and most agreeably scented.—ED.

The Suwanee Lily (Zephyranthes Atamasco).—When I travelled in Florida last April, I learned that the people of the Suwanee region call this fine Amaryllid the "Suwanee Lily." It grows most luxuriantly on the banks of that far-famed river, and tourists are usually delighted to hear the pretty flowers called by that name. I am inclined to believe that many northern people only know this Zephyranthes by the name of Suwanee Lily. I have seen two forms on the Suwanee—a white one and a rose-coloured one.—H. NEHRLING, in *Gardeners' Monthly.*

FRUIT GARDEN.

PLANTING APRICOTS.

MOOR PARK still heads the list of good Apricots. It is more largely planted than all other varieties put together. The present is the best season for planting fruit trees, Apricots included. There is still a large proportion of summer warmth in the soil, and the roots start into action and the plants become established in it at once. It is not necessary to wait for the last leaf to fall, as, after such an autumn as that which we have had, no doubt need be entertained that the wood will be unripe. We are not likely to have a better autumn for fruit-tree planting in any future year than this is, for the soil is in excellent condition, and the wood also in good order to withstand removal. I should, therefore, recommend all who intend to plant to set about it at once. Apricots must have a good aspect, which need not, however, necessarily be full south. A south-east or south-west is quite as suitable—perhaps better in the southern counties. An idea seems to prevail that Apricots succeed best in the maritime counties, but where soil and climate are suitable I do not think it matters much where the situation is. Usually, within the influence of the sea, the climate is milder than inland, and that, perhaps, may have given rise to the idea that in maritime districts only will Apricot culture meet with full success.

Apricot trees like a dry wall. Garden walls are often damp through neglect; the coping perhaps gets out of order, the damp penetrates, the temperature of the wall is lowered, and becomes less desirable for fruit with tender blossoms. Apricots are often seen in better condition against a farm-house or other building than against a garden wall.

FRESH HEALTHY LOAM not too light nor yet too near the clay is the best staple for Apricots, and indeed for all stone fruits. No manure should be given to young trees. Rampant growth in youth has often to be paid for later on in the loss of branches when the tree ought to be settling down to steady work. The worst cases of branch-dying I have known occurred in trees planted in soil rich in turf-fibre, whose early progress had been rapid. The top spit, 4 inches deep, from an arable field that will grow good wheat will grow good Apricots for the first eight or ten years. Then when the trees have had their youthful vigour taken out of them, lift the extremities of the roots and apply turfy loam from a Grass field. If a tree is to have a long, healthy life, steady progress from the first is the best preparation for it. The border should be firm, and at least 5 feet or 6 feet next the wall ought to be given up to the trees. In planting young trees the trunk or stem should not touch the wall. It is better to set the crown or collar 3 inches or 4 inches away from it, to give room for growth in after years. Young trees planted now should receive what little pruning is required to lay a proper foundation just as the sap is on the move in spring. Apricots dislike the knife, and in purchasing trees I should not select those which have been at any time severely cut back. I should prefer either maidens or one-year-trained trees. Permitting young trees to run wild the first year from the bud and then cutting nearly all the growth away is bad practice; if the trees had been rightly managed from the first, such cutting back would be unnecessary.

WATERING APRICOTS.—In many instances this is necessary in dry weather, but a good deal depends upon the conditions to which the trees are exposed. I should never think of watering trees when the fruit was ripening, but I have seen much advantage follow the thorough moistening of the soil when the fruits were swelling. If the trees really need moisture, both the present and future crops suffer, but by the time the fruits are ripening the buds for the next crop will have taken the turn which leads either to fertility or barrenness, though it needs an average amount of autumn sunshine to complete the maturing process. Young trees the first year will, of course, need water if the weather is dry. And, speaking generally, I am convinced that in very many gardens wall trees, especially stone fruit, on the south wall do not get enough water.

PROTECTING WALL TREES.—I have tried a good many ways of sheltering the blossoms of wall trees, but I have found nothing better than small feathery sprays of Yew tucked in behind the branches, with a covering, in addition, of fishing net, one or two thicknesses according to situation and climate. A good many failures arise from immature wood. When the blossoms are weak no protection will induce them to set or the fruit to swell. Immature wood may arise from a lack of moisture in the soil in the month of July and the first half of August, or from a deficiency of solar warmth in the last half of August and the first half of September. This year the conditions have been suitable for the most part, and next year, if the blossoms receive the requisite protection, there ought to be full crops of Apricots.

E. HOBDAY.

The Morello Cherry as a standard.—Those who grow the Morello satisfactorily on walls are doubtless satisfied with that mode of treatment, and naturally conclude that no other method of cultivating this fruit is needed; in fact, the idea is general that, in order to grow the Morello properly, you must have a wall. When grown on a wall it requires training and pruning at least twice every year. In winter it needs re-nailing, and a good-sized tree of it will take a man a day to do that properly. Morellos on walls are troubled with aphides. When grown as standards they need no pruning, training, or nailing. Aphides rarely attack them. When planted they form themselves into umbrella-shaped trees, and seldom fail to produce abundant crops, and, being open on all sides to air and sun, one standard will yield a weight of Cherries equal to that of two trees on walls. The Morello, too, makes a capital lawn tree, which, when in blossom, is handsome, and when laden with fruit, equally so. Its graceful appearance, too, makes it at all times a favourite.—W. WHAIT, *Wyndham Lodge, Melton Mowbray.*

Select Apples and Pears.—Will you kindly give me the names of half-a-dozen of the best Apples and a like number of Pears for present planting; also the age at which, consistently with safety in transplanting, they may be expected to bear fruit?—SUBSCRIBER, *Woodlands, Bandon, Co. Cork.*

*** Assuming that the trees are required for garden culture, Apples on the English Paradise and Pears on Quince stock will best answer your purpose. Well formed pyramids or bushes from three to four years old, which have been regularly lifted and root-pruned, can be obtained from any good nursery. Older and larger trees may be recommended, but you will succeed best with fresh, healthy stock nicely set with flower-buds. If carefully and properly planted before the middle of November, they will most likely produce a little fruit next year and a good crop the season following. As you do not say whether the Apples are for culinary or dessert purposes, the names of six of each in their order of ripening are herewith appended. Dessert—Irish Peach, Worcester Pearmain, Cox's Orange Pippin, Claygate Pearmain, Scarlet Nonpareil, and Sturmer Pippin. Kitchen—Lord Suffield, Echlinville, Warner's King, Annie Elizabeth, Calville Malingre, and Dutch Mignonne. Pears may consist of Williams' Bon Chrétien, Marie Louise, Pitmaston Duchess, Doyenné du Comice, Winter Nelis, and Josephine de Malines. If very late Pears are wanted and the climate is good, add Easter Beurré and Bergamot d'Esperen.—W. COLEMAN, *Eastnor Castle, Ledbury.*

Variation in the flavour of Pears.—Can any of your skilled contributors inform me why Pears vary so much in different years? I have a fine tree, supposed to be Gansel's Bergamot, trained against an east wall, the fruit of which is generally delicious. This year the crop is lighter than usual and the Pears larger, but the flavour is poor and the flesh mealy, instead of being juicy and rich. I have also a Beurré Diel bearing a small crop of fine fruits, but all are going off prematurely. On the other hand, I have a

tree, somewhat like that of a Duchesse d'Angoulême, trained to a south wall, the fruit of which is generally cold and tasteless, almost like melting snow, and this year, for the first time in fifteen years, it is excellent, hardly recognisable as the same Pear. What can account for these variations? The trees are all healthy and all in the same soil.—G. J. B.

Colour and flavour.—As a rule colour is the outcome of ripeness, and as it is also essentially the product of warmth and light, it is evident that true fruity flavour can only be found where these conditions exist. Flavour is in too many cases not regarded from a pure sense of its merits. Sharpness, which really means acidity, is liked by some and not by others. Real flavour seems to be a judicious compound of acidity and sweetness, neither predominating; the assumption that flavour in Apples and Pears is always associated with colour is true only in a restricted sense. No doubt the best coloured Ribston, Cox's Orange and Cockle Pippins, or Margil are the best flavoured, because the ripest, and having experienced the greatest amount of sunshine, but relatively they do not show nearly so much colour as Cellini Pippin, Worcester Pearmain, Duchess's Favourite, or Fearn's Pippin, and yet these latter are not so good in flavour. The same will be found in Pears; indeed, russetty skinned kinds in both Apples and Pears are, as a rule, the best flavoured, although fruits of these kinds having colour according to their kinds are, without doubt, better than are others of the same kinds that are deficient in that respect.—A. D.

—— In answer to "Hortus" (p. 372) I have to say that I am not involved in a discussion with "T. B." on the subject of colour *v.* quality. Indeed, I agree with "T. B." that eating Gros Colmars and other big fruits in preference to kinds of much better quality is about as bad as eating green Muscats or red Hamburghs, which I feel sure even "T. B." will not do unless compelled, nor will any good Grape grower. What, however, concerns "Hortus" is his admission that himself and some others, whom he does not name, had, through the force of circumstances, grown so familiar with the green and sour Muscats and red Hamburghs, that they had actually come to prefer them to those that were golden, like the Berkhampstead Muscats, for example, or black, like the prize examples seen at exhibitions, and "Hortus" was asked to produce examples of such produce and its consumers just to allay people's curiosity. There should be no difficulty in this, but there are one or two of your correspondents whose vertebræ always give way when the burden of proof is laid upon their backs, and "Hortus" appears to be one of that class. A couple of berries of each sort in a pill-box sent to the office or to some expert, one would think, would not be a hard thing to do, but it is an ordeal "Hortus's" green Muscats and red Hamburghs do not appear capable of enduring.—Chief.

Canadian Apples.—The members of the fruit committee were called together on Wednesday, at South Kensington, for the purpose of examining a very fine and special exhibition of Canadian fruit displayed in the conservatory. In addition to a large and very varied collection of farm and garden roots, Tomatoes, Capsicums, &c, there were placed on two broad tables some 2000 or more dishes of Apples, Pears, Grapes, and other fruits from various districts in the Dominion. For colour in Apples, nothing has previously been seen like this show, very many of the samples being not only very fine and wondrously handsome, but also superbly coloured. Pears were also good and varied, though pale as compared with the Apples, and they had travelled less safely. Some 200 or more dishes of out door Grapes were shown, some very black, many quite red, and others greenish white, but generally somewhat acid, even where apparently quite ripe. Of course, the long journey had materially detracted from their ordinary appearance. In addition to passing a special resolution thanking the Canadian commissioners and the exhibitors for their fine display, and fully recognising the excellent size and beautiful colour found in the fruits, the committee tasted several seedlings, giving three marks of approval to Trenton Seedling, from Mr. Dempsey, of Ontario, a very handsome rich-coloured fruit, and to Mr. Fitzgerald, London, Ontario, for a handsome seedling, rich in colour, and having soft, good flavoured flesh. Mr. Dempsey also received the same award for a capital seedling Pear, Dempsey's Seedling, from Williams' Bon Chrétien and Duchesse d'Angoulême, a rich melting fruit of fine form. Several others were tasted, also a couple of seedling white Grapes, one named Emerald being esteemed the best flavoured. Several well-known Apples—Ribston Pippin, King of the Pippins, and Gravenstein—were also tasted and found to be excellent.

Nouveau Poiteau Pear.—I have a free-growing pyramid tree of this capital Pear some 16 feet in height, and carrying a grand crop of fine, clean fruits. I say clean, because they are free from spot or crack as seen in so many kinds on free stocks. This variety does not seem to be either well known or widely grown, and yet we have few Pear trees which naturally grow into handsomer pyramids on free stocks, or crop more regularly. The fruits, which are large, are obtuse, obovate, or semi-pyramidal in form. They have a greenish skin, somewhat russetty in places, and they are fairly handsome. Their quality is excellent; indeed, the flesh is fine grained, soft, melting, and juicy, and excellently well flavoured. They are ripe in November, the chief Pear-ripening season. I am obliged to tie up some of the side branches to keep them intact.—A. D.

Peaches at Ditton Park.—Two thousand Peaches from open walls! That is the number "A. D." reports to have been gathered this year from the Peach wall at Ditton Park. Who shall say that Peaches cannot be grown out of doors after that? One of our best gardeners of the old school once told me that cheap glass would do away with Peach growing outside, "and," said he, "the seasons will be blamed; but that will only be a lame excuse in order to get out of the difficulty. In a few years young gardeners will not know how to grow a Peach outside." This was said some twenty years ago—not a very long way back—and yet his prophecy is beginning to be realised. If one requires a young man to work chiefly outside, you may advertise for one, but there will be but few applicants. Peach failures are generally put down to the seasons having changed, but twenty-nine years ago I cannot say the seasons were more favourable than now, yet there were Peaches, and plenty of them, on open walls. Last year was not too favourable as regards the ripening of Peach wood and buds, and the late spring was not one of the best, yet for all that Peaches, not only at Ditton Park, but also in many parts of the country, were really good crops; and if properly grown, as at Ditton and Burghley, I maintain that this fruit can be still well grown outside without the aid of glass, or even tiffany, in spring. Peaches succeed well in France, and yet the climate there is not in some parts so good as it is in the south of England, or even in the midlands. Good Peach growers, like Mr. Lindsay, will tell you that in order to have good crops you must have good trees, for even good seasons will not make unhealthy trees produce fruit. Good trees will withstand much bad weather, and produce a crop of fruit in the majority of seasons.—W. C. L.

SHORT NOTES.—FRUIT.

Dried Apricots.—These are becoming very popular in California, and drying Apricots is becoming a profitable branch of industry.

Apple culture in Nova Scotia.—Apple culture is progressing in this province to such an extent, that 100,000 barrels were received in England last year. The red Canada seems the variety chiefly depended on.

The American Apple crop.—Mr. P. Barry, of Mount Hope Nurseries, Rochester, N.Y., informs us that with him the Apple crop is a total failure. "Our Pears," he adds, "are superb; we are shipping Angoulêmes to New York daily in bushel kegs, which fetch 12s. to 14s. per keg. Anjous by-and-by will fetch double that amount."

Marie Louise Pear.—About three years ago a short note about a Marie Louise Pear tree growing here, appeared in The Garden; since then it has done remarkably well. Last year we gathered four bushels of good fruit from it, and this season, although not so favourable generally, this Louise Pear tree is remarkably fine, bearing some sixty dozens of good fruits.—J. H. Goodacre, *Elvaston Castle, Derby.*

Damsons.—I do not know whether or not Mr. Muir includes amongst his flavourless Damsons found in shops the popular market kind called Farleigh Prolific or Crittenden, but if he does, he makes a mistake. I have had an opportunity recently of tasting fruits of both this and the old oval sort picked up ripe from the Grass on which it had fallen, and I have been unable to discover that these latter were in any way superior to the former, although the crop in the former case was about six times as heavy as that in the latter. The Farleigh Prolific when employed in tarts or stewed, or made into preserves, is a very richly flavoured fruit; indeed, to my mind, almost too much so, and in tarts especially it is best, I think, mixed with Apple. Very likely the round kinds referred to by Mr. Muir are seedling forms never grafted. Damsons have a special merit. In good holding soils, and where not exposed to fierce winds, they will hang on the trees for a long time, and are thus better adapted for profitable utilisation than other Plums.—A. D.

The Catawissa Raspberry.—When we read here and there that this or that variety of fruit is "no good," we must remember that this is usually from the market-grower's standpoint. The Catawissa Raspberry would not earn its salt from anyone who should plant it for market. But what a glorious delicacy it is for the amateur! Plants should be cut to the ground in the spring, and very rich food given them. Through August and September they will yield large quantities of Raspberries of the most delicious flavour. We know of no variety that can compete with it in toothsomeness.—*Gardeners' Monthly.*

ORCHIDS.

COOL HOUSE LADY'S SLIPPERS.

Cypripedium insigne.—This, though old, is undoubtedly one of the most useful of Orchids, and one which may be used either for dinner-table decoration or room furnishing. It may be successfully grown in an ordinary greenhouse, but in order to induce it to throw its blooms well up it requires a little more than ordinary care. For dinner-table decoration we grow it in pots 5½ inches in diameter and 4 inches deep, inside measure. Plants in such pots are well adapted for the dinner table, as the foliage being low and the blooms thrown well up, they offer no obstruction to the eyes of the guests. From this time on towards Christmas, I question if there is another Orchid that will stand such hard wear and tear as this will. It keeps in bloom several weeks if free from damp. We grow some dozens of it in the pots just alluded to for indoor decoration. Each plant bears from 8 to 12 blooms, on stalks from 1 foot to 18 inches high, the individual blooms being from 5 in. to 6 in. across. Plants of this description are much more serviceable than very large plants, which as a rule can only be seen in the houses in which they are grown. When our plants have done flowering in January, they are thoroughly overhauled, cleaned, and any dead and decayed material is cleared from the surface of the pots. Top-dressing they cannot get, as the pots are full of hard closely-packed roots. They were potted two years ago in fibry peat, but now there is little else but roots. These Lady's Slippers, which are put at the cool end of a stove, stand upon 3-inch pots to allow the syringe free play among them when the weather is favourable. Twice a week all through the season they are lifted down and examined, and if at all dry they are thoroughly soaked in very weak, perfectly clear sewage water. They remain placed as just described until the first week in August, when they commence to throw up their flowers; after that they are not syringed overhead, an operation which might cause the young flower-stems to damp off. They are then removed to a vinery in which Grapes are ripening, away from draught and where there is a night temperature of about 60°, a position in which they receive more air than hitherto, but no syringing overhead. The foliage of the Vines affords good shade for them; here they continue to throw up their flowers in a most satisfactory way. When

the flowers begin to open the plants are removed to a cool airy pit (from which Melons have been cut); there they are subjected to a night temperature of about 55° and kept free from damp. Plants thus treated keep in good condition till after Christmas, when they are again consigned to the cool end of a stove to make another season's growth. This plant flowers beautifully at the cool end of a stove, but the blooms are much clearer and finer under the treatment just described.

C. VENUSTUM is another good old cool house Lady's Slipper, and when in flower in pots similar to those just named its dark coloured marbled foliage looks well, and as it flowers in the depth of winter it is valuable for room decoration. Under such circumstances I have had it in good condition for over a fortnight in January, and again it comes into flower on the heels of C. insigne and lasts in flower well into February. Though the individual blooms are not showy, they last in good condition for several weeks, and compact plants in small pots will carry a dozen blooms or more.

Fox Warren, Cobham. J. R. HALL.

Anguloas.—The Anguloas are bold-growing plants, with large dark green pseudo-bulbs and massive plaited leaves. They succeed in the same temperature as that previously given for cool-house Oncidiums, but the various species belonging to this genus are great lovers of shade. They enjoy an abundant supply of water during the growing season, after which a season of rest is necessary. This is brought about by withholding water, which should not, however, be carried to extremes, for should the pseudo-bulbs be starved they will show signs of shrivelling, and the next season's growth will be weak in consequence. The flowers of Anguloas are produced along with the young growths, and expand when the young leaves are about three parts developed. They are large, Tulip-like, and borne singly (and upon rare occasions in pairs) upon stout erect scapes, about 9 inches high. They last a long time in full beauty if not sprinkled with the syringe. Should they, however, be syringed, the flowers soon become spotted and unsightly. The soil for Anguloas should consist of large nodules of fibrous peat and some Sphagnum Moss, and the pots should be thoroughly drained. All of them are natives of Columbia. The best kinds are A. Clowesi, a species which produces large, rich, deep yellow flowers about midsummer; A. Ruckeri, similar in general outline, and producing flowers at the same season, but the colour externally is a uniform brownish orange, the inner surface being profusely spotted and dotted with reddish crimson. A variety of this, called sanguinea, produces flowers of a deep sanguineous red, the outside being yellowish green. A. uniflora, the smallest of the family, produces flowers correspondingly small compared with those of the others. It is a variable plant; in some of its varieties the flowers are of a uniform creamy white, while in others the interior surface is more or less spotted with pink, and sometimes the scapes bear a pair of flowers.—W. H. G.

Cypripediums in flower.—These Orchids are great favourites with Mr. Williams, in whose nursery the following kinds are in bloom: C. euryandrum, a beautiful hybrid, the parents being C. Stonei and barbatum. Of the latter species, it retains the peculiar leaf-markings and the habit of the former in bearing two or three flowers on a stem; the individual flowers are large and bold; the upper sepal is broad and convex, white, more or less stained and striped with crimson and claret in colour; the petals are long and strap-shaped, white, suffused with purplish crimson and ornamented with bands of blackish purple spots; lip, pouch-like, large, rich brownish crimson in colour. C. selligerum, somewhat resembling the last-named plant in the marking of its petals, yet quite distinct; the dorsal sepal is larger, and the pouch is different in shape and of a vinous red; it is the result of a cross between C. lævigatum and C. barbatum. C. Harrisianum, the oldest of hybrid Lady's Slipper Orchids, still retains the reputation of being a free-grower and an abundant bloomer, whilst the variety in flower with Mr. Williams is very highly coloured. C. Sallieri is a cross between C. villosum and C. insigne, both of which produce solitary flowers, but the offspring bears from two to five flowers upon a stem, and whilst the sepals are as in insigne, the petals and lip are as in C. villosum, and retain the peculiar varnished appearance of that species. C. Haynaldianum, a species from Luzon, somewhat resembles C. Lowei, but is lighter in colour. The lovely C. Spicerianum has many varieties, all good. C. insigne punctatum violaceum, with its large white dorsal sepal ornamented with purple spots, is a most desirable kind. Other kinds of Lady's Slippers of less beauty now in bloom are C. javanicum, C. Crossianum, and the little-known C. purpuratum.

Trichocentrum albo purpureum.—This is a delightful small-growing plant admirably adapted for growing upon a block or in a small basket in the cool Orchid house. It is an abundant bloomer, and the flowers are large for the size of the plant. The outer part of the flower is tawny yellowish brown; the lip is large, white, bearing two large rosy purple blotches near the base; there are also a few lines of the same colour on the crest of the lip.

Orchids at Holloway.—It affords one pleasure to find Orchids obtaining as much attention as they do at Mr. Williams' nursery. Such old species as Lælia Perrini, Miltonia Clowesi, Sophronitis grandiflora, Odontoglossum grande, Vanda tricolor, and Dendrobium formosum giganteum are now making a fine display of bloom. Phalænopsis amabilis and grandiflora are just coming in, and, together with such kinds as Vanda cærulea, Dendrobium Dearei, Cattleya Eldorado, Dendrobium bigibbum, Lælia Dayana, Oncidium tigrinum, O. Forbesi, O. prætextum, and O. Jonesianum produce a really brilliant and charming effect during the dull season now fast approaching.

Masdevallias.—These are grown well in the Pine-apple Nursery, Maida Vale, under very cool treatment. It is found, however, that although these plants enjoy a low temperature, they do not like the atmosphere to fall to the freezing point. It is also found that M. tovarensis enjoys a greater amount of heat than any of the other kinds; quantities of this species are now in bloom, the spikes in nearly all cases producing two and three of its pure white, sweet-scented flowers at the same time. Formerly we rarely had more than one flower open at a time on a spike. Is the greater development which we now enjoy due to cultivation, or is the form we now have distinct from the earlier introduced one? M. amabilis and its variety lineata, with their bright rosy carmine flowers of various shades, are also gay. M. ignea, bearing bright cinnabar coloured flowers streaked and flushed with reddish crimson, is one of the brightest in bloom.

Lælia Dayana.—This beautiful Lælia is well worth attention. Being compact in growth, it takes up but little room, and, producing as it does fine large blooms when Orchid bloom is scarce, it is very valuable. It lasts, too, in bloom several weeks if not kept too damp. At The Firs, Lawrie Park, Sydenham, there is just now in bloom a fine form of Cattleya marginata, the flowers of which are fully 4½ inches across, deep rose in colour, and the lip rich port-wine colour margined with rose. The culture of this and the Lælia is very simple; place them in a cool house in baskets or on blocks, and put some fresh Sphagnum round their roots. Suspend them near the roof. They should be moved in the first week in October to the Cattleya house, as the flowers develop best in a little more warmth. They should remain in the Cattleya house until March, when they may be placed again in a cool house. Water may be freely used, erring, however, on the dry side, through the months of December and January.—R. R.

Lælia præstans var.—By far the largest-flowered, richest-tinted form of this superb Orchid we have seen is that possessed by Mr. R. J. Measures, of Cambridge Lodge, Camberwell, who sends us a specimen. The flower measures fully 5 inches across; the sepals and petals are of a deep rosy lilac, flushed with crimson. The lip is 1½ inches across, of an intensely deep maroon-crimson, and has a prominent crest on the inner surface. Mr. Simpkins, the gardener, says that, though a large number of plants of this Lælia has flowered with them this season, this one stands out conspicuous from all the rest. There is not a more beautiful dwarf Orchid than this for flowering in autumn, and it is altogether superior to its relatives, L. Dayana and L. pumila. Accompanying this specimen there are other flowers of choice Orchids from the same garden. These include the true Cypripedium purpuratum (Lady's Slipper Orchid), a variety seldom seen; Cattleya Eldorado splendens, a grand variety highly coloured; Miltonia candida; Odontoglossum Insleayi splendens, cut from a spike bearing five flowers, a very fine form; Lælia Perrini major, much larger than usual; and Cattleya Schilleriana, a fine variety, more highly coloured than is generally seen.

OBITUARY.

MR. Z. STEVENS.

WE regret to have to announce the death of Mr. Stevens, who for many years has been gardener to the Duke of Sutherland at Trentham. He had been long a sufferer from, we believe, some bronchial affection, to remedy which he made protracted stays recently in various places where the climate was milder than that of the midlands. He lately spent some months at Cairo, and returned apparently improved in health. He, however, died on the 20th inst., at the early age of 52. Mr. Stevens was an excellent gardener, as the noble gardens under his charge abundantly testified. Of late years his success in cool Orchid culture astonished even Orchid growers of long experience. He was known by a wide circle of friends, who will regret his death, which is, indeed, a sad loss to horticulture.

MRS. STENGER, wife of Mr. Hermann Stenger, well known to many of our readers as the representative of Messrs. Vilmorin in this country, died somewhat suddenly on the 14th inst. For some months she had been unwell, but, although she was known to be suffering from some internal complaint, her death was quite unexpected.

Cupressus macrocarpa.—What is the best time of year to thin out the branches of Cupressus macrocarpa; they seem to be growing very fast now?—J. A. C., *Waterford.*

*** We should prune this Conifer any time between the end of March and the end of May.—ED.

Names of plants.—*J. R. (Preston).*—Your leaves are indeterminable in present form; send specimen when in flower.——*Hibley.*—A form of Clematis lanuginosa.——*M. S. (Tenby).*—1, Polystichum, too young to identify; 2, Scolopendrium vulgare; 3, Pteris aquilina; 4, Lonicera reticulata aurea ——*Mrs. R.*—Chrysanthemum (Pyrethrum) uliginosum, Helianthus giganteus var.——*R. Lloyd*—Hieracium aurantiaeum.——*G. W. L. S.*—Pleione Wallichiana.——*C. C Chapman.*—Scarlet Thorn (Cratægus coccinea).——*W. H. M*—Acer colchicum rubrum; leaf is from A. pseudo-Platanus fol. purpureis.——*A. K.*—Not an unusual occurrence in the Osmanthus; O. myrtifolius is probably only the sport from the Holly-leaved form.——*A. Chapman.*—Dianella cærulea, New South Wales.——*G. F. G.*—1 and 2, varieties of Aster Novi-Belgii; 3, Aster longifolius; 4, Solidago angustifolia; all very inferior kinds, not worth growing in comparison with others in cultivation.——*W. E.*—Aster lævis.——*J. R. Droop.*—Evidently some species of Willow (Salix), but we cannot name from specimen sent.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*S. C. Cay.*—Your Pear is named King Edward, an old English dessert Pear; ripens in October and November. It is one of the largest melting Pears, but very poor in quality.——*Loughborough.*—1, next week; 2, Souvenir du Congrès.——*B. N. Foster.*—Blenheim Orange Pippin.——*H. B.*—1, Black Hamburgh; 2, Black Alicante; 3, Madresfield Court.——*H. G.*—Red Costard.——*B. L.*—Pears: 1, Beurre Bosc; 2, Beurre Clairgeau; Apples: 2, Cox's Orange Pippin; 3, Blenheim Orange.——*Pears.*—Your Pear is named Knight's Monarch, and is a first-class variety; but, strangely, in some places, it will not succeed at all.——*R. Howard.*—Beurre de Capiaumont.——*C. Dawson.*—1, Flemish Beauty; 2, Bishop's Thumb; 3, Swan's Egg; 4, Louise Bonne of Jersey.——*J. B. Sutton.*—2, Court of Wick; 3, 4, too small to determine; Plum, Ickworth Imperatrice.——*E. S.*—Pears: *a*, Louise Bonne of Jersey; *b*, Beurre d'Aremberg; *c*, Thompson's; Apple, Mother.——*Four Apples in cigar-box—no letter.*—1, Cellini; 2, Lane's Prince Albert; 3, Margil; 4, King of the Pippins.——*E. J. Kigwell.*—Louise Bonne of Jersey. Others will be named next week.

WOODS & FORESTS.

MEASURING STANDING TIMBER.

As the season is now approaching for the selection of timber for the winter sales, a few observations on the measuring of standing trees may be of some benefit to the young forester in this branch of his work. A beginner in tree-measuring should not trust to his eye alone in estimating the dimensions of either the height or girth of the trunk of trees, and must consequently have recourse to some mechanical aids to assist him, though often at much sacrifice of time, which is not always compensated for by greater accuracy of results. By much careful practice the eye can be trained to estimate distance and size with considerable precision, and likewise the dimensions of standing trees with facility and correctness, but it is different with beginners. The height of a tree may be measured in several ways, but simplicity in any instruments used for that purpose, lightness, and ease in handling are the considerations. Several ingenious instruments have been made and used for this purpose, such as Kay and Mackenzie's dendrometers, the apomecometer, hypsometer, and the pocket sextant. The two first occupy some little time in setting and adjusting. The three latter are light instruments, easily carried, and used from the hand without the aid of a tripod or staff. In using the apomecometer or hypsometer the operator must place himself on a level with the base of the object to be measured, and at a distance from the object almost equal to its height; but with the sextant the case is different, and the attainment of a proper position less difficult. If the index of the sextant is set at 45°, then it is used in the same way as the apomecometer and hypsometer, at a distance from the object equal to its height, but with the index set at 63° 30', he distance of the operator from the base would be just half the height of the object, and a position on a level with the base of the object more easily attained. In practising with the sextant in measuring standing timber, a mark should be put on the tree to be measured at a height equal to the height of the eye above ground; a knife, nail, or bradawl stuck through a piece of white paper into the bark is a good mark; then, if the ground is fairly level, set the index of the sextant to 45°, and walk backwards in the plane of the tree until that part of the tree, the height of which you wish to ascertain, is shown in the glasses of the instrument as level with the mark made on the tree; then measure the distance from the tree, add to that the height of the mark upon the tree, and the product is the height required. Should the surface of the ground be very irregular, or brushwood or other obstacles obstruct the sight at 45°, set the index to 63° 30', perform the operation as already described, but multiply your distance from the tree by 2, and add the height of the eye or mark as before for the required height of the object. To use the sextant for this purpose, set the index to the necessary angle, take the bottom of the instrument in the right hand, hold it in a vertical position, with the index facing to the left, look through the eye-hole and unsilvered part of the object-glass at the mark on the tree, and move backward or forward until the point, the height of which you wish to ascertain, is reflected from the index-glass to the silvered part of the object-glass, and appears exactly on a level with the mark on the tree; then, according to the angle at which the instrument has been set, calculate the height of the tree, as already explained. After a good deal of practice the eye can be trained to estimate both height and girth with considerable accuracy. A very good method of practise is, when timber is being cut, to estimate by the eye the dimensions of the trees while standing, and measure for proof when the tree is on the ground, comparing actual dimensions with those of the previous estimates, and as experience extends, the estimates will approach nearer the truth. But anything like facility in estimating accurately in this way is only acquired by extensive and careful practice, and that practice must not be allowed to lapse for any length of time, or the eye forgets its previous lessons, and has to undergo another course of training. When estimating the contents of standing trees, the quantity of measurable timber in the tops should always be taken into account and entered in a column of the book separate from the contents of the trunks. Oak tops are sometimes of considerable size, and when the calculation includes their measurable contents, the probable yield of bark can be pretty accurately predicted. A. P.

FORESTRY NOTES.

Corsican and Austrian Firs.—I find there is some confusion as to "which is which" of these two Firs. It is surprising it should be so, for they are, when true, quite distinct in a young and old state. Still I find the Austrian Fir is sold for the Corsican, and cultivated as such in some places, and that it has been for years. This is a pity, because, although the Austrian Fir may produce as good timber as the Corsican, it cannot match it for shape and habit of growth, and the Corsican is the best tree of the two to grow for poles. The Corsican is not pyramidal in shape, but, as more truly described in Veitch's "Manual of the Coniferæ," it has a very elongated pyramidal outline. This shape is due to its paucity of lower branches, which do not extend to limbs, as in the case of the Austrian, but are few and small, the most luxuriant growth being always nearest the top, even when the tree has room; hence the wonderfully even thickness and straightness of the trunk, which makes it such a valuable timber tree. The Austrian Fir is conical in shape, but varies much, while the true Corsican does not. Some Austrians are nearly as broad as long, owing to their wide-spreading branches. Some trees, about fifty years of age, which I saw the other day were shaped more like Cedars than anything else, their lower branches having grown into horizontal limbs, and the trunk being comparatively small in consequence.

It is time to utter a warning on this subject because the Corsican is scarce in our nurseries, and the trade are propagating it as fast as ever they can, their losses being greater in transplanting it than in any other Fir. There are, however, several varieties of the Corsican as it exists in different European countries or islands. For instance, there is Pinus taurica, which authorities, including Veitch, give as synonymous with Pinus Laricio (Corsican), but which, in my opinion, is different, though the difference is not great. We have one solitary tree of P. taurica here growing well on an exposed spot where such as Nordmann's Spruce will not live, and about 50 feet high. I long regarded it as a Corsican, although its general appearance and bark did not quite resemble the common type of the latter as I know it, and to be sure I sent branches of both to an expert, and had them returned—the Corsican named right and the other named taurica. This is significant. I have also shown the tree to foresters familiar with Corsican Pine, but they did not recognise it as belonging to that species. All I can say of P. taurica is that it appears to have all the good qualities of the Corsican. In our tree the leaves have no twist whatever, and it is probably this which deprives it of the general appearance of the Corsican Fir.

Planting Corsican Firs.—We shall soon have completed the planting of nearly 25,000 of these in the nurseries and woods, and it is only October t yet. I find our earliest planted Corsicans have everywhere done best, and we now begin first with them as soon as their terminal buds are formed and the leaves are moderately stiff. But a friend of mine, a nurseryman, tells me the best time to lift any of the Pine tribe is between spring and summer. He has lately planted all the summer, and declares Corsicans, Austrians, and Scotch do better than when planted at any other season. I have a strong impression myself that many of the losses in young plantations are due to too late planting, and careless planting in the case of Firs, at least.

Home nursery plants best.—There can be no doubt about the fact that young trees out of the home nursery always thrive better than those just bought in. The reason of this is obvious. When in the home nursery they can be lifted as required, need not be long out of the soil, and are generally got up with better roots. I must say that in some nurseries young trees are lifted in a careless manner, and, what with the counting and bundling of them, the roots get dry and shrivelled, and when planted out in the woods direct, where watering is out of the question, they die. I never enter the gate of a certain nursery during the planting season but I see large quantities of Larch and other trees lying about by the thousand in bundles, waiting to be sent off, and simply perishing in the interval. No kind of tree can stand such treatment long, and least of all bad transplanters like the Corsican Fir. Therefore, I advise all doubtful subjects to be first started in the home nursery, and only such things as Sycamores, Poplars, Scotch Fir, and others of the hardiest species bought in.

Thinning woods.—General advice of the best kind on this subject should be "thin not at all," unless you can spare the time from felling and planting. In managing woods to pay you can do without thinning, but you must fell and plant, and in the culture of woods for profit these, together with draining where required, constitute the chief objects to be kept in view. There are plenty of woods in England at the present time that should be cut down, or have the timber taken out of them that is going the wrong way and being lost, and if this was done, and mature crops of timber reaped when ready funds could be found for planting, on a far more extensive scale than is the case now on many estates, and a fair margin of profit realised besides. It should be borne in mind that those who fell much timber for the market can well afford to plant far more than an equivalent, as far as quantity goes, in the shape of young trees, and in that way maintain the valuation while earning an income from the woods at the same time. From fifty to one hundred thousand young trees annually is not an extravagant estimate on any good estate where, perhaps, three or four thousands of pounds worth of timber is disposed of in the same time, and the price and planting of the hundred thousand should not cost more than as many hundreds, or not as much. Where woods are properly managed at both ends, and the planting is in proportion to the reaping, there should always be a crop ready for the axe.

Valuing timber.—"W. B. H." and others simply make a bogey of this subject. There is neither difficulty nor mystery about valuing and selling timber. There are two ways of setting to work. On some estates the timber is all felled by the forester's own men, measured after it is down, dragged to some accessible spot near at hand, lotted, and then sold by auction to the highest bidder who can furnish security for payment in a stipulated time. He must be a dull-minded individual indeed who cannot superintend such simple duties as these. There is no uncertainty about the plan, and any schoolboy can measure fallen timber. We have many men who do little else than fell timber all the year round, more or less, and although some of them can hardly sign their own name they can all measure correctly, and mark the number of feet on the butt of each tree as they go on. We call this "feller's measure," the men felling at so much per ton, and it is rarely disputed by purchasers or anyone else. It is not

even questioned by the railway people in loading. The other plan is to value the timber standing and sell it in that way, and it has struck me often as a rather significant thing that purchasers who have bought much standing timber at forester's valuation prefer to buy it that way whenever they can. I can only attribute this to the fact that foresters are no greater adepts at valuing timber than they are at growing it. What I state is a fact at all events, and will not be disputed. Yet valuing standing timber is an easy enough matter, and if the plan was more generally adopted of paying the forester or valuer by commission on his valuation or sale, he would generally find it all there. Where trees are large and sound, and perhaps amount to a hundred or two, their contents may be very closely reckoned by anyone who chooses to take the trouble, and large quantities of small stuff may soon be averaged. The only advantage an experienced forester has over the novice in valuing standing timber is, that he can guess the contents of a tree more readily by sight, but he does not trust to this faculty when much money is involved, and should not do so at any time. I am speaking from a knowledge of facts, and I know gardeners both in England and Scotland who set out annually some of the largest timber sales in the country, and who, in some cases, have done so for nearly thirty years, with great credit to themselves and advantage to their employers. As to the "many details that go to make up the work of the forester," according to "W. B. H," would he specify a few that a gardener could not do or superintend? We have to do with thousands of acres of woods on more than one estate; our sales amount to some thousands of pounds yearly, and we have planters, fellers, hedgers, fencers, drainers, timber leaders, and rabbiters, not a few, under us, and yet we confess to being ignorant of the "many details" of management any intelligent gardener may not understand or very soon learn.

YORKSHIREMAN.

NOTES FOR THE SEASON.

THE time is just upon us when the bulk of the year's transactions in timber felling and selling will have to be carried out. I think, therefore, that a little consideration as to the course the business is likely to take, and a little mutual information as to how matters stand in various districts, would be very helpful. So far, general appearances do not seem unfavourable, but there is little tangible enough to lay hold of in respect to an upward movement of prices. There is one factor which has an important bearing upon the whole thing, and that is, the gales we are now experiencing. In some respects the conditions are very similar to those which existed when the first of the series of gales of late years took place, viz., the trees still carry the greater portion of their foliage, and the soil is becoming soddened with the rains. If another week or two passes without any similar catastrophe to those which have played such an important part in bringing down figures during the last five years, there will be reason to reckon on comparative safety for the present season. Another thing which should somewhat strengthen the position of sellers is the fact that, irrespective of what has been rooted up by gales, the cuttings of home-grown timber of late years have been above the average, and this is a practice which cannot continue for any length of time. As soon as any light breaks on the agricultural outlook the fellings are pretty certain to be curtailed, but, apart from disposition on the part of landowners, their resources for the time being in respect to timber large enough for the market will be run through. If, in connection with these two points, any expansion of trade in general takes place, there would seem to be good ground for the hope that many kinds of wood will see an increase in price this season, if only small. To judge from reports, which cannot be especially emphasised in this district, the Oak seems to be going worse than ever, but, be this as it may, it will not greatly affect what is being done, or will be done, during the next three or four months, as very little bargaining in this wood takes place until the barking season is within a measurable distance. Foresters complain that stripping leaves barely any margin, but still there seems to be little or no inclination to abandon it and cut in the winter season with the other woods. So far as this district is concerned (Wilts and adjoining counties), I look upon it that the price of Elm will be maintained, and this more especially for the better qualities. For middling and low-class qualities and sizes there seems little likelihood of any advance being seen, unless a decided change takes place in the industries for which it is most used. For good Ash there is pretty sure to be a market, as, although we have no large implement works near at hand, there is always a considerable local demand and one or two special outlets. Inferior wood will be sure, as usual, to be at a considerable discount, as bad Ash is one of the most difficult of woods to clear. Beech, where good and sound, almost always holds its own, and it is a wood which maintained the higher level at which timber stood a few years ago longer than many others. With respect to underwood, there is not much to be said, as the trade seems to be more irregular and of smaller extent than in many districts, such, for instance, as Sussex. In the neighbourhood of bobbin mills and the like it meets a fairly steady sale, but there is none of the Hop-pole trade which seems to be such a feature in the Hop-growing districts. A great deal of the underwood hereabouts goes for the fire, the best, such as Hazel, being reserved for staking and hurdle-wood. The effect of it in any case upon the market is but small. It would be interesting to hear from any districts where this journal circulates whether any noticeable movement has made itself apparent. There are, no doubt, some districts which would feel it quicker than others, and the intimation of a better state of things having set in would be welcomed as a harbinger of what is in store for those more remote.

FORESTER.

Wilts.

SCARCITY OF ASH TIMBER.

THE remarks I made upon this subject have elicited the information from "Yorkshireman" that both the Ash and Sycamore are now raised and sold in nurseries to an enormous extent, and in our woods of the future they are likely to be rather too abundant, if anything. This leads one to ask, Where? With reference to the length of time taken by Ash timber in growing, if "Yorkshireman" will refer to what I said, he will see that I did not state that half a century must elapse before a crop of Ash becomes useful, but that it would require this time before it would be large enough for many purposes for which it is used. The rate of growth will certainly vary according to soil and situation, but I do not think I am very wide of the mark in speaking, as I was, of timber trees. An important point certainly is the way in which it can be best grown, and I see "Yorkshireman" quotes a writer who held the view as to plantation propagation. I fail to see any practical objection to the plan, and if the fact of rabbits being one of the greatest enemies of young trees is borne in mind, it seems another reason why it should be planted in compact masses where these animals may be kept at bay as much as possible. I suppose one of the objections to planting with Ash alone is the belief that its superficial roots when the trees are in such close proximity to each other, as is necessary when a plantation is composed of a single species, would too much impoverish the soil for the trees to thrive properly, and thus the system of alternating with more deeply rooting kinds is favoured. I do not say that growing the Ash with Oak, for instance, which answers this end, is at all a bad arrangement, but experience tends to prove that there is more thought of the drawbacks of raising surface-rooting trees together than need be. The Beech, which very frequently grows in woods by itself, is a very good example of this, as the best wood generally grows where there is so little space between the trees that they have been unable to put forth branches, except at the extreme top, and the trees often grow to a very great height. This is precisely the way in which trees should be grown to have the highest value in the market, and there seems every reason why such a plan should be adopted in growing Ash. In many ways there is an analogy between the Beech and the Ash, and the Beech more often than not grows on soil which is of small agricultural value, on account of its shallowness. Indeed, I have often seen the cleanest and best Ash growing side by side with the best Beech. It would be very interesting to hear what is being done in the direction of this system of planting entire plantations of Ash. If, as "Yorkshireman" says, enormous quantities of the tree are being raised and sold, the information as to the method adopted in planting should be forthcoming. If, on the other hand, the impetus in raising is the outcome of what has been said and felt lately about the scarcity, and the young trees have not yet left the nursery, it is all the more essential that the most desirable plan of planting should be decided upon without delay. With respect to producing good timber, there can be no two opinions that trees grown closely in enclosures are, foot for foot, of much greater value than those which are isolated. What really requires to be satisfactorily established is the knowledge whether there is any practical difficulty in so raising trees. From what I have seen of the habits and growth of the Ash itself, and of trees to a great extent analagous to it, I am inclined to believe that plantation propagation of Ash, pure and simple, or with Sycamore, if this is wanted, has very much to recommend it.

J.

THE MANAGEMENT OF WOODS.

THE extent to which a gardener may be qualified to undertake the duties of a forester depends obviously upon the individual himself. I do not see that his occupation when confined to the garden pure and simple can give him much insight into the art of wood management. Whatever experience he may gain will be more from accidental association than from anything he learns whilst in discharge of his ordinary business. It is the fact of men being upon the place and the incidental knowledge as to management they thus gain that gives them the opportunity of occasionally obtaining a forester's position, rather than from gardening and wood management being anything like interchangeable professions. At any rate, such is my view of the case, for there is no reason why any intelligent man who happens to be upon a place and has an inclination to direct his attention to the woods should not be as suitable as a gardener. Take an estate carpenter, for instance. As with every other trade, the majority may be content to remain in the place where they first find themselves when launched upon the world; but if an estate carpenter has an inclination to become a wood manager and backs his inclination by acquiring the ins and outs of the business with which he from his occupation is accidentally associated in the same way as the gardener is, there is no reason why he may not as readily and successfully undertake the management of woods as the other. This I look upon as being the key to the whole question, and however self trained foresters may be disparaged by those who believe nothing can be done in wood management without school-trained men, those men who have gained their knowledge by using their own powers of observation in contradistinction to what classes and schools may impart are the backbone of what wood management now exists in this country. I do not despise scholarly attainments, as I believe they may be very useful, but I do believe that improved management will be brought about more by the necessity of such attracting the attention of intelligent young men scattered here and there in places where they can see what is being done, and "when found, to make a note of," than by turning them out at so much a dozen from any systematised institution. In this way anyone who has mental adaptability may by mere accidental association become a more qualified man than another who runs the whole gamut of the sciences without it. If posts with salaries worth from £100 to £500 a year were within reach, then there may be some encouragement to enter upon such preparatory study, but, looking upon the pay which ordinarily falls to the lot of a wood manager, the whole idea wants inverting, and the intensely interesting, but relatively valueless, scientific knowledge be gained as opportunities offer whilst the actual business is being carried on.

D. J. YEO.

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"This is an Art
Which does mend Natnre: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

OVER-TIDINESS IN GARDENS.

IN most gardens now-a-days the labour is not provided to maintain that degree of tidiness that used to be considered essential—nay, imperative—in all well-kept gardens. I say nothing against tidiness and neatness in a garden whenever these can be maintained without working mischief in the way denoted by "Veronica," or otherwise, and I would be the last to inculcate the notion that trimness and order are not two of the first points of good gardening and garden management. The very word "garden" itself conveys the idea of a place that is "dressed and kept," and the common saying, "kept like a garden," expresses one's conception of such a place correctly; but, granting all this, there can be no doubt that some gardeners and owners of gardens hold extravagant notions on the subject, as, for example, when at this season the abundant foliage of the trees is falling like rain they insist upon a gang of draggled boys, or men or women, being daily employed—may be in front of the windows of the mansion—collecting the fallen leaves into barrows and baskets, the obstruction of so much labour and bustle always giving one a far more vivid impression of disorder and untidiness than the fallen leaves that strew the lawn here and there would do if left undisturbed. Far better is it to let the leaves alone till they have all fallen and then clean them up where necessary. To people who have not over-strained notions of tidiness, falling leaves suggest nothing offensive. They can exclaim, with the poet, rather—

Come autumn, sae pensive in yellow and grey,
And soothe me with tidings of Nature's decay,

and enjoy the placid beauties of autumn in the same spirit in which they rejoice in the freshness of spring or the glories of summer. If gardeners would only think so, there is nothing objectionable in the wreaths of dead leaves that accumulate among shrubberies and on the lawn at this season, provided the walks are kept passable and dry. Another point in the keeping of a garden is to make no pretence of much trimness where it cannot be kept up. For example, a footpath looks much better and is better than a neglected gravel walk in which the edges are ragged and uneven and the surface covered with weeds. Nothing looks more really untidy than a dirty walk, because its untidiness is borne on the face of it and obtrudes itself on the eye. So, too, a hayfield is better and looks better than an ill-kept lawn—at one time rough, with perhaps a crop of Dandelions and other weeds in it, and at another shorn by the scythe in the hands of a bad workman down to the soil or the yellow bottom of the Grass when it ought to be green. As regards borders and beds of hardy plants, I confess that allowing the bleached and dead bundles of stalks standing all the winter is, however, going rather farther than I would go. A bed in that condition does not appear to be natural, nor does it look clean. In the wild garden where there is Grass among the plants and less pretence of tending and keeping it does not matter so much, but in beds containing select collections of plants of different kinds, it is, I think, preferable to remove the dead stalks and blown leaves and mulch the surface instead. Accumulations of leaves or litter allowed to remain on mixed herbaceous beds encourage a too early growth in many things, the tops of which perish or get injured when the protection is removed. Tender subjects that are apt to rot by the water trickling down from the crowns must be cared for, but as a rule a moderate mulching is a sufficient protection for the most delicate subjects worthy of being called hardy, and it looks clean and comfortable. Beds full of dead and blackened tops of herbaceous plants in front of a house and on a well-kept lawn, and associated with clean walks and other signs of good order, look out of place to most people, and are a blemish on an otherwise fair picture discernible by the most casual observer. For that reason we prefer to clear all such eyesores away as soon after this season as possible. One ought to be logical even in such matters as these, and avoid the mistake of allowing what we aim at making ornamental and orderly in summer to become an unsightly object at any other season of the year.

I now come to the kitchen garden, where in times past so much useless labour has been spent and over-tidiness been most conspicuous, not in one thing, but in almost everything—in the planning of the ground, in the planting and arrangement of the fruit trees, and in the keeping of walks and borders. I never could see the common sense or utility of having extensive flower-beds and pleasure grounds in their proper place, and encumbering the kitchen garden with an almost endless extent of flower borders as well, and with useless walks and edgings, unless it happened to be a place where the kitchen garden was near the mansion and had a thoroughfare through it to the house or pleasure grounds, and that is not often the case. The present condition of many kitchen gardens where the labour has been reduced shows all this plainly. The ground not being laid out for economical management, the walks and borders present nothing but signs of neglect, and would be far better dug up and cropped, with narrow alleys substituted for the walks, and with one good cart road through the centre of the garden to facilitate the removal of crops and transport of manure. Fastidious trimness in vegetable beds and quarters is purely nonsensical, and it is a pity that there has been so much waste of labour in that respect in times past. In growing vegetable crops in a private garden there is no more occasion for doing work not essential to the production of good crops than there is in a good market garden, where the quality of the produce is generally all that could be desired. The best sign of good culture is the excellence of the crops and their abundance, and not over-trimmed walks, edgings, and useless borders on which too much attention bestowed must represent a loss to the cropping department, or, at any rate, to the owner of the garden, like all other useless work. S. W.

SINGLE V. DOUBLE DAHLIAS.

THE discussion on this subject seems to turn on the question of the quality of single Dahlias as cut flowers for decorative purposes. They are said to be not so good as double Dahlias for this purpose. Granted, but I should like to ask gardeners who have many vases to fill if they ever used the big lumpy double Dahlias for such purposes at all, or at least to any extent; or if it is not the case that they have taken to Dahlias as cut flowers only since the single varieties came in. It seems rather beside the mark discussing the qualities of single *v.* double Dahlias as cut flowers when it is well known that the latter have never had a place either in the drawing-room or boudoir or anywhere else except on the trays of exhibitors at flower shows. I admit that the Pompon doubles are useful, but commend me to the singles for the border, the bed, or the bouquet. The single Dahlia is one of the best things we have ever had given us, and I hope familiarity with it and easy culture will not render it unpopular, as has been the case with not a few other things. What if single Dahlias do not last so long as some flowers in a cut state; are they not produced in the greatest abundance wherever a few plants are put out right away from June to November? and if they are wanted for vases, cannot fresh flowers be got to replace the faded ones? No; Dahlias were hardly of any use as cut flowers before the single sorts were introduced, and it seems rather unfair to institute comparisons between them and doubles that never did and never will take their place.—J. S.

—— It is good news to learn that "T. W. G. has in prospect a really dwarf strain of single Dahlias. During the recent hurricane the plants of the present tall strain terribly came to grief, being swept and twisted about in the most rude fashion, leaving some complete wrecks. It was difficult to avoid this result, as it is not possible to have the plants tied up so firmly or tightly as to secure them against all injury from wind. Had the plants been but some 2 feet in height, they would have suffered but slightly. The day after the storm, having bandaged the wounds as well as I could, I was pleased to note after all they had gone through how fresh and beautiful the flowers looked, even though then raining. Without doubt these Dahlias are both more beautiful and more serviceable in the autumn than in the summer, when great heat causes them soon to collapse. Now that the weather is cool, not only do the colours seem brighter, but the flowers endure much longer. I have, indeed, found cut blooms to last for a week in a cool room. A good handful of some half-dozen colours dropped half-negligently into a vase is quite a thing of beauty. We may be enchanted for the moment by the more massive and enduring properties of the bouquet or bedding kinds, but it must after all be conceded that single Dahlias are exceedingly beautiful. I have from seed this year found several plants giving us many diverse hues and with heights not exceeding 30 inches, and some not more than 20 inches. I trust they will adhere to this habit, as if so, it is certain that in a year or two we may dispense with all the present leggy race, and enjoy to the full a really dwarf free-blooming strain.—A. D.

—— "T. W. G." is obviously on the right track in regard to these. Single Dahlias from 9 inches to a foot high, bushy and floriferous throughout the season, carrying their tiny 2-inch-across flowers well up above their leaves on stiff stalks, are types wonderfully in advance of all that have yet appeared. On these lines, too, we may find a class of Aster Dahlias that will indeed be invaluable. That reminds me that very little has been said of the white Aster Pompon Dahlia, undoubtedly one of the finest of its class, not even excepting Lady Blanche, and also of quite a new decorative character that may be developed through a peculiar mode of treating these small doubles, Cactus and also single Dahlias, though with the advent of real dwarfs it may not be needful to adopt it with the latter class. Insert cuttings of lateral or even terminal shoots, say six in a 4 inch or 6-inch pot, early in August. Place them in a cold, close frame near to the glass; nearly every cutting will root and immediately show bloom. Grow them on slowly, either in the frame with abundance of air or in the open air, and towards the middle or end of October the potfuls of cuttings will be masses of bloom within from 4 inches to 6 inches of the surface of the soil. These have a pretty and even unique effect either on a window-sill, greenhouse shelf, or a dinner table. The double Pompons are perhaps the most effective, resembling at a distance a new and enlarged sort of Daisy. The Cactus Dahlia does well treated in the same manner, but three cuttings in a 4-inch pot are sufficient for this stronger growing variety. This reminds me that my chief object in writing was to urge upon "T. W. G." and others the bringing of the Pompon Dahlias nearer to earth. Their chief fault at present is that most of them are still too tall. The earwig objection—a very real and tan-

gible one—against the larger double Dahlias hardly applies to the Pompons, in which the petals are so closely compacted together, that these most disagreeable lady-frighteners can neither get in nor hide up if they do.—Hortus.

NOTES OF THE WEEK.

Tecoma capensis.—This, grown as a pot plant in Mr. Low's nursery, is very showy, its large trusses of bright scarlet flowers being very effective. The plants of it now flowering would appear to be terminal shoots struck in the way of cuttings, and when they have attained a height of some 2 feet or 3 feet they commence to flower freely.

Erica hyemalis, E. gracilis, and **E. colorans** are now charmingly in flower in Mr. Low's nursery. These sorts are valuable at this time of year and on through the winter, and therefore the demand for them is great. Here they are grown by tens of thousands, all furnished with long flowering shoots and feathered with foliage to the base.

Nerines.—I send you blooms of two more Nerines, namely, N. coruscans major and N. amabilis. These are quite distinct from those sent previously.—E. Peters, *Somerset Terrace, Guernsey.*

*** Nothing in its way could be finer than the variety herewith sent called coruscans major. Its flower-heads are unusually large and brilliant in colour.—Ed.

Pernettyas.—I send you herewith seven varieties of Pernettyas, known as Davis's varieties. They have been planted three years, and have been fairly successful.—F. Bedford, *Straffan, County Kildare.*

*** The specimens sent are densely furnished with large berries, varying in colour from deep crimson to pure white. These Pernettyas should be largely planted for autumn and winter decoration.—Ed.

Tropæolum tuberosum.—I have sent you a few flowers of this Tropæolum which is now grandly in bloom here, and, indeed, has been all summer. It is now beginning to ripen seeds—a rather unusual occurrence. I have heard that bulbs of it left in the ground flower equally well as those planted in spring.—John Barnes, *Monkstown, Dublin.*

*** Beautiful orange-red flowers, bright and cheerful-looking at this dull time of year.—Ed.

Fuchsia General Roberts.—Amongst Fuchsias brought before the public during the past few years this is probably one of the most distinct and handsome. Grown as a specimen plant in a pot, or used as a basket plant, it is equally effective. The flowers are large, the sepals bright rosy carmine, well reflexed, and the corolla very long and regular, and rich purple in colour shaded with violet. It is especially valuable as a late-flowering variety. We recently saw it finely in flower at Swanley.

Habenaria militaris.—This new species from the Philippine Islands is a valuable addition to autumn-flowering Orchids. Some good examples of it were offered for sale by auction the other day. In habit it resembles our native kinds, but the leaves are tinged with purplish grey; the stems are about 18 inches high, and bear a spike consisting of some two or three dozen brilliant scarlet flowers, with a very long green spur. The blossoms are somewhat larger than those of Impatiens Sultani, which in other respects they somewhat resemble.

White Daffodils.—The suggestion of Miss Wemyss is a good one, and as many by this time have planted their bulbs, it will, I think, be best to postpone sending bulbs to Chiswick till next August. I have adopted the suggestion, and I hope all our friends—Irish friends especially—will join in this work, seeing they claim to be the "stock"-holders of white Daffodils. If, as Mr. Hartland states, Narcissus tortuosus tenuifolius is Leda, then Leda is simply N. tortuosus of Haworth. I procured N. tortuosus tenuifolius to see what the new name represented, and found it to be simply N. tortuosus in shape, size, smell, and colour. I hold that the committee erred in giving the name Leda, but that there may be no mistake of judgment on my part, bulbs have been purchased under the name Leda and planted side by side with N. tortuosus. There appears to be considerable confusion in the varieties of N. spurius; I am of opinion that there is only one in Ireland, and would suggest that those who have forms of this type should next August send bulbs of these also to Chiswick. One member of the Daffodil committee states he has at least a dozen forms of spurius; I have not seen so many, and I doubt the assertion, even after adding the most recent additions. I am also of opinion that the N. spurius forms may be distinguished by the bulb. At page 8 of Haworth's "Monograph of Narcissus" there is enumerated but one Narcissus nanus; therefore, will Mr. Hartland tell us the chapter and page where Haworth says there are seven or eight varieties? I have for the last year or two been trying to make out a second form of nanus, as I have a suspicion such a thing exists, but so far have not been successful.—P. Barr.

Exhibition vegetables.—Canadian growers, present at South Kensington on Tuesday, referred to the show of vegetables as very remarkable to them, and showing taste, cleanliness, and quality, not at all prevalent in their young community. Those who saw the garden vegetables staged by the Canadians last week in the same place must admit that our products were literally miles ahead of those from the Dominion. It is to be hoped that some of the higher taste shown at home will be manifested in connection with colonial vegetables in time to come.

Abutilons.—In Messrs. Low's Bush Hill Park Nursery are some very handsome varieties of Abutilons—small plants in 6-inch pots, but finely in bloom. Most conspicuous amongst them are Illustris, a kind with large salmon-crimson flowers; Violet Queen, with deep rosy violet flowers; Lemonei, canary yellow; Pacotti, rich orange-yellow; King of Roses, large and deep rose; and Emperor, a sort with very large reddish crimson flowers. The old and well-known white-flowered Boule de Neige seemed to be equally free-flowering, even in a very small state. These plants deserve to be far more extensively grown than they are for winter blooming.

Double white Begonia.—One of the most attractive exhibits at South Kensington on Tuesday last was this new Begonia, which came from Swanley. The plants were remarkable for their erectness and compactness of growth and extreme floriferousness, all being masses of white bloom. The flowers are medium-sized, perfectly double, pure white, and hold themselves out firmly on the shoots. They do not indeed show the least tendency to droop, which is a common defect in double Begonias. We have rarely seen such well grown Begonias, or a sort that pleased us so much, and a cultural commendation was deservedly voted to the exhibitors.

Aralia Sieboldi.—This flowers freely in some places about this season, but too late to ripen seeds out of doors. Under cover, the flowers, although not conspicuous, are, nevertheless, not without interest, and seeds are produced in abundance. These, if sown directly they turn black, germinate quickly, and even small seedlings, if planted out in good soil in May, make capital plants for room decoration by the autumn. We have just lifted and potted seedlings treated in this way, and they are certainly far better than plants kept in pots all summer. When lifted and potted, if care is taken not to break the roots much, they quickly become established, and when well rooted hardly any plant will endure so much rough treatment as this Aralia will do.

A new Primrose (Primula Reidi).—This was one of the few really interesting plants shown at South Kensington on Tuesday last, and it certainly is one of the most remarkable that have been placed before the committee this year. It is a Himalayan species, and its fortunate possessor is Mr. G. F. Wilson, Heatherbank, Weybridge, who had seeds sent to him. The specimen he showed was but a tiny plant, but still it was in bloom and quite sufficient to show that it will in future be a most beautiful Primrose. It is, we imagine, a very near relative of P. sikkimensis, for its flowers are of the same drooping bell-like shape and of the same size, or larger and snow-white. The flowers are borne in a crowded cluster on the top of the stems. These may rise quite as high as those of sikkimensis, and then what a lovely plant it will be. The leaves are inclined to be hairy, not glabrous, and wrinkled like sikkimensis and others. We hope to see this Primrose again next year grown to a large size and bearing tall flower-spikes, which we certainly think it will develop.

THE VICARAGE PORCH AT ODIHAM.

Next to a tastefully planted garden there is nothing that adds to the charms of a country house so much as creeper-clad walls. Few things are more incongruous to landscape scenery than the garish glare of new or bare walls. Pretty gardens and climber-covered houses generally go hand in hand. You rarely see one without the other; old houses are generally the most densely clothed with climbers, and old gardens are, as a rule, the most delightful. The gabled porch of the old vicarage at Odiham, one of those quiet antiquated towns, or large villages, one often sees in Hampshire, is so beautiful that we have been tempted to illustrate it. This old house is said to be 400 years old, and is no doubt contemporary with the royal palace, of which there still exist here the remains. The garden about the vicarage is as unconventional as the house itself; the flowers in the borders mingle with the creepers, so that the whole place is bright and fragrant in summer, and even in winter it always has a cosy look. It cannot be said of hardy climbers that they are not "half enough planted," to use a common phrase, for everybody is delighted to see a house smothered in greenery; the fault rather lies in ill-chosen selections, but now that we have climbers suited for every soil and aspect, there is no reason why any wall in or near a garden should be bare. One often sees a beautiful old house or cottage covered with a dense lugubrious growth of Ivy, which, though better than nothing, is monotonous, and quite devoid of that gracefulness which makes most other climbers so charming. The walls of a house, a verandah, or pergola may now be clothed so as to be bright and interesting throughout the year. Even in the dead of winter the golden glitter of Jasminum nudiflorum is most beautiful, especially if intermixed with Ivy. Then come the fragrant white Honeysuckle (Lonicera fragrantissima), the Chimonanthus, and others in succession, and carry on the interest till summer when there is a profusion of bud and blossom.

As the present is the planting season for climbers, a list of the best may be useful to those who want to plant a selection. For winter effect plant Jasminum nudiflorum, Pyracantha, Lonicera fragrantissima and Standishi, Cydonia japonica, and Chimonanthus fragrans and Garrya elliptica, Cotoneaster microphylla and C. Simonsi. Some of these are not actually climbers, but they are suitable for training against walls, which they soon cover. For spring and summer bloom some of the best are Clematis montana, Lonicera sempervirens, Magnolia conspicua, Wistaria, Jasminum officinale, common white; Lonicera brachypoda, flexuosa, and the commoner kinds of Honeysuckle; Berberis Darwini, Forsythia suspensa, Prunus triloba. In late summer and autumn the most prominent climbers and wall shrubs are the various kinds of Ceanothus, Hibiscus syriacus, the noble-leaved Magnolia grandiflora, Solanum jasminoides, Clematis Jackmanni, Bignonia radicans and grandiflora, Passiflora cærulea in sheltered spots, and Escallonia macrantha. These are a few of the flowering plants, and then there is a host of climbers with handsome foliage, such as the Virginian Creepers (Ampelopsis), Aristolochia Sipho, Ampelopsis Veitchi, Menispermum canadense, Ivies (particularly Hedera dentata, maderiensis, and the new amurensis), Stauntonia latifolia, Smilax mauritanica, and Muhlenbeckia complexa. In the mild districts of the southern coast and all round the seacoast one might add largely to this list. Among these are Physianthus albens, like a Stephanotis, Boussingaultia baselloides, Berberidopsis corallina, Cobæa scandens, and others. W. G.

Indoor Garden.

FUCHSIAS TREATED AS ANNUALS.

It may be stated with reference to my knowledge of Fuchsias that when I commenced gardening there were only fourteen distinct kinds in cultivation. They consisted of thirteen species introduced from Chili, Mexico, New Zealand, and Port Famine; the other was F. globosa, an English hybrid, which for many years was a great favourite. An Irish hybrid named F. recurvata made its appearance in 1835. In 1837 that grand old species fulgens was introduced, and when well grown, as I have had it upwards of forty years ago, it has a noble and imposing appearance. About this time came F. cylindracea, which was followed by F. corymbiflora and serratifolia, and from that period was commenced the raising of really distinct varieties and subvarieties. When we take a retrospective look at what has occurred in the way of Fuchsia raising during these last fifty years, we cannot be unmindful of the good work which our predecessors performed. Raisers of seedlings fifty years ago had to contend with many disadvantages unknown to modern practitioners. It was at that time almost an impossibility to raise even the Fuchsia and flower it in the same season; whereas now we can sow its seed and by careful attention have young plants in bloom in a few months. One of my earliest seedlings, raised in 1863, was named Lord of the Manor. It had flowers of large size and was a free bloomer, but as the flowers aged they became somewhat coarse. Since then I have made it a practice to raise seedlings annually, the seed being saved from plants carefully hybridised, so as to obtain, if possible, distinct kinds, both in habit and flower. Proper attention paid in the way of crossing will sometimes bring about results of the most interesting description. The hybridist has certain points in view which he wishes to secure, and uses his skill accordingly; for instance, I obtained a double mauve Fuchsia seven years ago which has not yet been surpassed if, indeed, equalled. It was got by crossing a white variety with a purple-coloured sort.

In saving Fuchsia seed care must be taken to have it fully matured. Some dry the pulp of the berry and keep the seed in that way until it is required for sowing, but my practice has been to smash the berry on the palm of the hand and extricate the seeds by means of the point of my knife. I then placed them upon white blotting-paper, and when dry they were put into small packets, labelled, and placed in a box or seed-drawer until the time for sowing arrived. Some recommend sowing in autumn or as soon as the seed is gathered, but I see no advantage whatever in thus prolonging, as it were, the season of growth; my practice, therefore, is to sow about the middle of February in pots, pans, or sometimes well drained shallow boxes. These are divided into little beds by means of slips of thin wood, and each bed is numbered, the numbers corresponding with those of notes relating to pedigree, &c., as it is most interesting to know the source from which each sowing has been obtained. In this way one gets at the results in a definite form as to the various crossings or hybridisings that have been made. The seed is covered slightly with fine mould, and the pots, pans, or boxes, as the case may be, are plunged in gentle warmth, derived from a hot-water tank.

The Vicarage porch, Odiham, Hants.

A piece of glass is laid on the pot or box to prevent the soil from being in any way disturbed or becoming too moist. This covering also assists in securing greater uniformity as regards the germination of the seeds. The young seedlings will make their appearance in about three weeks from the time of sowing; when the seed-leaf has become fully developed the young plants are carefully pricked off, placing them round the sides of new pots, in each of which a small pot is inverted in order to secure efficient drainage and also to form, as it were, a warm-air chamber. Nicely adjusted, too, it prevents the ingress of worms, should there be any in the plunging material in which the pots are again placed. In the course of a few weeks the plants will be sufficiently grown to enable them to be potted singly in the smallest-sized pots. We use plenty of drainage and give a slight watering with tepid water, and return them to their original quarters. As the young plants begin to make growth they must have a corresponding amount of ventilation in order to ensure sturdy and robust growth. Shading must also be carefully attended to. As soon as the young roots reach the sides of the pots a shift should be given into 4-inch pots, and they should be set in some warm corner of the greenhouse. Unremitting attention must be paid to shading and ventilation when the external atmosphere is genial. Give just water sufficient to moisten the ball of earth, and no more, repeating the same when required, but not before it is needed, as, should the young succulent plants become waterlogged, it would at once arrest the healthy root action. In short, no checks of any description should be permitted to occur. Successive shiftings as the pots fill with roots must be made, but generally my plants show their bloom-buds when in 5-inch pots, *i.e.*, about the middle or towards the end of June. As growth progresses the interest in the plants increases, and should anything very promising show itself, it is at once encouraged and given a shift into a larger pot. I rarely stop the growth of any of my seedlings; such as are not deemed worthy of greenhouse culture are planted out in some partially shaded bed or border, where they continue to bloom until autumnal frosts set in. Should, however, any of them prove to be distinct, they are secured before they sustain any damage, otherwise they undergo the same ordeal as plants properly designated annuals. When the plants in pots have exhausted the soil in which they are grown, top dressings or liquid manure must be given them. When some of the artificial manures, now in use, are given, however beneficial they may be, they leave a crust-like deposit on the soil which in time becomes unsightly, and, moreover, impedes root aëration; hence it is a good practice to frequently stir and remove this crusted surface and replace it with fresh soil.

Fuchsias will grow in most ordinary soils, especially when turned out in the open ground, but for pot cultivation they flourish best in the decomposed top spit from a sheep pasture or good meadow, good clean leaf mould, a small portion of cow manure, thoroughly decomposed and used in a dry condition, a small portion of upland peat, and a liberal portion of silver sand. I prefer to mix my compost at the time when it is required for use, and I never sift it. It is simply broken up into proper condition with a spade, using the finer portion for plants in a young state, and somewhat rougher as they increase in size. As the

plants grow they require support; many of my plants, however, need but one central stake, to which the main stem is fastened, and thus treated they assume a pleasing and graceful form.

As I may say all our Fuchsias, with the exception of one variety, viz., globosa, have been raised during my time, it may interest some to know the names of a few of the more prominent men who have thus enriched our gardens. Knight, of Battle, Sussex, in the autumn of 1839, raised and distributed four varieties: one named elegans superb took a first seedling prize at the Hastings Horticultural Show of that year. Mr. Morris Todd, of Rolvenden, Kent, raised several seedling Fuchsias. Some old growers, who survive, may remember his Moneypenii, which I used to grow. To these must be added the names of Youell, Standish, Fowle, Cripps, of Venus Victrix fame; the indefatigable Mr. Banks, of Deal, who contributed numbers of good varieties; but to Mr. Story, of Newton Abbot, I must give the highest praise for his beautiful white double and single corolla'd sorts. GEORGE FRY.

Further Green, Lewisham.

VIOLETS WITH TOO MUCH LEAF.

"ENQUIRER," who complains of the above (p. 380), probably grew his Violets in too rich a soil, and possibly in a shady place. The best antidote to an excess of leafage is to grow the Violets on an open piece of ground in the garden far from the shade of bush or tree, and of rather a hard than a loose texture. A piece of ground in good heart without the addition of manure is also the most favourable for the production of floriferous Violet plants. The plants should also have plenty of room, from 9 inches to 1 foot being the best distances apart. Any stimulating manure or leaf-mould should be avoided. The latter especially forces Violets into leafage rather than bloom, as if in haste to get back to its original source. Shady places are also most favourable to leaf-growing rather than bloom. It is quite a popular error to imagine that shade is needed for the successful culture of the Violet. Those grown on shady borders and those cultured in the full eye of day are so different, as often to be mistaken for totally distinct varieties, and the difference merely consists in the percentage of leafage and flowers. Fully exposed, the leaves are so much smaller and shorter as to give the crowns—the seat of bloom—the full benefit of the sun's light and heat, and these crowd them with bloom as pins in a pincushion. The Violet also likes maiden soil, and if it has to be grown on the same spot for the sake of convenience, the soil should be wholly or partially renewed every year if possible. Some rather singular rotations also seem to suit the Violet exceptionally well. One of our cleverest cultivators in the eastern counties (I may, I think, name him—Mr. Allan, of Gunton) obtains some of his most brilliant victories in Strawberry culture by running Strawberries and Onions abreast and also in succession on the same ground. He also does Violets remarkably well, but not, so far as I am aware, abreast with or in succession to Onions, though some of the most floriferous Violets ever grown were so produced. The Onion soil, being in good heart after the crop was harvested, was merely dug up and left to mellow and consolidate throughout the winter. Part of the ground was planted with Violets in April, the soil being tolerably firm and the plants well compressed in the act of insertion.

A few surface scarifyings and the vigorous suppression of all runners were all the Violets needed until potting or framing time in October, when the plants seemed all bloom, as practical men express it. Many fine plants have been seen and handled since then; but perhaps, on the whole, none to equal those that succeeded the Onions. Could the antipodic unlikeness of the two crops have had anything to do with the exceptional success? More likely the exceptional consolidation of the root-run, the absence of all rank, or, indeed, of any manure, the heavy Onion crop having appropriated and exhausted the heavy dressing given the previous winter, were the chief causes of the exceptional floriferousness of the Violets. If "Enquirer" can, he perhaps could hardly do better than go and do likewise. Neither must he be too much disappointed with his present plants. Probably they are only late, as not a few Violets are this year, and beneath the excessive canopy of foliage he may yet find advancing to the front a fair crop of Violets. Most of the single varieties seem over-leaved this season; the Neapolitan, blue and white, are in a similar plight in some places, whereas the Marie Louise has about its usual average of leaves.

But the percentage of leafage to bloom is largely a matter of culture, and is also much influenced by soil and climate. It is even possible to grow Violets almost all bloom, so that leaves of other varieties must be used to fringe with verdure the larger handfuls of blossom they yield. A week or two since someone complained of some of their white Neapolitan showing a peculiar affection on its leaves. This was said to be red spider. I have, however, seen a few cases of this where no red spider was present. Plants were attacked here and there in a healthy border, as if frost-bitten or smitten with the Potato disease. Fortunately, I have not heard of its spreading much or far. But this Violet seems considerably more tender than Marie Louise, or even the coloured Neapolitan, from which possibly it may be a sport, or is it a seedling? Certain it is it promises to be a magnificent companion either to Marie Louise or the Neapolitan in bouquet, wreath or vase work, or in miniature decorations. D. T. F.

WINTER-FLOWERING PLANTS.

ZONAL PELARGONIUMS are most appreciated during the dull winter months. No other flower equals them as regards brilliancy of colour, and their blooms, moreover, are specially serviceable in a cut state. They are generally considered to be strictly greenhouse plants, and very few attempt to force them. In reality, an unheated greenhouse, or one warmed only when frosts are imminent, is altogether unsuited for a continuous production of bloom during winter. In order to have them in perfection at that season, resort must be had to fire-heat. Single flowering sorts are certainly the prettiest, but, nevertheless, much less serviceable than a good selection of semi-double varieties, nor will they stand so much heat, as that induces rank flowerless growth. What they require is plenty of room on either light staging or shelving near the glass in a house maintained at a temperature ranging from 45° to 50° by night, and from 5° to 10° higher in the daytime, with plenty of air whenever that can be safely admitted; then, if they are kept rather on the side of dryness at the roots, and the floor of the house is also kept as dry as circumstances will permit, there will be but little damping off, and a fair amount of bloom will be constantly produced. I ought perhaps to add that plants allowed to bloom all the summer are too much exhausted to be serviceable in winter. Those, therefore, who require a good late autumn and winter display ought always to prepare a number of strong sturdy plants especially for that purpose. Some of the best sorts for winter flowering are Lord Chesterfield, magenta; Crimson Gem, one of the best; Metis, crimson, very bright and free; Mrs. Gordon, crimson, with a white eye, trusses large; Ferdinand Kauffer, magenta-purple, upper petals orange-scarlet, a beautiful variety; Mrs. George Gordon, pearly white, with a pink centre; Lady Chesterfield, deep salmon; Sophie Birkin, mottled salmon; Mrs. Strutt, pink-shaded purple; Mrs. Robertson, rose-pink, very free; Olive Carr, pink; Queen of the Belgians, white, and very perfect; Bianca, white, very free and good; and Niphetos White Nosegay, very free, trusses large, forces well. Semi-doubles are most valued, and every winter one forcing house and the shelves of another are, in our case, devoted to their culture. Few appear to realise how serviceable Pelargoniums of this class are. They are not adapted for mixing with the ordinary occupants of a plant stove, as they require more light and room than most plants and a good circulation of air. A high temperature, *i.e.*, anything above 60°, and much moisture induce rank growth, and less bloom is the result, though the ever-flowering Guillion Mangilli will bloom under almost any conditions, if we except a low temperature. Ours are forced in a Melon house, but prior to their introduction to that structure all the soil is cleared out, and the house is regularly cleaned from top to bottom. There is, then, nothing but a dry temporary staging not far from the bottom-heat pipes for the plants to stand on, and to this dry heat, coupled with the admission of plenty of air when the weather permits, we attribute much of our success. Small plants in 5-inch pots or less are flowered on the back shelves near the glass, and larger plants in various sized pots occupy the remainder of the house. If we purchased, at the present time, a number of sturdy, strongly rooted plants, we would unhesitatingly give them a shift into pots two sizes larger than those they are in, using fairly good loamy soil with plenty of grit in it, and potting firmly. This would encourage them to grow strongly, and yet not prevent them from flowering freely. Well-established plants under the treatment just described may also be safely given liquid manure occasionally, in order to increase the size of the trusses. Every season we try several new semi-double kinds, and only the best for winter blooming are kept, but none surpass the old Guillion Mangilli; in fact, there are none that equal it for forcing. The colour is a rich crimson, and what we are both trying to raise and to procure are good scarlet and white companions for it. Ludwig Ferchl, bright scarlet, is useful, but we prefer F. V. Raspail, deep scarlet, and a fairly good forcing variety. Lord Mayor, pink, suffused with purple, fails sometimes, but where variety is liked it is worthy of a trial. Madame Thibaut, of nearly the same shade of pink, is particularly serviceable, quite the smallest plants producing fine globular trusses. Mrs. A. Lattey, pale pink, is one of the best for winter flowering, the trusses being large and plentiful. Grand Chan Faidherbe, deep crimson, is very handsome, and we are increasing our stock of it. James Vick, deep salmon, and very distinct in every way, produces very large trusses, the pips of which are also large; in mid-winter it fails, but is nevertheless worthy of a place in every collection. Louis Buchiner, salmon, has rather small trusses, but these are plentifully produced, and the colour is indispensable. Le Cygne is the best white, both truss and individual pips being of good form and pure white. Candidissimum plenum is also very serviceable, and is less liable to be tinged with pink than Madame Amelie Baltet. Heroine, white, produces extra large flowers, and Madame Leon Dalloy, blush white, is a very fine variety.

ABUTILONS.—These are by no means so popular as they should be. A few plants of them may be seen in every collection, but, as a rule, they present a half starved appearance and are certainly not attractive. For pot culture young plants are the best. Cuttings strike readily in a brisk bottom heat, spring being the best time in which to pot them. They should be potted off singly in 4-inch pots, and from these shifted into 6-inch pots before they have become root-bound. A compost consisting of two parts fibrous loam to one each of peat and leaf-soil with a sprinkling of sand suits them well. No stopping should be resorted to, a single branching stem being preferable to several weakly, branchless shoots. During summer they may be grown in cold pits or frames provided plenty of air is given them, or they may be set in the open air. If large pot plants are required, old cut-backs may be planted out on a sunny border, where they will, with but little attention, develop into strong, bushy plants, which may be potted up without much injury accruing to them. They do not continue to flower throughout the winter in a cold greenhouse, but will do so if the house is warmed night and day by means of a little fire-heat. It is when planted out in roomy conservatories that they prove most serviceable,

though if given too rich a border or unlimited root run they are apt to grow much too strongly. If the roots cannot be confined to a limited area, it is advisable to keep them in pots, plunging these deeply in the soil, into which roots will quickly find their way. Under this treatment they form sturdy, branching growth, and flower most abundantly. They are well adapted for clothing pillars and archways, as well as high back walls. They are also suitable for planting in the centre or at the back of large beds of mixed conservatory plants. Boule de Neige, white, is the most serviceable variety with which I am acquainted, especially when allowed to grow unrestrained. It is particularly suitable for those who require an abundance of white flowers at all seasons. The yellow stamens should be removed and the petals reflexed, in which state they are suitable for either wreaths or crosses. Fire King, rich red, is a handsome free-flowering sort, and the same may be said of Golden Gem. Canary Bird is the best yellow; in habit it much resembles Boule de Neige. King of the Roses is also free and good.

Cinerarias.—Everybody who has a greenhouse cultivates a few of these showy plants, but it is not often one sees them particularly well cultivated. Too much sunshine in summer and too much fire-heat in winter are to blame for many failures, the former being the sole cause of a mysterious so-called disease that has proved destructive to innumerable plants; while the fire-heat weakens the plants, and appears to render them liable to be infested with greenfly. During summer Cinerarias are best grown in frames at the back of a north wall, where, if not allowed to become badly root-bound before they are repotted and are not unduly crowded, strong and clean plants will be the result. When we grew them in a sunny position, no amount of shading prevented the loss of numerous plants; this usually happened soon after they received their final shift, but since we have given them a cooler site not a plant has been lost. During winter they ought to be kept clear of other greenhouse plants, otherwise they soon become drawn and somewhat disfigured. If, owing to necessity, they are placed on a latticed staging over hot-water pipes, the boards should be well mossed over, a dry heat being thus prevented. They grow most sturdily on the front staging of a lean-to house, and when well in bloom they may be taken anywhere. The best and most enduring lot of plants that I ever saw were in a conservatory where sunshine seldom reached them. A very moist bottom does not suit them during winter; it encourages damping off. If they must be kept in cold pits or frames, they should be placed on inverted small pots. A very little frost proves fatal to them, and in anticipation of this the frames ought to be banked up with dry litter or leaves, and the glass well covered over every night and during very frosty days with mats and litter, if need be. Plenty of weak liquid manure ought to be given to all well-established plants. Unless, too, greenfly is kept down, the blooming period will be unsatisfactory and of short duration. Occasional weak fumigations with tobacco paper before the plants are badly infested are much the best remedy, and should be persevered in by all who wish to succeed with Cinerarias. The single varieties are the most generally grown, but we find double sorts to be very useful in spring, and they are certainly the best for cutting and packing. Seed of the former, sown in April, furnishes flowering plants at the present time and onwards, and to succeed these more seed should be sown in June and July. It is only by sowing early that an early display can be secured, as Cinerarias will not force. A good percentage of double-flowering varieties may now be obtained from a packet of seed, and seedlings are more easily grown to a good size than plants obtained by division. We favour the latter plan, as we do not want large plants, only 5-inch and sometimes smaller pots being employed in their culture. Single blooms of Mr. Thomas Lloyd, wired and dotted among other flowers in vases, are very effective, and this fine double, deep purple-coloured variety is still second to none as regards utility.

W. I. M.

Camellias as stove plants.—Permit me to thank "W. H. G." for his note giving further information concerning this interesting case, which is so unique that perhaps "W. H. G." may take the further trouble to give us the average winter temperature of the stove. It would not seem that there is any unusual percentage of bud-dropping at the critical swelling season, as otherwise the supply of flowers would not be so ample. Possibly, as not seldom happens in old-fashioned houses, the back wall and portions of the stove against it—that is, the Camellia side of the stove—may be cooler than the other portions. The facts of the case rather favour this supposition, as it is no uncommon thing for Camellias to be in full flower at Christmas in cool, and in fact almost unheated, houses. These sentences are not penned to throw any doubt on "W. H. G.'s" statements, but to clear up a most interesting question, viz., whether Camellias will really expand their blooms in a temperature of, say, 60° or 65° without the loss of an enormous percentage from bud-dropping. That Camellias will bear a stove temperature when making their growth, and not seldom are the better for it, is well known. But if they will open their flowers in it without undue loss, hundreds of us will gladly thank "W. H. G." for calling attention to such facts, and giving us some further hints, if possible, as to the most likely way by which we may go and do likewise. Under stress of urgent need of Camellias at early seasons, such as October and November, I have frequently attempted to force the well-formed buds to expand before time, and the results, broadly stated, have been failures. A few buds at times have held on and opened, but the bulk invariably have been found scattered over the stove floor or surface of the pots. Hortus.

Flower Garden.

THE PRIMULA FAMILY.

The culture of this interesting class of plants doubtless received a considerable impetus from the Primula conference held at South Kensington last May, but if that interest is to be maintained it will be necessary to hold an annual conference. Perhaps it would not be necessary to make such an extensive display as was made on the occasion just alluded to, but groups of plants ought to be invited, and owners of new, distinct, or doubtful forms would have an opportunity to exhibit them. By that means many disputed points might be cleared up and much useful information obtained. I was interested in reading the note on Primula purpurea in The Garden (p. 357). It may be a fair question to ask, What is the true Primula purpurea of Royle? Is it a species, or merely a variety of P. Stuarti? Next season several new Himalayan Primulas will most likely be flowered in this country. The European species are but little known beyond the limits of botanical gardens, except those in the hands of a few specialists, like Mr. Llewellyn and the Rev. Wolley Dod, or such trade growers as Messrs. Backhouse, of York. What an interesting study is the whole group of alpine Primulas. Most of them are easily grown, too, if they receive the attention which they require, and when they succeed well either in pots or planted out, there are few indeed who would not be delighted with them. First in importance in this group is the well-known P. Auricula; it is rather sportive in its native mountain home, but that is nothing compared with the surprising results which have been obtained by the patient labours of the florist. The usual form with its leaves rather thickly dusted with farina is a pretty border plant, producing golden flowers freely. A more delicate and prettier plant is the variety called marginata; we have in a frame protected from wet a few plants of the true variety, which are beautiful in leaf. The variety Balbisi is also an excellent green-foliaged pot plant. Other varieties are in cultivation, but I have no knowledge of how they grow either as border or pot plants. A group of any of the kinds named would be charming in the rock garden. Indeed, that is the place for them, as when in pots they require considerable attention all the year round. They like deep sandy loam, and a position where the sun does not shine upon them during the hottest part of the day.

Primula villosa var. nivea.—The Snowy Primrose, usually grown under the name of P. nivalis, is one of the most beautiful of spring flowers. It is easily grown, and can be very rapidly propagated by division. I have saved seeds of it and raised plants from them, but they cannot be depended upon to come true to name. A few have white flowers, but more are pale purple and lilac-coloured; they are, however, all pretty and interesting. The true P. nivalis of Pallas and Willdenow is a different plant, and is identical with P. longifolia, published in the *Botanical Magazine* in 1797. This, again, has been decided to be a synonym of P. auriculata, and is a Siberian species.

P. villosa (the Mountain Primula of Curtis) was figured in the first volume of the *Botanical Magazine*, t. 14. It is there stated "that a variety of this plant with white flowers, brought originally from the Alps of Switzerland, has for many years been cultivated in a garden in Yorkshire." I have no doubt, therefore, that this white variety has been propagated upwards of a hundred years in English gardens by division of the plants. The ordinary form has sported very much from seeds. We have a dozen distinct varieties raised from the original species, besides many more from the white form, and it is also rather curious that the seedlings from the variety nivea are much smaller growing plants than the parent. When planted out or grown in pots I know of no Primula superior to P. villosa as a decorative plant for the spring garden. Varieties of P. villosa are grown under the name of intermedia, but any hybrid may have this name given to it. The original P. intermedia is a form of P. farinosa, and is figured in the *Botanical Magazine* (t. 1219). It varies but little from our own Bird's-eye Primrose (P. farinosa). By the way, this interesting little plant does not take so kindly to cultivation as one would like it to do. It is somewhat of a bog plant, and neither takes kindly to the ordinary open air garden nor to pot culture. I had fifty plants of it brought to me from a native bog some five or six years ago, but they are now reduced to four or five. I find many delicate-growing Primulas with slender root-stocks and hair-like roots when attacked (as they often are) with the Auricula aphis to be most difficult to clean, and the aphides certainly injure, and sometimes destroy, the plants. These pests are very partial to P. minima, and quite overpower the plant. They swarm above ground over the roots, and prevent the healthy development of fibres near the surface. P. spectabilis is not only one of the prettiest of the alpine species, but one of the easiest grown. I grow several varieties of it, but none succeed so well as the typical form. It is as easily managed as a pot plant. As an alpine Auricula in the York Nurseries it grows most luxuriantly near the margin of water at the base of some artificial rocks. What masses of P. marginata are also to be seen in these nurseries! This is one of the best for pot culture, but P. marginata grandiflora and P. m. cærulea only ought to be grown in that way. All the varieties of marginata are readily propagated by division, and they grow freely in a compost consisting of a third part of turfy peat mixed with loam. The pretty little P. mistassinica ought not to be omitted from the Bird's-eye group. The mite of a plant of it exhibited by Messrs. Veitch this year attracted much notice on account of its diminutive size. The judges gave it a first-class certificate, which some thought was too high an award for such a small Primrose. It is figured in the *Botanical Magazine* for the year 1830, from specimens or seeds gathered by Richardson and Drummond in the Arctic Circle. It is a pretty little plant, and should not be despised because it is small. It is

found in Canada distributed over a wide area. The whole of the alpine species should be grown in the rock garden, and one at least of each should be kept in pots. Our insular climate does not suit all Primulas out of doors. They do not mind melting snow if the snow could be depended upon to remain over them for any length of time. It is our changeable climate that is so injurious to many choice alpine plants. The snow melts and soaks the plants; a spell of fine weather sets in and starts them into growth; anon the biting east winds blow over them, freezing and nipping the incipient growths; and so on until April or later alternate thaws and frosts, rain, snow, and hail make sad havoc with plants that might stand bravely through a Siberian winter if under a thick covering of snow.

Our own common Primrose is the most esteemed of all in gardens, and for wild places the yellow variety is most appropriate. Many fail to grow this native English plant in their gardens, simply because they are not aware of the natural conditions under which it succeeds. It will not grow well on dry, sunny banks. Its natural position would be the north side of a bank, and one that did not become quite dry in summer. In light, dry soils the Primrose does not grow naturally, nor will it succeed if planted there. The natural home of this species is on good deep yellow loam, constantly moist, and all its allied forms will succeed under similar circumstances. In fact it is marvellous to see the clean, strong, rapid growth which some Primulas make when their roots are below the level of water and the leaves overhanging its banks. Those who have had any difficulty with the Himalayan species should try them close to the margin of artificial ponds. Dig a hole for the roots within 3 inches or 4 inches of the margin. It should be made 3 inches or 4 inches deeper than the water surface; fill the hole up with good loam, and in it plant your Primulas and await the result. How they would succeed entirely covered by water, if the banks should overflow, I cannot say. I write of artificial ponds that never rise above one uniform level. Sufficient water to keep the roots constantly wet suits them admirably. We have many new Himalayan Primulas raised from seeds, but until one sees whether they intend to flower or not it is useless directing further attention to them.

J. D. E.

MICHAELMAS DAISIES.

Several correspondents have written in high praise of these Asters, but none of them have given the names of the varieties which they consider best. Numbers of amateurs would not only willingly, but gladly purchase selections of them if some of the readers of The Garden would name a few, say a dozen each of the best dwarf, the best medium, and the best tall growers. In large gardens where space is abundant, and stout stakes or miniature Hop poles plentiful, tall varieties, like lævigatus, Archer-Hind, Robert Parker, and others, tell well against green hedges or thrown well back in the shrubbery borders, but owners of many small gardens would most likely give preference to the medium and dwarf growers, especially as some of them are equally beautiful and suffer less from wind and rain in stormy weather. My own collection being very small, including possibly a score of varieties, I am quite incapable of undertaking the task, but others, possibly "Veronica," will, I have no doubt, confer a favour upon readers of The Garden by giving us their experience with regard to them. One of the qualities in a really desirable Aster, independently of its moderate height, should be its staying powers under stress of weather such as we have lately passed through. Beauty, "Hortus" assures us, is only skin-deep, and this reminds me that I ought to take off my hat, although my office is cold, while I acknowledge the compliment which he has paid me in regard to Peaches. But I digress. On looking over our own Asters, which were very beautiful before the recent storm of wind and rain came on, I find that all but one have more or less suffered, and that one is A. Amellus bessarabicus. This variety attracts attention as soon as it starts from the ground; it grows nearly to the height of 2 feet, when the large bluish purple stars, even on weak plants, expand and form beautiful panicles a foot or more across. To this, previous to the downpour of rain, I had affixed the usual cross, as I intended to increase it, but having passed through the rainfall apparently without injury, I have this day honoured it with a second mark of approval. Another pleasing variety, also a front-row plant, is longifolius formosus, a kind with rosy pink flowers. This and also three or four more have been marked for propagation, but being myself only a very small grower of Asters, I will withhold their names for the present, as my best stars may be eclipsed by lists from more experienced cultivators.

W. Coleman.

Eastnor Castle, Ledbury.

SEA HOLLY.

(ERYNGIUM MARITIMUM.)

This native of our sandy coasts and seaside sandhills well deserves a place in the garden. Though lower in stature than the large Eryngiums of our flower borders, it is a plant scarcely less important in interest and picturesque beauty. Its pale glaucous colour and rigid structure give the impression of its being fashioned in some living metal. In its seaside home the roots run far and deep into the loose sand; in gardens it will thrive in any light soil. Sea Holly makes a useful winter bouquet; whole branches cut now and arranged in some suitable jar without water will retain their form and nearly their living colour throughout the winter.

Flower-spray of Sea Holly (Eryngium maritimum).

The Cactus Dahlia (D. Juarezi).—The "one fault" which "Hortus" so fully describes (p. 335) as being the only drawback belonging to this brilliant and decorative Dahlia has been so thoroughly and satisfactorily overcome by a simple mode of treatment which I have practised on my plants this year, that I would wish it to be more known than it is. The plants which I grew last year were divided in spring at planting-time, and at once placed where they were required to bloom between large clumps of the white Anemone japonica, with which they contrast so well. When the liberal growth of young shoots was forward enough to thin out, they were reduced to three, and later on the greater part of the side shoots, which so rapidly smother the terminal blooms, was nipped out, leaving only the stronger ones required to produce a succession of bloom, and these again had their side shoots removed, with the result that there was an almost unthought-of supply of really first-class blooms as to size and quality so fine, that when I exhibited a stand of blooms last August it was said they must have been grown under protection. The plants continued to produce abundance of bloom until cut down by early frosts. It merely requires a little thought and some practice as to which are the best shoots to leave, remembering always to keep the centre of the plant from being overcrowded.—J. T. Poë, *Riverston.*

WALL GARDENING.

Wherever there is a wall with crevices on the top or sides there plants will grow—not every species, I grant, but still quite enough to make the wall ornamental. Everybody has seen the Wallflower quite at home on old ruins. In the spring of last year I saw a great golden cluster of it growing out of Peterborough Cathedral 40 or more feet from the ground, and the walls of the cloisters, too, were charmingly furnished with Wallflowers and other plants. Antirrhinum rupestre and other sorts will grow on walls; also all the Aubrietias and many of the dwarf Campanulas, especially C. garganica. Erinus alpinus in such a situation is a little gem. Erodium romanum succeeds well on a sheltered wall. Linaria Cymbalaria is a well-known wall plant. Not far from where I am writing Linum alpinum and many Saxifrages, Sedums, and Sempervivums thrive well; as do also Silene alpestris, Thymus citriodorus, Veronica fruticulosa, and others. The number of Ferns which may be planted on old walls is much larger than many would suppose. Near here is a good-sized specimen of the Shield Fern growing out of the side of a brick wall. It is in a north aspect, and in such a situation seems to be quite at home. In many parts of the south of Ireland Fern-covered walls are quite common, and very beautiful they are. Amongst the Ferns found growing in this way may be mentioned Ceterach officinarum, Asplenium Trichomanes, A. Ruta-muraria, Scolopendrium vulgare, and various others. In Yorkshire, too, we have seen Phegopteris Dryopteris, various forms of Lastrea Filix-mas and Athyrium Filix-fœmina, Polypodium vulgare, &c., occupying similar situations; whilst in Scotland, Asplenium septentrionale and Allosorus crispus in some of the old quarries drape the face of the rocks in a most charming manner. I have a friend living in a neighbouring town who is exceedingly proud of a young Sycamore that is growing out of a crevice at the top of a wall at the rear of his house. There is a mystery as to how it came there; but about a dozen years ago a little green leaf sprouted out, and was succeeded by another and another, and year after year its leafing was watched for, and still it grew and flourished, and has ultimately developed into a low-spreading bush. I mention this to show that Nature has a way of her own in adapting such things to surrounding circumstances. As regards the best way of locating plants on walls, in some cases seeds may be scattered in the crevices, and the holes afterwards filled up with fine soil. This is the natural way, but a more certain method is to raise the young plants elsewhere, and when well rooted lift them with little balls of earth attached to them and press them firmly into the holes and crevices, making all firm and secure. In this way a wall may soon be furnished. Those plants should have the largest openings which require the greatest amount of sustenance.

E. H.

Different sorts of Pampas Grass (p. 365).—Pampas Grasses vary wonderfully in form, colour, and height, the strains most valued being the whitest. They also seem to vary considerably in hardiness, as well as season of growth. These two are also very much linked together, the earlier varieties being, as a rule, the hardiest, and for this simple reason that, as no Pampas Grass grows in our climate too early to be caught by the late spring frosts, the earlier it can finish in the autumn the hardier it will

be. A prompt remedy for somewhat hastening the progress of these plants in the spring is to set fire to them. This does double duty—clears off the dead, unsightly refuse, and wakes up the plants very promptly indeed from their winter's sleep. Neither do they suffer injury from this rude awakening. One great difficulty in improving Pampas Grass is the difficulty of seed-saving in most places. The plumes are so late, that the seeds do not ripen; neither do the varieties come true to type when saved. The process of improvement of strains through root-division is somewhat slow and tedious, as those who have tried have found. Latterly, I have seen a good many types varying so much, that the worst were hardly worth growing contrasted with the best, and some of the pure silvery forms were simply magnificent. Could hardier, earlier, and finer varieties be selected for culture in their native climate, and reliable seeds thus be provided, this magnificent plant ought to be more widely cultivated than it is, not only for ornamental effect, but as game covert in woods. The severe frosts that come every now and again play sad havoc with the Pampas, even when protected by its own *debris* and partially sheltered by trees. Hardier and earlier strains would doubtless pull through. Where they do so, as in the milder counties, the Pampas Grass adds a unique mixture of grandeur and grace to many a pleasure ground and woodland landscape.—Hortus.

NOTES ON POPULAR PLANTS.

Pansies cannot be grown so well in the south during summer and autumn as in the moister and cooler atmosphere of the north of England and in Scotland, but southerners have the advantage in early spring. In order to have a fine display of bloom, seeds should be sown about the middle of August. The young plants when up should be pricked out in the first place about 2 inches or 3 inches apart, and when they have grown into thrifty, dwarf little plants, prepare for them a piece of rich, deep soil in October, and set them a foot apart. A few years ago I had a bed 60 feet long and 6 feet wide treated in this way. They began to flower in March, and as we supplied them freely with water in hot, dry weather, they were a blaze of colour all through the summer and autumn months. Named varieties debilitated by repeated renewals from cuttings do not produce such a wealth of bloom in the first place as do seedlings, nor do they continue so long in flower; many of them, too, die off in summer, but seedlings do not fail in that way. Pansies during spring when grown in pots with merely the shelter of a cold frame are lovely. What we do now is to pot up one or two plants of each variety, and plant the others out in beds or borders. It is not safe to trust entirely to out-of-door plants as part of the stock may be lost by alternate frosts and thaws.

Hollyhocks.—If it is desirable to raise Pansies from seeds in order to obtain vigorous plants, it is equally so in the case of the Hollyhock. Seedling Hollyhocks are not so variable as those of Pansies; they may, therefore, be expected to produce flowers as good as those of their parents, *i.e.*, fifty out of every hundred of them. Seeds saved now if sown next May will produce strong-flowering plants in the following autumn. We have left plants out in the open garden for two winters without interfering with them, and disease has not shown itself at all this year. Plants thus treated did not produce such handsome spikes as young plants, but they succeeded fairly well. We ought this year to lift the stools and either pot or plant them out in a cold frame, in order that we may be enabled to get cuttings from them in spring. Plants raised from eyes or cuttings during the summer and autumn should now be repotted, so that they pass through the winter without becoming pot-bound. When they get into that state they become stunted in growth, and start prematurely into bloom. In order to get cuttings early in spring, the plants should be potted and placed in a greenhouse during the winter months.

Ranunculuses are being more grown during the few years than hitherto, but not yet so much as they ought to be. I took seventy-two blooms of the best double Ranunculuses to a flower show, and I did not meet with anyone who knew what they were. There are different times and seasons at which to plant them. Where the soil is dry and the situation otherwise favourable, some of the tubers may be planted out now, but it is better to reserve the main collection until February. We plant some hundreds of tubers as late as the first week in April. This year they flowered late, but better than they did from February-planted tubers the previous year. Plant the little shrunken tubers in rows 5 inches apart and 3 inches or 4 inches asunder. Draw drills for them about 2 inches deep.

Seeds of Ranunculuses may be sown in January in shallow boxes filled with light compost. Miller, in his "Gardener's Dictionary," says, "sow about

The Cretan Mullein (Celsia cretica) in flower in Surrey. Engraved for The Garden.

a quarter of an inch deep," but the best growers of the olden time merely covered the seeds with fine soil, which is the right way. It does not take long to produce flowering roots of the Ranunculus from seeds. J. Douglas.

Transplanting Christmas Roses.—"Hortus" in his remarks (p. 362) on the planting of Christmas Roses says that it is best to split them up into one, two, or, at the most, three eyes. "Hortus," I expect, grows his Christmas Roses in some light black soil. In my heavy, strong soil it would be almost fatal to do as he recommends. I have heard of instances in which hundreds of plants have been sacrificed by such treatment, all having died the first year after planting. I have never planted them outside in autumn, but I can believe it would be a very bad plan to do so, as they could not have time to make fresh fibres before winter set in, and consequently they would be unable to stand the effects of frost and wet. I always plant my Christmas Roses in February after forcing them. I then split them up into pieces of about half-a-dozen eyes. As the weather after February generally improves, they are able to take a firm hold of the ground before the drought of summer sets in; while in autumn it gets worse every day after planting, and the result is that the plants lie dormant all winter, and when a plant is in that state, slugs and vermin of all descriptions flock to it. The crowns are then eaten away, and the plant does not appear in spring. Another important point about the planting of Christmas Roses is the depth at which they should be put. Some plant them with the crowns above ground, while others put them down a few inches. I prefer to plant them with about an inch of soil on the crowns. I find that after they stand two or three years the crowns work upwards. I have often seen plants which had been planted with their crowns 2 inches in the ground after two years have them quite exposed, and thus circumstanced they are apt to be eaten with slugs, or to get trodden on, and the flowers which they produce are always unshapely and discoloured.—D. W.

CELSIA CRETICA.

This stately plant, nearly related to the Mulleins, though a native of the Southern Mediterranean coasts and the island of Crete, is hardy in the south of England. The individual flowers are larger than those of any of our Mulleins, and deeper in colour; in the centre is an Orchid-like appendage of a sumptuous brown colour, which adds much to the richness of the individual flower. The buds have a curiously square and flat look. The plant is of rapid growth, flowering the same year if sown early, or if sown in May, making good plants to put out in autumn for flowering early the next summer. The centre spike is succeeded by a number of flowering laterals. The flowers have a sweet smell, like honey or Agrimony. Well grown, it is a handsome plant of fine habit and form, and rich and good in colour.

RENOVATING WALL CREEPERS.

There are many kinds of wall creepers which, owing to the luxuriant growth they make, quickly exhaust the soil in which they are growing, and then, if flowering subjects, the blossoms become small and few in number, and in the case of non-flowering plants, such as Ivy and Virginian Creeper, the growth is weak and the foliage bad in colour; not unfrequently, too, large plants are destroyed under the impression that they are dying or cannot be made to be of any further service. All this may be obviated by renewing the soil. In order to do this no serious disturbance of the roots is necessary, and in two years many a sickly-looking plant, however large, may be restored to a healthy and vigorous condition. When practicable, 6 inches or 8 inches of the surface soil should be removed; this need not interfere to any great extent with the roots, *i.e.*, if the work is carefully done, and it will pay for being done well. If a few roots can be laid bare, it will be all the better, as they will the sooner feel the effects of the new material. Substitute for the old soil taken away some good rich and holding compost. For the majority of plants a mixture of half turfy loam and half rotten manure is the most suitable, but good kitchen garden soil that has been annually manured will be better than nothing. In not very bad cases a good dressing of rotten farmyard manure will restore an unhealthy plant to vigorous condition. I have known a good thickness of old hotbed manure laid on the surface to do a good deal of good, but

for climbing Roses there is no better plan than removing the surface soil and substituting manure and loam. Within the past two years we have converted some very old creepers that had become weak through poverty of the soil into luxuriant health by forking in about their roots a couple of cartloads of vegetable mould, the result of rotting down the refuse of the garden. Ivy on walls is, in bad cases of soil-exhaustion, often more yellow than green; all this may be changed by either laying on the surface a thick layer of rotten manure, or by taking away a good portion of the old soil and putting fresh material in its place. The last plan is much the best, as its effects last the longest. J. C. C.

EARLY AND LATE CLEMATISES.

Lovers of Clematises must often, I feel sure, find it difficult to know what to purchase. I have known an order sent to a nursery for half a dozen good varieties; they have been sent, but without any information as to the treatment they needed. Spring and summer-flowering varieties are occasionally both included in the selection, the result being that if the spring-flowering types are pruned in the same way as the later summer-flowering kinds, there is no head of bloom to greet the cultivator when he looks for it. Not long since I was called in to see a Clematis that did not bloom, and to give a reason for its not doing so. A lady had ordered a blue and white Clematis at a nursery, and Jackmanni and Miss Bateman had been sent her. She was advised to prune back Jackmanni rather hard in the winter, and, thinking this treatment applied to both, she did the same with Miss Bateman, with the result that it never flowered. I advised her last autumn not to touch the white form with the pruning knife, but leave the vigorous shoots intact. She did so, and in June she was rewarded with a grand display of white flowers. I mention this case because it seems to illustrate the marked difference that exists between the patens or spring-flowering, and the Jackmanni or summer-flowering sections. As there are some charming varieties among the patens section, some of these should be grown; they do well on warm walls, or on pillars, or on wire trellises; but owing to their early flowering character the blossoms are in danger from late frosts; therefore it is of advantage to have some shelter. The varieties included in this section bloom from the old wood of the previous year, and not from the new wood of the current year, as do the varieties of the Jackmanni type. Now, this is a distinction of the greatest importance; because one may cut down a plant of C. Jackmanni almost to the point where it was grafted, and still it will put forth vigorous shoots that will bear flowers; but if a patens variety be cut away in the same manner, no hope of flowers the following year need be entertained. All that is required is to thin out any decaying wood, but to leave the rest—by decaying wood I mean that which has borne flowers. A few of the best of the spring-flowering, or patens section of Clematises are the following, viz., Edouard Desfosse, flowers large and abundant, having from six to eight petals, which are well imbricated, colour deeply shaded mauve, with darker centre and red anthers; Lady Londesborough, silver-grey with pale bars; Lord Londesborough, deep mauve, flowers large and attractive; Miss Bateman, white with chocolate anthers, flowers of fine form, and petals of great substance, one of the best white Clematises grown; Mrs. George Jackman, satiny white, with a creamy bar—this variety will often flower on the young wood; Mrs. Quilter, pure white, fine in form and substance; Mrs. S. C. Baker, delicate pink, changing to French white, and furnished with claret bars; and Sir Garnet Wolseley, pale blue, with a bar of plum-red on each petal, a very distinct kind.

I would strongly recommend amateurs who have a greenhouse to grow some of these spring-flowering Clematises in pots. They are easily managed and very effective. They can be grown in almost any sized pots, not below 7 inches or 8 inches in diameter, and a rich loamy compost suits them perfectly. In pots of this size the plants could be trained over cylindrical trellises of about 2 feet high and 1½ feet across, or some stakes 2 feet in height could be placed round the pots and the shoots trained to them, tying them first to the base of the stakes and gradually carrying them upwards. Let it not be forgotten that they flower on wood of the previous year's formation, and hence a supply of this wood must be kept up annually by encouraging free growth after the flowering season is over. During the summer months, when free growth is desired, it is advantageous to plunge the pots in some porous medium, as old tan ashes or Cocoa-nut refuse, and also to mulch the surface-soil in the pots with half-rotten manure. In this way admirable specimens can be grown that will make the conservatory gay for a considerable time.

When planted out of doors, either against walls or as pillar plants, the ground intended to receive them should be deeply dug or trenched; a dressing of good manure should be well mixed with it, and, if possible, a portion of chalky soil should be added. Two essentials to their success are deep soil and thorough drainage. The shoots from which flowers are expected should be carefully nailed to the wall or tied to pillars, care being taken, if the buds are formed, not to rub them off. During spring and summer a good mulching with manure will be found to be advantageous. The shoots made after the plants have done flowering should be carefully nailed or tied in, so that they may extend and strengthen themselves without injury.

Let us now advert to the varieties of the Jackmanni section, which bloom from July until October. I have already mentioned that the sorts included under this heading flower on the young growth of the current year. If the growth is too thick and some thinning is required, then the weak shoots should be thinned out and the strong ones retained, because it is these that give the finest and most numerous flowers. The following is a choice selection of these autumn-blooming kinds, viz., Alexandra, pale reddish violet, free blooming; Gipsy Queen, rich, bright, dark velvety purple, a very attractive variety; Guiding Star, a fine variety of a purplish hue shaded with crimson, and with a band of maroon down the centre of each petal; Jackmanni, deep violet-purple, flowers produced in masses, one of the best for decorative purposes; Lilacina floribunda, pale greyish lilac, deeply veined, flowers large having six petals, and perfect in shape, the lightest variety in this section; Magnifica, reddish purple with red bars, flowers very large, stout, and well formed; Prince of Wales, deep pucy purple; Rubella, velvety claret-purple, distinct, and very free; Star of India, reddish violet-purple, with red bars, distinct and effective; Tunbridgensis, deep bluish purple, free blooming; Velutina purpurea, blackish mulberry, distinct; and Victoria, a handsome free-blooming variety, flowers large, composed of five or six petals, well formed, and in colour deep reddish mauve.

There yet remains the lanuginosa section, a useful one, in which there are some very fine varieties. They are hardy in constitution, tolerably vigorous in growth, and they produce blossoms of very large size; so that liberal cultivation is for them a matter of absolute necessity. They will, indeed, succeed in any good, sound, well-drained garden soil which is freely and annually manured, but they would, no doubt, prefer a light, mellow loam to any other, and therefore, in the case of very light soils, it would be best in trenching it to mix with it some good loam. As a matter of course, the more fertile the soil the less manuring will be necessary, but all Clematises are gross feeders. The varieties of C. lanuginosa are well adapted for conservatory decoration, for planting against walls and pillars of verandahs and trellises, and they also make very fine pyramids. When so employed they should be tied to stout stakes, and they should be annually pruned down to about 3 feet from the ground, to prevent them from becoming lanky and bare, the tendency of the new growth being to develop itself with excessive vigour at the extremities. When thus cut rather low, so as to secure a supply of foliage at or near the base, the beauty of the plants is much enhanced. A few of the best varieties of the lanuginosa section are as follows, viz.: Blue Gem, pale cærulean blue, very free flowering; Excelsior, colour rich deep mauve, large, finely shaped, and occasionally double; Grand Duchess, white slightly flushed with rose, a strong-growing, large-flowered, and very effective variety; Lawsoniana, rosy purple, with darker veins, distinct and very showy; Lord Nevill, rich dark plum, large and well formed, stamens light with dark anthers, edges of the sepals finely crimped; Louis Van Houtte, deep violet-purple with darker veins, very free; Madame Van Houtte, white, extra fine; Princess of Wales, deep bluish mauve with a satiny surface, a very fine Clematis; Sensation, rich satiny mauve, flowers large and showy; and William Bennett, dark blue changing to lavender. It will thus be seen that this section of Clematises includes some very fine showy varieties.

Brief reference may be made to the small C. Viticella section. Varieties belonging to this class attract rather by the profusion of their flowers than by their individual size. These plants, while it is requisite they should be fed to the very utmost in order to meet the excessive demand upon their powers, should be pruned hard back every autumn, unless a considerable space is intended to be covered, and the young shoots should be trained up to their full extent in the early part of the summer until flowers begin to appear, when, as all the lateral growths develop flowers, it may be better to let them fall in graceful wreaths of pendent spray. It is, therefore necessary that the plants should have a rich soil and be highly manured.

The following varieties are well worth cultivation, viz.: Lady Bovill, greyish blue, flowers a little cupped, very free; Madame Grange, crimson-violet tinted with red in the centre, distinct and beautiful; Madame Thibaut, lilac with a distinct bar of rose on each petal; Mrs. James Bateman, pale lavender; Othello, dark velvety purple, medium-sized flowers, fine shape; and Thomas Moore, rich pucy violet with white stamens. R. D.

Tropæolum tuberosum. — "J. W." says (p. 361) that this is a sparse bloomer, except when planted in poor, dry soil and in a sunny situation. That is not my experience with it. I have it planted almost everywhere, and the piece which has bloomed best is in heavy clay soil; it climbs round the stem of an Apple tree, and gets but little sun, as it has trees nearly all round it; hence it is evident that sunshine is not essential. However, where some tubers were planted in rich soil and somewhat shaded, they have bloomed badly; but I think it seems to like heavy clay, though, of course, it would be a risk to leave it there in a hard winter.—Greenwood.

Iceland Poppies (Papaver nudicaule).—I have now before me a fine bunch of these beautiful Poppies, which, notwithstanding the fact that the flower season is nearly over, are still making a grand show, and, judging from the number of buds which I see upon my plants in all stages of development, they bid fair to defy the onslaughts of frost for weeks to come. These Poppies range in colour from the purest satiny white and yellow to the deepest glowing orange-scarlet, and have a delicious lilac-like fragrance. Plants of them form very ornamental tufts of Fern-like foliage, from amongst which the slender flower-stalks rise to about a foot in height and bear elegant cup-shaped flowers, the petals of which glisten like crushed satin. The profusion of blooms which they produce is really astonishing. I have frequently counted a hundred flower-stems upon a single plant, and they are produced in never ceasing succession from the beginning of June to October, especially if the old flower-stems are regularly cut off, one or two seed-pods left upon each

plant being more than ample. Not only are these Poppies attractive in the garden, but for elegance in a cut state they are simply unsurpassed, and they last quite a week if cut directly after they open. What can be more beautiful than an arrangement of these Poppies in various shades with some of the ornamental Grasses (either wild or garden-grown) in slender glass ornaments? I have had them thus associated all summer, and very attractive they have been. I may add that they produce abundance of seed, which germinates readily, and seedlings flower well the first year.—C. G. Morris.

EARLY-FLOWERING CHRYSANTHEMUMS.

I confess to having had a prejudice against these. Chrysanthemums in summer or early autumn seemed as incongruous as Camellias in June or Hyacinths in July. But after all there is perhaps more of sentiment than of sense in such feelings, and assuredly early Chrysanthemums have made their way. Every year one meets with more and better varieties of these in house and garden, and it seems probable that, what with the later and earlier classes, the season may be garlanded round with Chrysanthemums almost as brilliantly, though not so fragrantly, as with Roses. They are becoming great favourites for cutting where cut flowers are in large demand; as, indeed, where are they not now-a-days, as hardly any flowers can match them in staying properties. I saw in places recently visited large masses of Madame Desgrange and the golden Madame Domage grown in borders specially for cutting. Hitherto there has been a considerable dearth of colour among the early Chrysanthemums in general cultivation; but the florists now grow three or more dozens of varieties of almost every conceivable degree of size and colour. Among others who have made a specialty of these plants, Mr. Ware, of the Tottenham Nurseries, has taken a leading place. Early in October the following were noted as specially distinct and beautiful:—

Anastasio, dark purple
Comarie, bright, and very dwarf
C. Wermig
Golden Madame Desgrange, the counterpart of the white variety, light primrose-yellow. The white and this are two of the most useful
Early Blush
Fred Marronet, yellow-carmine
Flocon de Neige, very dwarf pompon
Flora, small yellow pompon
Frederick Pele, rich crimson, tipped with gold
Fiberta, rich soft yellow
La Luxembourg, bronzy yellow
Mignon, small yellow pompon
Madlle. Leoni Lassali, pure white
Madlle. Jolivart, pure white, fine
Mrs. Cullingford, fine white
Nanum, soft blush
Precocite, very bright yellow, extra fine
Roi des Precoces, brilliant Japanese
Surprise, rosy lilac, beautifully quilled
St. Croutts, white, tipped with pink, pure white fully expanded
Souvenir d'un Ami, one of the finest whites
Scarlet Gem, very small and brilliant
Tresorier Lacoste, light purple
Virginia, white pompon

D. T. F.

A charming combination.—A plant of Trepæolum Lobbianum had been planted at the foot of an Araucaria imbricata, and having got on to the lower branches, it had pushed forth several growths, which gradually spread themselves over the whole of the branches of the Araucaria, which was 6 feet or so in height, in the most negligent and yet most elegant manner. It was an admirable illustration of Nature's method of managing such matters. A common Trepæolum which, had it been growing upon the ground, would not have arrested attention, is here set off to so much advantage without material aid, as to command admiration; indeed, it is doubtful if human agency could have assisted to produce anything so full of natural beauty.—R. D.

Fixing botanical specimens.—Would you kindly inform me what gum or adhesive substance is best for fixing pressed flowers to paper or cardboard, and of the latter, which is the better?—J. G.

* The side to be fixed to the paper should be wetted with warm thin glue, and when the specimen is placed upon the paper it should be pressed down with a sponge first and the surplus glue removed, finishing off with a dry soft cloth. White cartridge paper is best.—Ed.

NOTES.

Tamarisk tree.—Now and then we meet with this feathery tree in Southern England near the sea, but it is not planted to the extent it deserves, for of all our half-hardy small trees we have nothing possessing the exquisite grace of the Tamarisk. It roots freely from cuttings planted now. In warmer countries than ours it is one of the easiest things to grow. It is one of the plants used along the sandy margins of the Suez Canal to bind the ever-shifting sand. The various species of Tamarix are mostly focussed naturally in the basin of the Mediterranean, where they attain a considerable size, and become beautiful objects when their salmon-pink plumes of flowers at the tips of the branches stand out in feathery masses against a deep and clear blue sky. In Southern and Western Europe these Tamarisk trees resemble, and seemingly represent, the Beefwoods, or Casuarinas of the East and Australasia, just as the humming-birds of South America are represented by quite a distinct race of sun-birds, which in habits of life, in size, and in plumage closely resemble them in the Eastern Tropics. At Bournemouth and other sea-side resorts we see Tamarisks used effectively in planting near the shore, and in Devon and Cornwall, and I believe in Scilly, it also forms a low tree of considerable beauty. One way of establishing this tree is to cut stakes, or truncheons now and drive them firmly into the soil, as is done with Poplars, Willows, and Mulberries.

The flowers of Shakespeare.—We know all, or nearly all, the flowers of our great playwright fairly well, because in a work all lovers of gardens and of old-fashioned flowers should read called "The Plant-lore and Garden Craft of Shakespeare," the Rev. Canon Ellacombe, of Bitton, has collected and arranged all the great poet's allusions to the plants and flowers of, or before, his day. Shakespeare died in 1616, and was born about the time Plantin set up his celebrated printing press at Antwerp, from which were issued the earliest European works on botany by Dodœns, Lobel (L'Obel), and L'Ecluse, or Clusius, as he was more generally named. This Clusius was one of the earliest botanical collectors, he having made several itinerant excursions after plants into Spain and Austria before his folio work appeared in 1601. Gerard compiled his once famous "Herbal" during Shakespeare's lifetime, it having been printed in 1597, and Parkinson's "Paradisus" was first published thirteen years after Shakespeare's death, viz., in 1629. In France (Du Bry's "Florilegium," 1614), Holland ("Hortus Floridus," 1612), and in Bavaria ("Hortus Eystettensis," 1612) illustrated works on garden flowers had been published during Shakespeare's era, so that we know with considerable exactness the flowers grown and valued during Elizabethan times. But who can tell us of the flowers of Chaucer? Of course, we know his love for the Daisy, and one of his characters is described as a "primerole" or Primrose, just as in Yorkshire to-day a girl of more than ordinary vivacity is called a Daisy-lass, but I should be glad to hear of some other source of information as to the flowers grown about the years A.D. 1340—1400 other than that afforded by Chaucer's own works.

Helianthus multiflorus major.—I originally obtained this noble plant from Mr. Robert Parker, of Tooting, who, I remember, was quite proud to show it to the "Ruskin of Hardy Flowers" and myself when we called upon him some six or seven years ago. The original reference, with a woodcut figure, appears in Vol. XX. of The Garden, p. 481 (not p. 48, as in the General Index). Then on p. 500, same volume, is a note by "F. W. B.," who seems to have thought very highly of it at the time. This note brought corroborative testimony from "S. D.," on p. 520; and it may interest Mr. Dod to know that the last correspondent incidentally mentions in his note that it "seeds freely." But I am especially interested to hear what Mr. Dod himself has said of it, and on p. 66 (Jan. 24, 1885) he supplies a description which accompanies a coloured figure there given of this noble plant. I, of course, agree with Mr. Dod that the shorter and more explicit Latin names are the better; but I received the plant as H. multiflorus simplex maximus from Tooting, and I have since used it almost unconsciously, although I knew quite well that H. multiflorus major is the more correct and authorised name. But Mr. Dod knows perfectly well that if we go to Asa Gray as an authority—and I believe he is one of the highest on this group of Sunflowers—then we must call our plant "Helianthus decapetalus hort. var. multiflorus major." In The Garden (Vol. XXVII., p. 66) we have Mr. Dod's own testimony that this is the case; and while he protests now (Vol. XXX., p. 382) against the very necessary word "simplex" as used by me, he neither protested against nor adopted Gray's name as above, although he confesses, "botanically speaking," that it is the correct one! I am afraid Mr. Dod is afflicted, like myself, with a short memory, nor does he make good use of the file of The Garden, or he would doubtless have credited Mr. Parker with being the first, or at least one of the first, in the trade to introduce this noble plant into gardens. I never trouble my head about "science;" all I am anxious about is truth.

Late flowers.—The latest and best of flowers which, notwithstanding that we had 8° of frost on the 17th inst., are Gladioli of various kinds, the freshest being G. Ville de Versailles, a white variety with bright rosy crimson markings. It is always the last kind to open its flowers, and is well worth pot culture at this season, when, if we except Chrysanthemums, flowers generally are rather scarce. Seedling forms of the G. Lemoinei hybrids are also now fresh and beautiful, and come in very acceptably for cut flowers. Mignonette is sweeter now than ever, and there are white Chrysanthemums in bloom by the walls, and these outdoor flowers endure fresh and fair after being cut far better than do those from pot plants indoors. This is a point in favour of open-air culture which I have not seen alluded to before. The best of Roses are all over, but the old Souvenir de la Malmaison continues to yield us a few of its lovely flesh-coloured buds and blossoms. It is one of the very best, perhaps the best of late kinds. Erigeron speciosus is yet flowering freely, as it has done all the summer; indeed, the more the flowers are cut from this plant the more profusely it blooms, and the same is true of Harpur Crewe's Doronicum. Of all the Michaelmas Daisies the very best and freshest now in flower are Aster diffusus, and, better still, the white feathery A. ericoides, than which nothing is more elegant for large vases indoors. It has feathery Asparagus-like growths covered with greenish buds and small silvery white Daisies, and a few of its sprays add lightness and grace to any other flowers. Belladonna Lilies cut just before their flowers expand open out fresh and perfect in water indoors, just as do the Gladiolus and scarlet Schizostylis. Saxifraga Fortunei is just now at its best, its dark glossy leafage being surmounted by feathery white plumes of flowers. Viola Countess of Hopetoun is yet in flower, and with a few sprays of Mignonette makes nice sweet-smelling posies. While there are big bushes of Arbutus and Veronica Andersoni flowering freely, and just now at their freshest and best.

The Elk's-horn Ferns.—The Platyceriums are so distinct and noble in habit when well grown, that the wonder is they are so rarely seen in luxuriant condition in our glass-house gardens. Naturally, they are true epiphytes, a fact which is probably overlooked by the average cultivator. The first time I saw them growing wild was in Johore on the high trees near the saw-mills, but I afterwards saw fine cultivated plants in the collars of Orange trees both in Johore, Singapore, and in other islands of the Malayan Archipelago. In going up the rivers inland in Borneo amongst the first things the traveller notices are great Mistletoe-looking masses of growth on the out-hanging branches of the highest trees near the streams. At closer quarters these reveal themselves to be masses of the Elk's-horn Fern, and very beautiful they appear as seen through a good field-glass or binocular. Some of the plants are big enough to fill a cart, and look odd, as perched up bird's-nest-like in the air and sunshine. Now and then, after heavy rain, these great masses become too heavy for the comparatively slender, horizontal boughs on which, as seedlings, they first had life, and then the crashing sound they make in falling is only surpassed by the occasional fall of the large forest trees themselves. Seeing that they exist as epiphytes naturally, when grown in pots it is as well to plant them in charcoal, peat, and Moss, much as one would Orchids or Bromeliads. An even better way with small specimens is to fasten them firmly to a piece of board, or on teak wood rafts with a little peat and Sphagnum. So treated, they grow quickly and are admirably adapted for covering bare back walls or gables in warm plant stoves, or Fern houses. One of the finest species is P. grande, and P. biforme is another noble species, but even the common P. alcicorne soon makes a fine specimen as grown in a hanging basket or on a raft.

Sweet-smelling leaves.—The late Miss Frances J. Hope in her "Gardens and Woodlands," a work filled with shrewd and genial observations on gardening and garden flowers, is one of the very few horticultural writers who have thought it worth their while to allude to beautiful or fragrant leafage. Being a highly sensitive lady, she felt the full value of the naturally sweet odours of the garden as opposed to those of the shops. I am quite as fond of rich colour as anyone; even a glasshouse full of zonal Pelargoniums at this season of the year is a positive delight to me; but, much as I value colour, I like it even better when augmented by the graceful leafage of Palm and Fern, and, most of all, when colour, form, and subtle fragrance appeal alike to eyes and to memory at the same time. Colour is subtle enough, as everyone knows, but the fragrance of leaves is even more deliciously so, whether it be the refreshing briskness of a Lemon leaf when crushed, the piquant odour of the sweet Verbena (Aloysia), the soft and voluptuous fulness of Patchouli or Cherry Pie (Heliotrope), the spiciness of Cinnamon, Cardamom leaves, the tonic bitterness of Diosma, or the healthy resinous odour of Pine needles, Camphor, or of Blue Gum leaves. A garden or a greenhouse even without its quota of sweet-smelling leaves lacks something immeasurable, but most desirable withal. The most untangible of garden delights are, after all, the most precious ones. The best of all things in art are the morsels of truth which remain untold, the trifles light as air which, fairy-like, elude chisel, or the brush, or the pen. Of course, such things as Cinnamon and Allspice require a hothouse in which they may thrive, but the cottager or artisan even may grow sweet Verbena and the best of a dozen or more sweet-scented Pelargoniums of the Stag's-horn or Lemon-scented types, while in the very tiniest of out-of-door gardens, in a window box even, one may grow silver or golden Thyme, or a rooted spray of Rosemary for remembrance. In every garden worthy of the name there should be a corner or two sacred to fragrant leaves.

Autumnal Croci.—Despite the swirling winds and pelting rains, these fresh and shapely little flowers are very beautiful. I saw a good clump of the little Crocus Clusii the other day that actually seemed to give one a foretaste of spring. It was flowering dwarf and vigorous in the sun, and formed quite a dainty little picture as it nestled on its gritty bed in amongst the rockery stones. C. longiflorus and its variety pulchellus have both been very floriferous and showy, but two of the most distinct of all the species now in flower are the purple C. iridiflorus (byzantinus) and the pale flowered C. cancellatus. This last is a very variable plant, differing in colour from nearly white through all shades of lilac to a distinct blnish purple. Mr. Maw in his "Monograph of the Genus Crocus," p. 185, tells us that "C. cancellatus has a great range of altitude; on the flanks of Phanoromani, in Santa Maura, it is abundant within 600 feet of the sea level, and in the Taurus it occurs up to a height of 8000 feet. Its flowering season extends from the beginning of September to December. It is a robust species, easy of cultivation." The Iris-flowered Crocus (C. byzantinus) is, as I think, very distinct and beautiful; its three inner perianth segments are much smaller than the outer ones, and this gives quite an Iris-like contour to the deep purple flower. C. pulchellus is another free-growing species of a deep blue colour with a fiery orange stigma, and as it is now more plentiful than many others, it is cheaper also; but, in addition to this advantage, it also happens to be one of the most beautiful kinds we grow. It has been flowering for nearly six weeks, but is now nearly over. These autumnal-blooming species are lovely as grown in pots, and as so seen near the eye, and sheltered from wind and rain, they are very beautiful.

Plant names.—Whatever Mr. Wolley Dod writes anent garden plants is, as a rule, well worth our reading, but there are at least two sides to the protest he utters on p. 382 as to the correct name of the greater perennial Sunflower (Helianthus multiflorus major). For example, such names as Sunflower Dorothy or Sunflower Mikado would prove most misleading if adopted for varieties of Helianthus multiflorus unless with the addition of the prefix perennial, since were they adopted, as he suggests, there would be no distinguishing these from the now numerous forms of the Sunflower (Helianthus annuus) or the varieties of any other species equally different. Among the names especially offensive to men of common sense as well as of science come a whole group of bastard names, of which Helianthus multiflorus is itself a patent example. Helianthus is a compound name from the Greek, while multiflorus is from the Latin. This is as correct as it would be for me to call my friend Monsieur Boulanger Master Boulanger, or Monsieur Baker! Fancy the raking up of the roots of two dead languages to get a bad scientific name for a perennial Sunflower! I am quite in favour of good English names for all garden varieties, but they should be definite and correct, and not of the slip-shod kind such as Mr. W. Dod suggests (p. 382). I fully and freely acknowledge that the name Helianthus multiflorus simplex maximus, as used in The Garden by me, is not the right name, but at the same time the fact remains that it is more correct and expressive than is the generally accepted one of H. multiflorus major, just as the English name of greater perennial Sunflower is infinitely preferable, because more definite than either of the popular names Mr. Dod himself proposes. At one of the meetings of the Daffodil committee, Mr. Dod suggested Leda as a better name for a white Daffodil than White Swan, the name proposed by its exhibitor, and I argue that the latter is infinitely preferable in every way. In a word, it is far easier to coin misleading Latin names, or scientific ones that are ridiculous or useless, than it is to apply correct English ones. Veronica.

Garden Flora

PLATE 568.

NEW DOUBLE CHINESE PRIMROSES.*

The double white and rose-coloured forms of Primula sinensis fimbriata were in cultivation for some years before additions were made to them. The first step in advance was a new double form named atro-rosea-plena, first exhibited in 1860. It possessed a robust and vigorous constitution, and produced large, double handsomely fringed purple flowers; the origin of this variety is uncertain. Then came two semi-double varieties, viz., nivea plena and rubella plena; these were found to possess the property of reproducing themselves from seeds. They appeared in 1861, and seedlings from them were also semi-double and varied in colour. Then followed in 1862 delicata, The Fairy, and rubra grandiflora, all raised from seed. They bore very fine and fully double flowers, and yet were capable of reproducing themselves from seed, for in 1863 seedlings from them, in which the colours were exactly reproduced, were exhibited, but other seedlings from them developed some distinctness of character; one named purpurea erecta had finely fringed flowers of a purplish rose colour; another named Queen of England was of a pretty bluish tint and very fine as regards flowers. In 1865 and 1866 were exhibited several new double forms, such as Glen Eyre, kermesina splendens plena, maguifica, alba gigantea, &c. These were raised at Glen Eyre, Bassett, Southampton, by Mr. Thomas Stewart who, observing that some of his single varieties came with a twisted petal or two in the centre, carefully fertilised these with pollen taken from others of a like character, with the result that the foregoing varieties were obtained from such crosses. Since that time Mr. Gilbert's fine varieties, chiefly light-coloured kinds, made their appearance and speedily became favourites. During the past six months Messrs. Sutton, of Reading, have flowered a number of semi-double seedlings so varied in character and so pleasing, that there is reason to think they will eventually take the place of the single forms as decorative plants. Their history may be told in a few words. They are the result of taking advantage of the smallest abortions in the form of duplicate petals thrown up from the centre or eye of the single sorts. For years past a double carmine form named Prince Arthur has been well known to Primula raisers, and though occasionally a new semi-double form put in an appearance, the multiplication of these has not been systematically followed up until Messrs. Sutton took the matter in hand and obtained a break remarkable alike for variety and high class quality. Some of these have been selected for the accompanying illustration.

Most of the fine double varieties of which mention has been made do not produce seeds, and, therefore, have to be increased by means of cuttings. The more double the flowers are the

* Drawn in Messrs. Sutton & Sons' Nursery, Reading, March 31, 1886.

less likely are they to produce seed; but the Reading-raised varieties, while producing perfect semi-double flowers, are all fertile, and can be reproduced from seed. The flowers show the usual flat pip, with its symmetrical and stout florets. From the centre, but round the circumference of the eye, rises an upright circle of florets, like a collar, but with the colour outside, not inside, and thus exposed to view. As the flowers age the centre appears to fill up more and more, thus making the flower appear to a larger degree of a double character, but without destroying the capacity to produce seed. Now, many of the blossoms of the single forms of the Chinese Primrose are short-lived; the flowers fall almost as soon as they become fully developed. Not so the semi-double varieties, the flowers of which are quite persistent, even in a cut state, and, therefore, much more lasting than those of single sorts, while the colour is bright and effective. It is this characteristic that leads us to think they may in time, if well followed up, displace as decorative plants in a large measure the single forms.

The following varieties may be found in the Reading collection, viz: Scarlet, very fine and bright; Carmine, a decided improvement upon the old Prince Arthur; Lilac, pale lilac, with a distinct white margin to the petals; Red, dark reddish lilac; Carnation Flaked, a charming variety, pure white, with purple stripes, extra fine; Crimson, very fine in colour, a seedling from the Giant Single White, and most effective; Shaded Carmine, a very pleasing shade of clear pinkish carmine; and Rose, a kind which opens delicate pink and changes to rose with age. With the exception of the Rose and Lilac, all these have dark leaves and leaf-stalks; the rose and lilac have pale leaves and leaf-stalks. But, singular to state, there are among them this season two double blue forms that have appeared for the first time; one having dark palmate; the other, dark Fern foliage. It is the shade of colour of the single blue, but semi-double, and therefore a novelty.

That the new strain of double Primulas raised at Reading can be reproduced from seed is a great advantage, inasmuch as it obviates the necessity for propagating by means of cuttings. One of the most successful growers of double Primulas propagates his plants as follows: late in spring when the plants go out of flower, a layer of fine charcoal is laid upon the surface of the soil in the pots; then the operator takes a sharp knife and cuts half-way through the stems of the lower-most branches, nearly close to the plants, but not severing them entirely. In a short time the wound made by the knife calluses over, and roots are pushed into the soil beneath; then the shoots are entirely severed from the plants and potted, and in six months or so they make fine specimens, being at their best in November and December. It is to be regretted that these fine double forms of the Chinese Primrose are not more grown than they are. They are not only valuable decorative plants in winter, but their flowers when taken singly and wired can be employed in many ways for indoor floral decorations. R. D.

Double Chinese Primula.

WORK DONE IN WEEK ENDING OCT. 26.

October 20 to 26.

The 22nd was the only really fine day of the week. Gales and rain-storms of greater or lesser severity on every other day have sadly hindered our open-air work; at least, that description of work, such as fruit-tree and shrub-planting, that we like to get done in early autumn, but our soil being light and workable in all weathers except when frost-bound, we have managed to make good progress with trenching in the kitchen garden, also in digging and preparing soil for fruit-tree planting and potting purposes. On Wednesday morning, the 20th, the heaviest storm that has occurred for many years in these parts—nearly 1¼ inches of rain in two hours—has caused us a lot of extra work in the way of repairing roads and walks, some parts of which were completely ploughed up, and this work, however fine the weather may be, will for some time to come make us behindhand with garden work proper. We have, however, managed to get up all tender plants from the flower garden, and have partly replanted the beds for the winter, mostly shrubs, though Hyacinths, Tulips, and spring flowers form a part of the arrangements. Besides doing such cleaning up of walks and the most frequented parts of grounds as must of necessity be kept in something like neat order, there has been no time to do any other outside work. Indoors our energies are taxed to the uttermost to find sufficient space for all plants that must be housed. Late Grapes are not yet ready for housing, even though we had Grape room space for them—which we have not—and, therefore, no plants can be put in these vineries; the consequence is that other houses are getting overcrowded, but there being no help for it we work accordingly, by watering sparingly, picking over the plants often to remove decayed leaves, and turning the heat on in the daytime when fine, the ventilators being wide open the while so as to expel damp. Chrysanthemum flowers have damped off badly, but this, I think, has been partly caused by the buds getting saturated with water prior to housing. I am confirmed in this opinion because the latest flowers are not damping, though it is well to be on the alert by taking preventive measures against damping by the means just mentioned. Our Strawberry house is now very gay with Bouvardias, Cyclamens, Carnations, and double-flowered Pelargoniums. We keep the temperature about 60° by night and about 5° higher by day; the artificial warmth that we constantly keep on enables us to give abundant ventilation, and this keeps the plants in a sturdy condition, which vigour is the best antidote against attacks of mildew. Primulas and Cinerarias in heated pits we treat the same, *i.e.*, using heat combined with free ventilation and damp rarely troubles us. Potting and boxing up such old plants from the flower garden as are likely to be of service, owing to the young stock being short. As a rule, we throw the bulk of the old plants away; there are exceptions, however, as, for instance, old plants of Fuchsias are much to be preferred to young ones, because they furnish the beds quicker and flower more profusely; the same is true of large plants of Heliotropes, which we use as central plants for large vases and beds; old plants of Grevilleas and Abutilons are also most useful in the same way, and if space can anyway be afforded, a quantity of these we always save. Notwithstanding the recent heavy rains, Grapes still hanging on the Vines give us very little trouble, but we look them over frequently to cut out all decayed berries. Thorough ripeness is the best preserver or preventer of decay, of course, when coupled with a fair amount of attention in respect of timely removal of any berries that are decayed. A number of Smooth Cayenne Pines that have about completed their final swelling before colouring has been given a thorough soaking of warm liquid manure, which watering—at this season of the year—will probably be all that they will require, though if they should get dry we shall not scruple to water them, but it will need to be done with judgment, as too much would make the flesh black at the core. A comparatively dry atmosphere and a mean temperature of 70° will now be maintained. Succession plants that have completed their growth, and are expected to show fruit from Christmas onwards, are now having the moisture both at root and atmosphere gradually reduced, to give a short rest, but on no account do we ever allow them to get dust-dry. The younger succession stock will be kept growing on for a month or so yet. All our Pines are grown in pots—a plan that, besides other advantages, enables us to retard ripe fruit by shifting the pots into cool vineries or fruit rooms, according as may be deemed desirable at the time. Hants.

FRUITS UNDER GLASS.

Pines.

With the exception of winter fruiters, which must be kept at 70° by night and as much higher as moderate fire heat and gleams of sunshine will carry the temperature through the day, all the plants in every compartment will now be comparatively quiet. The swelling of the best winter varieties through the dead months in the mildest weather is uphill work, the progress slow, and unless the structure is light, well equipped with hot-water pipes and the bottom-heat sharp and steady, proper development ceases and the fruits ripen prematurely. Owners of these unsatisfactory houses, of which there are not a few, even in these days, should either put them in proper order or give up the attempt to ripen fruit in winter, and confine themselves to the more profitable growth of summer Queens. Of these every Pine-grower cultivates a few, and as the most forward plants will still be resting, care must be taken that the bottom-heat does not sink lower than will be good for the tender roots now coiling round the insides of the pots and through the drainage. Should this condition show signs of creeping on as the weather becomes colder, prevention being better than cure, now is the time to counteract it,

not by renovating with fresh material, as that would most likely produce a contrary effect, but by moistening the old tan or leaves with warm water and the addition of a layer of half-spent material over the surface of the bed. If the bottom-heat ranges from 70° to 75°, it will be wise to leave well alone, but should extra firing raise it above those figures, the lower valves may be closed until it subsides. Although it is not a good plan to move large plants more than one can possibly help, it sometimes happens that the best of managers are obliged to transfer their most promising starters to another section to throw up and swell the fruit. If under one and the same roof, this can be carried out in defiance of the elements, but then even timely preparation is an important factor, especially where fermenting material is the principal agent employed for giving bottom-heat. Cleanliness being imperative, the pit, which is about to do nine months' service, should be cleaned to the bottom, well scalded to destroy cockroaches and crickets, two troublesome marauders, and the walls washed with quicklime. The glass, woodwork, and other parts of the structure will, of course, receive proper attention, but all these matters are mechanical and can be carried out by willing hands; not so the plunging material —the hinge on which success or failure may be said to hang. To this, then, the greatest care and judgment must be devoted, as too much or too little heat may ruin the most promising prospects at the outset. If tan fresh from the pits or tree-leaves are used, the first should be secured and placed where it can drain and ferment, and be frequently turned to prevent it from burning, a considerable time before it is placed in the pit. The second, if well harvested last season and kept in a dry shed, must be carefully selected, the flakes thoroughly shaken to pieces and slightly moistened if too dry to revive fermentation. In either case the materials should be kept under cover and properly sweetened by fermentation and frequent turning to favour the escape of injurious gases. When fit for use, removal to a warm house will revive fermentation, but this in a great measure may be prevented by firm treading and closing the bottom-heat valves. A bottom-heat thermometer and patience will settle the rest, and when the mercury registers 85°, the plants may be lightly plunged in shallow basins scooped out without disturbing the bed.

Successions in various stages and sizes must now be let down to their proper winter temperatures, which may range from 60° to 65° by night and 70° to 75° by day, more or less, according to the state of the weather. The larger and stronger will, of course, be kept at the maximum figures, whilst the smallest, including autumn-potted suckers, will take no harm if the minimum is touched, especially in dark, dull, or severe weather. The plants—indeed, all the stock—should be kept as near the glass as possible, and much fuel and anxiety will be saved by covering the pits through the night.

Vines.

Early and second early Vines, it is well understood, must be pruned and got ready for next year's forcing as the leaves fall, and, if practicable, some weeks before they are again excited into growth. Many gardeners are obliged to turn their early houses into plant stoves throughout the autumn and early winter, and not unfrequently make a compromise by no means beneficial to the Vines, which cannot be kept too cool during the season of rest. If houses can be kept dry and open to a continuous circulation of air until the time arrives for starting, the severest weather only will necessitate firing, and then the object will be the preservation of the pipes from freezing, as a few degrees of frost will do the Vines no harm. If, on the other hand, they must be occupied, then the plants should be capable of accommodating themselves to cool greenhouse treatment, and subjects that will not require frequent supplies of water. If eyes for propagation are wanted, a few of the firmest pieces of wood should be selected and laid in for future use, as thorough maturity is one of the great secrets of success in pot Vine culture.

Ripe Grapes, particularly thin-skinned varieties, will now require continuous attention, as too much fire heat will cause them to shrivel and too little will let in damp, which will speedily destroy them. Of the two, a moist, stagnant atmosphere is the most fatal, no matter how often the bunches are looked over for decaying or mouldy berries. But why allow them to hang when bottling before the stalks become black or mould has set its seal upon the berries answers so much better? Hamburghs, for instance, now quite ripe and as well fit for bottling as Lady Downes are at Christmas, may be cut and placed in the late or Muscat house, where they will keep for several weeks in the best possible condition. The bottles, I may observe, should be filled and made dry externally before they are taken into the house, and all the leaves, but none of the laterals, must be removed as the Grapes are cut from the Vines. Lacking a late vinery, a dry store or Grape room will answer equally well, but I give preference to the former, especially at this season, as Grape rooms are not yet in working order.

Late Grapes.—If Lady Downes and other late keepers are not by this time quite ripe and properly finished, fire-heat with diminished ventilation will not produce the desired effect. Fire-heat to a certain extent will, of course, be necessary, as the leaves now falling produce and hold moisture, which must be dispelled, otherwise the berries will soon perish. Although I do not approve of the detachment of leaves with the hand, I am always very glad to see the last of them when they begin to fall; hence the importance of cutting out all growing laterals which retard the process by keeping the sap in motion, also the maintenance of a dry, buoyant atmosphere that will prevent condensation of moisture on the berries. Houses in which the foliage is still fresh and green do not come under this mode of treatment, as the Vines have not nearly finished their work, and will most likely remain active until frost throws back the sap. But this is not ripening; it is a rude shock, which will speedily clear the Vines of their leaves, when the berries, be they black or red at the footstalks, will almost immediately show signs of shrinking. Growers who begrudged fire-heat in the spring and now find themselves in this plight will do well to choose the least of two evils, and that is, I need not say, a continuation of fire-heat with as much air as conditions will admit, and just sufficient warm water to keep the surface-roots in action. Another step they may take, and that is an examination of the external border, as Vines that make roots late in the season not unfrequently lose them during the winter, and have to undergo the exhausting strain of making new ones late in the following spring. In this way many late Vines lose the vernal force, rest when they ought to be growing, and persist in growing when they should be ripe and resting. If an examination reveals the fact that the roots have got into the drainage, or perhaps out of the border altogether, and this is the cause of late growth, the remedy lies in lifting, in cutting off unwholesome food, and in relaying in fresh porous compost. Many are afraid of interfering with the roots before the Grapes are cut, but, provided the internal borders are satisfactory, there is not the slightest cause for alarm; indeed, I have known bad cases of spotting and rotting completely stopped by lifting and relaying the external roots of late Vines in October. Another advantage gained by the replacement of large masses of inert soil with a smaller quantity of new compost is the perfect colour and finish of the berries the following year, the early maturation of moderately strong wood, and, although the bunches may be smaller, they will be compact and in the best possible condition for keeping both on the Vines and after they are cut for bottling. At the present time I know a Muscat border which has been reduced in width, all the inert soil has been removed from the surface and replaced with a thin layer of new compost, and the result is highly satisfactory. The berries in September did not seem inclined to put on their rich golden colour, but persisted in damping at the footstalks or near the points, and the laterals kept growing. A few, only a few, roots had passed through the retaining wall of turf into some decaying manure lying at its foot, but they were the aggressors, and their removal has not only put a stop to damping, but the berries, not less plump, are now the colour of virgin gold.

The Orchard House.

Fruit trees in pots are going to rest under unusually promising conditions, and, provided they are properly wintered, will no doubt produce good crops next season. The amateur for whose benefit these lines are written may wish to have a practical interpretation of the word "properly," as he must by this time have learned that casting the trees aside as soon as the leaves are off and allowing them to stand high and dry is not the best method. And yet some early treatises on pot culture, still in circulation, and by which so many amateur fruit growers are guided, lead to the conclusion that soil as dry as a mud wall and a sharp, whistling wind are beneficial rather than otherwise during the winter—fatal rock on which many a promising set of trees has been wrecked and ruined, and from which many an enthusiast has turned in disgust, as no tree so quickly resents dryness at any time as the Peach. But why winter well ripened trees in houses at all, when the latter may be turned to profitable account in other ways, and the owner may steer clear of rocks and breakers by placing them out of doors? If any there be who have not yet departed from the high and dry path, let me advise them to do so without delay, for now is the time to make a beginning. Let them select a clear open spot well sheltered from the north and east, but fully exposed to a free circulation of fresh air. Upon a good bed of lime rubble, coal ashes, or concrete impervious to worms, the trees may be arranged in the order in which they will be required for taking in again. If by chance or intention any of the balls have become dry, they must be watered until the soil is properly moistened, as the roots of stone fruit trees keep working and feeding the buds all through the winter; whilst anything approaching a check causes the most prominent to drop, perhaps not at once, but when they ought to be expanding into perfect blossoms. When placed, all spaces between the pots must be closely packed with Fern, litter, or other material that will keep out frost and prevent the escape of moisture, and a few strong fronds of Pteris aquilina drawn amongst the shoots will protect the blossom-buds during the most inclement weather. These, it must be observed, should only be introduced during the continuance of severe frost and taken out as soon as it is over. Once plunged and well covered up a few inches above the rims of the pots, winter rains and snow will keep the roots safe from drought and the buds will begin to swell gradually towards February. When this stage is reached, trees for forcing having been taken in before, the latest must be housed and kept as cool as possible, but on no account must they feel the want of water. The greatest, perhaps the only, enemies to trees during the time they are exposed are bullfinches and sparrows. These sometimes attack the buds of Peaches and Pears, but more frequently those of Plums and Cherries. They do not, however, like the looks of herring-nets, and prevention being better than cure, these should be cast lightly over them at the commencement of the winter.

W. Coleman.

Eastnor Castle, Ledbury.

Gold and Silver Ferns.—I have derived some useful practical hints from the remarks on Gold and Silver Ferns, published in The Garden the other day (p. 373). I quite agree with the writer's views respecting the two kinds of Maidenhairs; I find them to grow well in a cool, even a very cool, temperature. The names given in the article in question include the majority of powdered Ferns, but one to which I should like to direct attention, viz., Cincinalis

Hookeri, an elegant kind, is omitted. It is figured in Lowe's "Ferns," and is often confounded with Cincinalis nivea, from which, however, it is abundantly distinct both in shape and density of fronds; and besides the white powder of the under surface, the upper sides are frequently as white as if dusted with a miller's bag. I find the different kinds of Cincinalis rather tender subjects to carry through the winter; indeed, this one in particular with me seems to be more like an annual than a perennial, but I consider its loveliness amply repays for any care or trouble bestowed upon its cultivation.—Thomas Fowler, *Halifax.*

Fruit Garden.

APPLES FOR THE FUTURE.

In the fruit reports given in The Garden some time ago, a correspondent remarks with regard to Apples, "bush and pyramid trees are bearing well." No one apparently refers to a good crop of Apples on standard or orchard trees, and I believe that standard trees are for the most part barren this year in all parts of the country. What, then, is the best form of tree to grow for the future? If we are to be guided by the experience of a single season, of course the question admits of but one answer, but that would be taking an extreme view of the case. No one can ignore the fact that standard trees have done occasionally good service, and we may reasonably hope that they will do so again. Still, we cannot afford to overlook the good services that dwarf forms of trees have rendered us when others have been conspicuous failures. It appears to me that the past season's experience should be turned to profitable account, for although I have not a word to say against standards in their proper place, I am quite satisfied that they may be dispensed with without any risk of diminishing the quantity of fruit if proper means are taken to supply their place with dwarf trees. There are thousands of standard trees in the country that only bear a crop once in two years, and they cover as much ground as half a dozen pyramids or bushes would do. According to my experience, too, the dwarf forms of trees bear every year more or less fruit and a judicious selection of sorts that submit to being restricted both as regards roots and branches will invariably bear good crops; in this opinion I know I shall be supported by large numbers of cultivators. The reason why this form of tree bears more regularly than standards is not far to seek. In the first place, being chiefly grown in gardens surrounded by high walls or otherwise well sheltered, they are are not so much exposed to the influence of the weather as orchard trees; therefore they are under much more favourable conditions. But the chief point in reference to their constant fruitfulness is the fact that being in the garden they are better cultivated than orchard trees. They get more regular attention in regard to pruning at the proper time, and for the most part they grow in a better description of soil; occasionally, too, they get a little manure, which is given the land for the use of vegetable crops growing near them. In short, they get more shelter and a better soil than standards do—important factors in the production of a crop. Admitting, then, that bush and pyramid trees are more regular bearers than standards, it becomes a serious question as to which form we are to adopt for the future. My own conviction is that it must be some form of dwarf tree. It does not matter much whether it be a pyramid, bush or cordon, or even the old-fashioned espalier. It is a significant fact that for the past ten years all the most practical writers on fruit culture have gradually come to recognise the value of pyramid and bush trees as regular fruit-producers, and it is equally significant that so many fruit growers should in one season corroborate each other as to the value of these forms in such a direct manner, and that, too, from widely different parts of the country. I must not, however, be understood to be advocating the use of trees that have only bearing surface sufficient to fill a dessert basket. The tree I have in view is capable of bearing from one to two bushels of fruit; therefore, with the same space devoted to them as is now devoted to standards, the supply of fruit would be more regular, and, taking an average of seasons into account, equal to that from standards. With regard to cultural details, the more simple the lines on which the dwarf forms of trees are conducted, the more satisfactory will be the results. The man who is a stickler for perfect symmetry in his trees must be prepared to sacrifice a portion of his crop. Many trees that will bear our best and handsomest Apples do not take kindly to severe pruning. Amongst these I may mention Peasgood's Nonsuch, Emperor Alexander, Blenheim Orange, Gloria Mundi, and Tower of Glamis. These and several others that make strong growth are better grown as bushes than as pyramids.

Future success will depend a good deal upon the treatment which the trees receive during the first five years of their existence, as during that time the branches require more attention than the roots. The future form of the tree will in a great measure have to be provided for in the early stages of its growth. Pyramids will require to be formed as growth progresses, and bushes (if such as I have in view can be called bushes, for they must be at least 10 feet high) must have their branches directed into form for the first few years of their existence, so as to secure a good spread of the leading branches, and also to have the centre of the tree open so that light and air can circulate amongst them. With regard to the roots, the character of the soil will have a good deal to do with the time at which they will require attention. In a strong, rich medium they will make much more vigorous growth than in a poor one, and as the condition of growth in the branches must decide when to operate on the roots, it will be necessary to attend to them earlier when the branch growth is forced by a rich soil than under other conditions. But it is important to bear in mind that the trees should be allowed to form a fair amount of bearing surface before the roots are interfered with. Generally speaking, it is not desirable to check the roots in any way until the end of the fourth or fifth year, and then the trees should be lifted bodily and replanted, an operation which will effectually check any undue luxuriance for several years to come. In fact, it is a great chance if the same operation will require to be repeated for many years. Judicious root-pruning of such as are making too much wood is all that they will require to keep them in a fruitful condition. J. C. C.

Two good late Apples.—Two of the very best late-keeping Apples for orchard planting are the Alfriston and Norfolk Beaufin. The former is a large green fruit tinged with red on the side next the sun, excellent for cooking, and in April and May, when it has parted with some of its acidity, it is not bad eating. The tree is a good grower, and worked on the Crab makes an excellent orchard tree and bears freely. The Norfolk Beaufin is a well-known kind, which seldom fails to bear well. We have a large old tree of it standing out in the grounds sheltered by some old Elms, growing near it, and for the last twenty years and probably much longer it has never failed to produce annually good crops of handsome highly coloured fruit. This Apple improves by keeping till after Christmas. We had it fresh and firm last June.—E.

Apple trees from cuttings.—The sooner cuttings are now taken from the trees and planted firmly in a shady border the more time there will be for root-formation before March winds set in. The cuttings should be taken from healthy, fertile trees, and should be as large as can be spared. I have sawn branches off from 1 inch to 2 inches in diameter and 3 feet to 4 feet long. And if there is a knot, a cluster of spurs or an excrescence on the lower end of the branch, roots will generally form more readily there than where the bark is bare and smooth. Branches from 1 inch to 2 inches in diameter make bearing trees at once. I do not suppose that Apple trees from cuttings will ever take the place of trees grafted on a stock possessing more vigour than the scion possesses, but many may like to have dwarf Apples on their own roots, and if so, the sooner the cuttings are planted now the better. Such trees are well adapted for small gardens, as they occupy but little room and begin bearing directly. Kinds with Codlin blood in them seem to root the quickest, but other kinds will root readily if taken from healthy trees, and planted rather deeply in a cool border under a north wall, and mulched with manure. I have tried cuttings from young wood, but they are too uncertain and take too long to grow into fruiting plants to make it worth while to follow such work up. It is very important that the cuttings be planted firmly in the ground, and at least 8 inches of the stem should be buried.—E. H.

PEARS VARYING IN FLAVOUR.

I can confirm "G. J. B.'s" experience in this matter (p. 396), though I cannot unravel the causes of it. Some sorts, however, are much more variable than others, and your correspondent has selected three, perhaps, of the most variable in cultivation. Gansel's Bergamot I have met with in almost every conceivable degree of worthlessness and excellency, and it is pronounced by many so inconstant as to be but little grown, but when really perfect I quite agree with your correspondent that it is quite delicious. On the Quince, however, and as a pyramid it is mostly hard and gritty, and seldom or never attains to full size. This Pear also wants to be eaten at the right moment, else it becomes mealy, which is the precursor of its rotting. This fine Pear, whatever its origin, and it is probably a seedling from the Autumn Bergamot, is far more tender than that useful variety which resembles it, excepting in being much smaller; it needs a west, south, or south-east wall to do it justice. It is also, like the smaller Begamot, naturally more or less gritty; hence your correspondent's east wall is probably too cold for this variety. But this by no means solves the difficulty why it should generally be delicious and this year so inferior. The difficulty is increased, and becomes more insoluble as we read exactly *vice versâ* of the Duchesse d'Angoulême, cold and tasteless for fifteen years, and this year, under the same conditions, so excellent as hardly to be recognisable as the same Pear. Most Pear growers and eaters will agree that the general character of this Pear is inferior, the flesh sweet, but coarse grained, cold, and gritty.

No doubt most Pear growers of as long standing as your correspondent have had this Pear at times so well ripened and high flavoured, as hardly to be recognisable when placed side by side with fruit of average quality. The Beurré Diel, again, is a Pear that has been vastly overrated by the authorities. Most of these describe it as large, rich, sugary, buttery, delicious, melting, tender, and so on; and so it is at times; but it is also not seldom coarse, cold, and little better than a Turnip, and hardly any Pear is more subject to going off prematurely, as described by your correspondent, than the Beurré Diel. Its large leaves are also often attacked by black fungus that overruns the fruits or speckles them all over, and the whole of these fruits rot before they are quite fit for use. This pest is more prevalent than usual. The crop, which was a fair one, is also smaller and more irregular than usual, and the spotted ones are going fast. And yet now and then Beurré Diel justifies the high praises of the authorities. Another Pear which seldom does its best out of Jersey occasionally surprises us with a crop of exceptionally fine fruit. This is the well known, but little grown in England, Chaumontel. We have had a few trees of this as a pyramid on the Quince for a dozen years, and never had a satisfactory crop till last year; there was a full crop which ripened of fair size, and the quality was

quite equal to that of any Channel Islands or French Pears of this when perfect.

Other sorts in plenty might be named that have their seasons and caprices, a word used here to define their incomprehensible variations. But, as if to increase the mystery of such matters, we have other Pears almost constant in their qualities, provided they are grown under the same conditions and such as are favourable to the hardiness or tenderness of their constitutions. Among such may be enumerated such well-known varieties as the Jargonelle, the Autumn Bergamot, Winter Nelis, Marie Louise, Williams' Bon Chrétien, Glou Morceau, Passe Colmar, Golden Beurré, Beurré de Capiaumont, Louise Bonne of Jersey, &c. —Hortus.

—— There is nothing unusual in the behaviour of "G. J. B.'s" Pears (p. 396), with the exception of Gansel's Bergamot. This is generally first-rate in flavour, and it ripens, as a rule, every year about the same time. Beurré Diel I always consider to be unreliable in flavour. With us, grown on a south wall, it is always gritty, and only fit for culinary purposes; but in Devonshire I have tasted it from pyramid trees of the best texture and flavour. Where Pears are grown on walls I am satisfied that aspect has a good deal to do with their flavour. Here Louise Bonne of Jersey is not eatable when grown on a west wall, but on a east wall or on pyramids its flavour is excellent. The Chaumontel, which I have known to produce fruit of excellent flavour on standards in Surrey, I cannot grow here in Somerset, except on a south wall. As pyramids, the trees fruit abundantly, but the flavour is very indifferent. For the first time in my experience Comte de Paris is this year gritty and indifferent in flavour; one, therefore, gets perplexed as regards the strange vagaries played by Pears.—J. C. C.

Pears for market.—At a meeting of the New Jersey Horticultural Society, Mr. Quinn, according to the *Country Gentleman*, said that for successful Pear culture the land should be rich enough to produce 150 bushels of potatoes an acre. On his soil, he would prefer to pay the price of young standard trees to getting dwarfs for nothing. He would select for market Bartlett, Clairgeau, and Anjou. Mr. Moon said one of the most profitable Pears was the Rutter. Mr. Ward named for profit Giffard, Clapp, Bartlett, Williams' Bon Chrétien, Boussoch, Seckel, Sheldon, Clairgeau, Anjou, and Dana's Hovey. Mr. Repp found Duchesse d'Angoulême quite profitable. He had specimens large enough for twenty to fill a basket. Out of seven or eight hundred bearing trees only one has blighted. To this statement we may add that after seeing many thousand trees of different sizes of Angoulême, we never saw more than three that had died of blight, and it is certainly one of the hardiest of all Pears.

Russian Apples.—I have fully 100 varieties of Russian Apples growing in my grounds, many of the trees being 16 and 18 years planted. One thing is fully demonstrated, viz., that these Apples are, as a class, very much hardier against adverse climatic influences, and especially against winter's cold, than those previously grown here. This alone gives them enormous value for the "cold north," where, without them, tree fruit culture would be impossible. In productiveness, and size and beauty of fruit, the Russian Apples are, on the average, more than a match for those of Western Europe, and for our native seedlings thence derived. The disputed question in regard to them is as to their quality as dessert fruit. I say disputed, but it is now disputed only by those who have only a very limited acquaintance with this class of fruit. People who judge them in this respect by the Duchess of Oldenburg, Alexander and Red Astrachan, while admitting their beauty and prolificacy, undertake to denounce the whole race of Russian Apples as "useful only for cooking." So earnest and continuous has been this outcry, on such manifestly insufficient grounds, that it would seem as if something more than a general interest in fruit culture were behind it. However that may be, those who have an extensive acquaintance with Russian Apples know that there is among them quite as large a proportion which deserve to rank as of dessert quality as there is among the common sorts. True it is that but few of these finer sorts have yet been much distributed, but they are known, and as soon as the public becomes acquainted with them this unjust stigma attached to Russian Apples will be effaced. Among these fine dessert Apples the Yellow Transparent, Grand Sultan, Switzer, Charlottenthaler, Berkoff, St. Peter, Longfield, Golden White, Streaked Red, Summer Calville, Noble Redstreak, Russian Gravenstein, Red Anis, Titovka, White Russet, and several others have now been sufficiently tested to establish the fact of their excellent eating quality, joined, in most of them, with great beauty of form and colour.—T. H. Hoskins, M.D., in *Rural New Yorker*.

OLD FRUIT TREES.

All old trees when they cease to bear good fruit, and a fair crop of it, should be grubbed up and converted into firewood. There are far too many old useless trees in orchards. The feeling which prompts people to cling to old trees is an ancient one, but it cannot be defended on sound commercial principles. In order to keep up the stock of fruit trees in a garden or orchard in the most fertile condition there should always be young trees coming on to take the place of those that are getting too old; then when a tree on the wall, an espalier in the fruit border, or an orchard tree became old and decrepid it could be removed and a young bearing tree put in its place. It is sound policy to have a few trees in training, and those who like to do grafting and stock-raising at home may keep up their orchards and fruit gardens without cost. Though all old worn-out trees should be cleared away, before condemning them we should make sure that they really are worn out past resuscitation, because many trees are decrepit through neglect. Orchards on Grass fed off by sheep are perhaps not badly off, but where the Grass is mown and converted into hay, and in any case where the produce of the land is carried off and nothing brought back, the trees must suffer and become prematurely barren. Orchard or other trees that are not past recovery should be seen to at once, and rich top-dressings applied. I have seen great good to result from the application of liquid manure to old exhausted trees in winter, when it could not be so profitably used for other crops. Sewage from the house and drainings from stables and other farm buildings may be profitably utilised now, as the hungry soil will become enriched by the water filtering through it. In substituting young trees for old ones, the young trees should not occupy exactly the same position without, at least, a partial renewal of the soil. In the case of wall trees, if maiden loam cannot be had, the old soil should be removed, and fresh soil not exhausted by fruit trees of the same kind brought in from some other part of the garden. There should be no difficulty in this, as the labour would be but trifling in comparison with the good likely to result from it.

E. Hobday.

Sedums and bees.—In answer to several enquiries, I may state that I believe the Sedum which seems to stupify bees is the Sedum spectabile, but I have so long known it as the rosy Sedum, that I would rather not be too positive. It is so beautiful and full of bloom, that it well deserves the specific name. It is the only one that I have observed to have any stupifying effect on bees. They seem wild with a sort of delirious joy when they first alight, then become quieter and yet quieter, finally sluggish, stupid, a sort of paralysis in which they remain for days, then topple or are washed off and perish. They have now disappeared, or I should have sent you some in the different stages. I find, too, that mice or some vermin have made short work of their carcases, as there is little but wings now left under the flower branches.—D. T. F.

Rose Garden.

WILD ROSES.

Little is known of the origin of our garden Roses by those who cultivate or those who plant them. And yet the wild Roses which bloom all over the northern hemisphere are all beautiful, most of them are exquisitely fragrant, and many of them have a simple grace of form that none of the garden hybrids can equal. The garden Rose as a shrub is too often stiff and ungraceful, while the foliage and habit of some of the untamed species are sufficiently attractive to make them worth growing if they never showed a flower. The wild Rose is usually found on dry soils, though a few species inhabit swamps, and the climbing varieties are usually among bushes or hedgerows. In the warmer latitudes they are always white and generally single, although in Italy, Greece and Spain double varieties are found now and then, it is said, in the woods and fields. The genus, botanically, is in great confusion, and it is almost impossible to say where a variety ends or a species begins. The species I shall name are the most promising for cultivation, and, although no one expects or hopes that they will supersede the improved hybrids, still there is room for both. One charm of the natural species is that many of them are bright with fruit in autumn and all through the winter.

Rosa kamtschatica is a strong grower from the cold region which gives it its specific name. It has bold foliage and a coarse stem, wearing a strong armour of defensive prickles. The flowers, which appear in July, are larger than those of R. rugosa, but of a paler pink. Its brilliant scarlet fruits make it a desirable ornament in large shrubberies.

Rosa spinosissima is the old Scotch Rose, a dwarf grower, with neat foliage and delicate flowers, varying from white and pink to yellow, which are succeeded by dark purple fruit. It comes from the north of Great Britain, and the Scotch gardeners have raised many interesting varieties, double, semi-double, and of almost every shade. It is one of the earliest to flower, coming hard after the alpine Rose.

Rosa lutea, the Austrian Brier, is a native of the East, and is known through its offspring, the Austrian Yellow and Harrison's Yellow, a seedling said to have originated in America. We rarely see these early semi-double yellow Roses, once so common in old gardens, and yet we rarely see anything more beautiful. The leaves of the species have a faint Sweet Brier odour.

Rosa sulphurea, another yellow species, comes from the Himalayas, but is hard to grow. In a greenhouse its flowers open well, but out of doors there does not seem to be heat enough at its time of bloom, although that is late in June. I think it might do well farther south, in a warm, rich soil and an open, sunny situation.

Rosa rubiginosa is the Sweet Brier of poetry, a native of Europe, but now often found wild in this country, where it has escaped from cultivation. Its neat pink flowers and red fruit are well known, as is the delightful fragrance of its leaves, especially when set with dew. It attains a large size—will clamber to the top of a support 30 feet high and then flow downward in a cataract of long, streaming branches. There are several well marked varieties, such as major, a semi-double kind, the clustered Brier and others.

Rosa alpina opens its light flowers in the latter part of May, and these give place to Pear-shaped fruit, orange and red. Its branches are thornless. It is the parent of the old-fashioned Boursault Rose, now rarely seen, and of other varieties well worth growing, especially as pillar Roses.

Rosa arvensis, the field Rose of Europe, makes a rampant growth among the bushes. In England it runs 20 feet in a season. The flowers are of a pale rose colour, and keep opening from May until August. The Ayrshire Rose is a variety of this species, with pale pink double flowers. It grows rapidly, but is somewhat tender here. There are other varieties which I have not tried, but which are commended highly.

Rosa multiflora.—The plant received from Japan under this name is a beautiful shrub, flowering in clusters of pure white, which resemble Strawberry blossoms very closely. As many as a hundred flowers appear in one cluster. One plant kept last winter in an 8 inch pot had 3000 flowers. To my thinking it is one of the finest additions to our gardens in the way of a single Rose. If worked up it might become the parent of a new section of half-climbing hardy Roses. It is also an admirable stock on which to work hybrids for forcing, as the plants on exhibition at the Massachusetts horticultural shows have proved. This species (or variety) differs widely from the so-called multiflora which we grew some years since, and from which Seven Sisters sprang. It differs widely, too, from the so-called multiflora received from the Himalayas. I am half-inclined to consider it the species described by De Candolle as R. fragariæflora. The fruit is a small, reddish berry, but it comes in great clusters which remain all winter on their stems. It is one of the few species whose seed germinates the first season after sowing.

Rosa setigera, the Michigan or Prairie Rose, is certainly a more attractive plant than many of the hybrids derived from it. Its vigorous growth and abundant bloom after the garden Roses have faded make it most effective in a shrubbery. The deep rose colour of its bloom slowly fades to a pale pink, so that the plant appears to bear flower-clusters of several distinct varieties at once. Baltimore Belle, Mrs. Hovey, Queen of Prairies, and other pillar Roses have been derived from this.

Rosa lucida, our dwarf wild Rose, takes its name from the shining upper surface of its leaflets, and is very variable in flower and foliage. The colour of the bloom may be nearly white, and it ranges from this to a deep rose colour. From Massachusetts to Florida it flourishes on every kind of soil, from the dryest to the edges of swamps. The flowers keep opening from May till July, while the showy fruit hangs on till well into winter, and the autumn colour of its foliage in large masses is striking. Its low, half-trailing habit makes it an admirable shrub for covering unsightly banks, and its method of spreading by underground shoots or stolons adds to its value for this purpose. It is easily renewed by cutting over once in three years.

Rosa nitida, the narrow-leaved, shining Rose, is not so common as the former one, and is usually found in damper soil. Its flowers and fruit are both more showy. It is sometimes found in gardens near Boston under the name of the Jackson Rose, and few single Roses give more satisfaction when cultivated.

Rosa foliolosa comes from Texas, and is among the latest species to bloom. Its pale lemon-coloured flowers begin to open in July and continue until September. It is seldom seen in cultivation, but its fine, distinct foliage and apparent hardiness commend it. Its features are all so marked that the hybridisers ought to experiment with it. Its blood, mingled with that of other types, might produce a new and worthy race.

Rosa blanda, the early wild Rose, is not common here in Massachusetts, but is more abundant to the northward. It is a modest plant, the least striking of our native species, but yet well worth a place in shrubberies. Its variety, scopularis, from the Rocky Mountains, is most interesting. The flowers are pale and are followed by large Pear-shaped hips, which ripen in September and are more beautiful than the fruit of any other American Rose. Our plants are from seed sent by the late Dr. Engelmann, and I do not know that this Rose is in cultivation outside of the arboretum.

Rosa carolina, the Swamp Rose, is one of the strongest growers among our native species, often reaching a height of 7 feet or 8 feet, with stems 1 inch or 2 inches and even more in diameter. It flowers from June till September, and the globular hip is brightly coloured. Although a native of wet places, it does well in ordinary garden soil, although to do its best it needs much moisture. This is the stock upon which we graft many of the hybrids that come from Germany. One reason why these Roses do not flourish like those on the Manetti stock is that this swamp Rose needs to be brought on slowly, and its roots need abundant water while growing.

Rosa arkansana is very desirable for the brilliant scarlet of its fruit. It is a neat shrub, 2 feet or 3 feet high, flowering well in clusters during June.

Rosa Fendleri comes from the Pacific region and is conspicuous for its early bloom, the flowers opening in the middle of May. This habit, with its bright red and abundant fruit, will make it a general favourite in cultivation when once introduced.—*Arnold Arboretum.*

MR. G. W. HOYLE.

Like the late Mr. Edward Beck, the late Mr. G. W. Hoyle, of Reading, was one of the foremost Pelargonium raisers of his day. That he did excellent work in improving the large-flowered or show Pelargonium there can be no doubt, but the details of his work are somewhat scanty. One thing is certain: he laboured very assiduously to obtain and improve the high-coloured show Pelargoniums approaching to scarlet—a section of Pelargoniums for which we are mainly indebted to the persistence of the Royal Botanic Society in offering awards for improved flowers of this class at their exhibitions. There is reason to believe that Mr. Hoyle never trusted any of his seedlings to chance fertilisation, but selected parents of which he approved. In the January number of vol. i. of the *Florist*, published in 1848, Mr. Hoyle has a paper on seedling Pelargoniums, in which he laid down the principles which should guide raisers in the production of new varieties, form and colour being his two cardinal points. The following are varieties of Mr. Hoyle's raising, viz., Belle of the Village, Crusader, Flamingo, Prometheus, Sparkler, Superlative, Sarah Jane, Terpsichore, and Titus. Up to this time (1849) the principal raisers of Pelargoniums had been Catleugh, Gaines, Nairn, and a few others, but Mr. Foster was undoubtedly at work before Mr. Hoyle. The first of Mr. Hoyle's Pelargoniums figured was Crusader, which appeared in the *Florist* for December, 1849, and subsequent volumes of that work gave further coloured illustrations of his seedlings. The last of Mr. Hoyle's seedlings were put into commerce in 1871; they consisted of Asteroid, Cardinal, Duke of Edinburgh, Eldorado, Exemplar, Holkar, Magnificent, M. de Lesseps, Pasha, and Sunshine. Imperator and Zephyr, by the same raiser, were exhibited in 1871, and distributed in 1872. Mr. Hoyle was for a few years secretary of the Reading Horticultural Society. He died on May 26, 1872.

G. W. HOYLE.

ORCHIDS.

CANADIAN ORCHIDS.

Deep hidden in the damp recesses of the leafy woods many a rare and precious flower of the Orchis family blooms, flourishes, and decays, unseen by human eye, unsought by human hand, until some curious, flower-loving botanist plunges amid the rank, tangled vegetation and brings its beauties to the light. One of these lovely natives of our Canadian forests is known as Orchis spectabilis—Beautiful Orchis, or Showy Orchis. This pretty plant is not, indeed, of very rare occurrence; its locality is rich Maple and Beech woods all through Canada. The colour of the flower is white, shaded, and spotted with pink or purplish lilac; the corolla is what is termed ringent or gaping, the upper petals and sepals arching over the waved lower-lipped petal. The scape is smooth and fleshy, terminating in a loosely-flowered and many-bracted spike; the bracts are dark green, sharp pointed, and leafy; the root a bundle of round white fibres; the leaves, two in number, are large, blunt, oblong, shining, smooth, and oily, from 3 inches to 5 inches long, one larger and more pointed than the other. The flowering time of the species is May and June. The exquisite cellular tissues of many of our flowers of this Order delight the eye, and give an appearance of great delicacy and grace to the blossoms. In this charming species the contrast between the lilac-purple colour of the arching petals and sepals and the almost pellucid lower lip, or somewhat broadly lobed under petal, is very charming. The large shining leaves lie close to the ground when the plant is in flower. Transplanted to gardens, the Showy Orchis rarely survives the second season of removal from the forest shade. It will not grow freely exposed to cold wind or glaring sunlight. It loves moist heat; the conservatory would probably suit it, and it would be worth a trial there.

Lady's Slippers or Moccasin Flowers.

Whether we regard these charming flowers for the singularity of their form, the exquisite texture of their tissues, or the delicate blending of their colours, we must acknowledge them to be altogether lovely and worthy of our admiration. One of the rarest, and at the same time most beautiful and curious, is the

Ram's-head Orchis (Cypripedium arietinum), which has smooth glaucous green leaves, and small purplish flowers bearing a close resemblance to a ram's head with the horns and ears and a tuft of wool on the top of the head. It is seldom over 6 inches in height, and grows in cold peat bogs, and flowers in July. Associated with it we find our most gorgeous representative of the family, the

Showy Lady's Slipper or pink flowered Moccasin plant (C. spectabile).—This grows chiefly in Tamarack swamps and near forest creeks, where, in groups of several stems, it appears, showing its pure blossoms among the rank and coarser herbage. The stem rises to the height of from 18 inches to 2 feet. The leaves, which are large, ovate, many-nerved, and plaited, sheathing

at the base, clothe the fleshy stem, which terminates in a single sharp-pointed bract above the flower. The flowers are terminal and generally solitary, although old and strong plants will occasionally bear two, or even three, blossoms on one stem. The unfolded buds of this species are most beautiful, having the appearance of slightly flattened globes of delicately-tinted rice paper. The large pouch-like inflated lip is slightly depressed in front, tinged with rosy pink, and striped. The pale thin petals and sepals, two of each, are whitish at first, but turn brown when the flower is more advanced towards maturity. The sepals may be distinguished from the petals, the former being longer than the latter, and by being united at the back of the flower. The column on which the stamens are placed is three-lobed; the two anthers are placed one on either side under the two lobes; the central lobe is sterile, thick, fleshy, and bent down, somewhat blunt and heart-shaped. The root of the Lady's Slipper is a bundle of white fleshy fibres.

Stemless Lady's Slipper (C. acaule).—This differs from the former species by the pouch, which is large and of a beautiful rose tint exquisitely veined with deeper red zigzag lines, not being closed, but merely folded over in front; this is not observable until you examine it closely. The scape rises from between the two large oval leaves, which lie horizontally on the Mosses amidst which the plant grows. A time will come when these rare productions of our soil will disappear from among us, and will be found only in those waste and desolate places where the foot of civilised man can hardly penetrate, where the flowers of the wilderness flourish, bloom, and decay unseen.

Yellow Lady's Slippers.—Of the golden Moccasin flowers we boast of two very beautiful species, C. pubescens (Hairy Moccasin flower) and C. parviflorum (Lesser-flowered Moccasin flower). The larger plant is the more showy; the smaller the more graceful, and has a delicate fragrance which is not so strong in the larger flower. The long spirally twisted petals and sepals, of a purplish brown colour sometimes tinted and veined with red, give the smaller flower a very elegant appearance, though the rich golden hue of the larger is more striking to the eye. C. parviflorum affects the moist soil of wet grassy meadows and swamps, whilst the larger plant loves the open lands among shrubs and tall Grasses. In the month of June, when it may be seen beside the gay Painted Cup (Castilleja coccinea), the blue Lupine (L. perennis), the larger white Trillium, and other lovely wild flowers, it forms a charming contrast to their various colours and no less varied forms. The stem of the larger Moccasin flower is thick and leafy, each many-nerved leaf sheathing the flowers before they open. The flowers are from one to three in number, bent forward, drooping gracefully downwards. The golden pouch-like lip is elegantly striped and spotted with ruby red; the twisted narrow petals and sepals, two in number of each kind, are of a pale fawn colour, sometimes veined and lined with a deeper shade.

Rattlesnake Plantain (Goodyera pubescens).—This is a formidable name for a lovely little plant, the leaves of which are prettily netted over the dark green surface with milky-white veinings. The ovate, pointed leaves are set close to the ground; from the centre of the leaves rises a naked stalk of pearly white flowers in a slender spike; corolla ringent with inflated lip; root-stock somewhat creeping, soft and fibrous; the flowers are slightly fragrant. This pretty little plant is found in the forest, often on fallen decayed trunks of trees, or in light fibrous mould. It is very nearly allied to the

Slender Ladies' Tresses (Spiranthes gracilis).—The flower-stem of this singular plant is twisted, so that the blossoms are turned to one side, forming a spiral of great beauty. The flowers are larger than those of the Rattlesnake Plantain and sweeter; greenish white, lipped and fringed. The two leaves are closely pressed to the ground, and are little seen after the plant is in bloom. There are several species of these graceful Orchids. The spiral arrangement of the flowers probably suggested the ringlets on some fair lady's head. The old florists and herbalists of former times were more gallant than our modern botanists, for they gave many pretty names to the flowers instead of the harsh sounding, unmeaning ones that we find in our scientific manuals of botany. So we have among our local and familiar names such prettily-sounding ones as Ladies' Tresses, Sweet Cicely, Sweet Marjoram or Marjory, Marigold, Ladies' Slipper, with a number of others that I could name—besides descriptive names, which form a sort of biography of the plant, giving us a correct idea of their characteristics and peculiar uses or habits.

Small round-leaved Orchis (Platanthera rotundifolia).—This is one of the lovely native plants of the Orchis family, of which we boast many remarkable for beauty as well as for the eccentric forms which arise from the peculiar arrangement of their floral organs. The one here named is worthy of attention. Our quaint old herbalists would have called it the Holy Dove, or some such name, from the curious resemblance that the petals and sepals take to the body and extended white wings of a hovering dove, the lower lobed petal taking the semblance of the tail and wings, the upper ones meeting over the anther cells, which might be likened to the two eyes of the bird, and the arched hooded appendage above to the head. The scape of this pretty Orchis is furnished with one handsome round or shield-shaped leaf of shining bright green, and a bracted spike of white flowers, spotted with delicate pink, as also is the throat of the arched petal that partly covers the anthers and stigmatic disc. Our beautiful Orchids, with many other rare bog plants, repay the difficulties of obtaining them in their native haunts, such as Cedar swamps, Cranberry marshes, Poplar swales, and peat bogs; where, however zealous, our lady botanists may not venture without risk. These rare plants, growing in lonely isolated places, are little known and but seldom met with, unless, as I have said, by the enthusiastic botanist who is not afraid to seek for such floral treasures, however difficult they may be to obtain. A curious and handsome species is the

Striped Orchis or Coral-root (Corallorhiza multiflora).—This plant is leafless, silvery-sheathing scales taking the place of leaves; the roots are branched and knobby, like some kinds of coral; the scapes, many-flowered, growing up in clusters from 12 inches to 18 inches high; the flowers are pale fawn, striped and dotted with crimson or purple. Such was a plant that I found at the root of a big Hemlock tree, near the forest road where I often walked many years ago. There are several different species of this curious Order, varying in size and the colour of their blossoms.

Of fringed and tufted fragrant kinds, we have the Pearly White and the Fringed Pink Orchids. These are very pretty and not uncommon flowers. I first saw them on my voyage up the St. Lawrence, when the ship was anchored off Bic Island, and the captain brought me a noble posy of sweet flowers, the first Canadian flowers I ever saw. Among wild Roses and elegant blue Lungwort (Mertensia maritima), which I had also seen and gathered near Kirkwall, in Orkney, there were yellow Loosestrife, Harebells, and the sweet-scented White Fringed Orchis, the Pink Fringed Orchis and some elegant cream-coloured Vetches, and several other flowers then unknown to me.

There are many other plants of the Orchis family scattered through our woods and swamps and on the rocky or low islands of our northern lakes. Among those not already mentioned, the Larger Fringed Orchis (Habenaria fimbriata) may be named. This is a tall handsome bog plant, flowering in the beginning of July, with large rose-purple, deeply-cut petals. Another less conspicuous species, found in dry woods, is the Northern Green-man Orchis (Habenaria viridis var. bracteata). The scape of this species is furnished with long narrow sharply-pointed bracts and greenish flowers. In some of our Orchidaceous plants, when examined, there will be seen at the base of the fleshy scape two roundish bulbs or tubers—farinaceous masses, whence the bundle of white fibres, the roots and rootlets proper, proceed, and which contain the prepared food to support the growth of the year. From one of these tubers, the scape, bearing the scaly or leafy bracts, root-leaves, and flowers, springs, and at the flowering season is much larger than the other. The flower-bearing bulb decreases from exhaustion of its substance, shrivels, turns brown, and begins to decay; while the other continues slowly but steadily to go on increasing, bearing in its bosom the embryo flower-stem and foliage which are to appear the following year. Another tiny bulb is also preparing in like manner, attached by a slender fleshy cord to its companion. Thus from year to year the process goes on, each one taking the place of its predecessor after its office has been fulfilled. This singular mode of reproduction seems to supersede the necessity for the development of seed, as in other flowering plants; nor is it so common to find seedlings of the Orchids springing up round the parent plant as in the case of other flowers. The reason why so few amateur florists succeed in transplanting the native Orchids into their gardens arises from want of due care in taking them up. The life of the plant for the following season being contained in the new forming tuber, if this be in the least injured the chance of another flower in the future is at an end. The succulent tender roots are easily broken or wounded, and these strike rather deep down in the soil, and must be taken up uninjured, with a good portion of the mould, or there is small chance of life for the plant. Nor will the Orchis thrive in common earth; it requires fibrous, peaty soil, moisture, and some shade, with the warmth that arises from the moist soil and shelter of the surrounding herbage. They all thrive best in the conservatory or greenhouse. —*Plant Life in Canada.*

Drip in Orchid houses.—Like many other Orchid growers, my house possesses the unfortunate condition of a low-pitched roof, with the inevitable consequence of drip from condensed moisture. I have tried zinc channels under the rafters and other places without any success. The zinc in the course of a short time assumes every form of curve. Drip for Orchids and most other plants is utter ruin, more especially for Cattleyas. I have now adopted a plan which has proved a perfect success; it is that of suspending strips of grooved glass with copper wire under each rafter, and the channel or furrow in which forms a perfect conductor for every particle of moisture. This plan is so simple and cheap in its application, that I am sure if any of your readers saw it in my house they would at once adopt it. If the roof is very flat, it is advisable to let the glass touch the rafter at its upper end only, and this will give an increased fall of 2 inches.—W. Soper, 307, *Clapham Road, S.W.*

*** We have seen Mr. Soper's plan for remedying drip in a flat-pitched plant house, and think it both effectual and simple. The strips of glass possess the advantage of being nearly invisible, and the slight groove or depression upon their surface causes the water to run down rapidly. Moreover, glass is not affected by heat or moisture, whereas zinc, or even Bamboo rods, warp in an unsightly manner.—Ed.

Cypripedium Arthurianum.—Many orchidists consider this to be the finest of all the Lady's Slippers, but, be that as it may, it cannot be said to have many rivals; its quiet beauty and singular form are remarkable. It is a hybrid between the old C. insigne and that precious gem, C. Fairieanum. It combines the colour of the two parents admirably, and, what is more peculiar, the tendency of the side sepals, as in Fairieanum, to drop is transmitted to the progeny, and this affords always an unmistakable distinguishing feature in Arthurianum. It is one of Mr. Dominy's hybrids; he showed us a flower of it the other day by the side of C. vexillarium, also a hybrid between C. Fairieanum and C. barbatum. There is more colour in the flowers of vexillarium and the side sepals are depressed, but it lacks the subtle tinting of Arthurianum.

Kitchen Garden.

RIPE AND GREEN TOMATOES.

Never perhaps have Tomatoes been more abundant than this season, outdoor crops having up to the present time (Oct. 23) escaped both disease and frost. Many, therefore, would doubtless like to know how best to utilise their surplus ripe fruit, so as to have a supply in some form or other during the winter. Tomato sauce would appear to be the only resource known to the majority of housekeepers, and even this but few succeed in keeping long after it is made. I have in my possession a considerable number of recipes for making this sauce, and each season more are added to them, but none that I and others have tried make a sauce that will keep good for any length of time. Tomato ketchup, however, will keep, in some instances, for years if the bottles are properly sealed down, and all with whom I am acquainted are delighted with it. Fully ripe Tomatoes are required for the purpose, and these should be baked in a jar till quite tender; then they should be strained and rubbed through a sieve. To every pound of juice add a pint of chili vinegar, an ounce of shallots, half an ounce of garlic, sliced, a quarter of an ounce of salt, and a quarter of an ounce of white pepper finely powdered. Boil the whole till every ingredient is soft, and then rub the whole again through the sieve. To every pound add the juice of three Lemons, and boil again to the consistency of cream. When cold bottle it, and either tie bladders over the corks or seal them down. Store in a dry place till wanted for use. We are using some of this ketchup made this season, while a friend has some that was made last year, which seems to be improved by keeping.

Another method of making Tomato ketchup I can vouch for as being a good one. Select half a bushel of ripe fruits, wash them, cut them in pieces, cook until soft, and strain through a sieve, pressing them well to obtain the pulp. To this add half an ounce of cayenne pepper and a small teacupful of salt, stirring these into the ketchup. Bruise an ounce each of cinnamon, cloves, allspice, mace, Celery seed, and half an ounce of black peppercorns; then tie them up in a muslin bag, and when the strained Tomatoes have boiled an hour and a half put in the bag of spices and boil another hour and a half. Add a quart of good cider vinegar, boil for half an hour, and turn the whole into a stone jar to cool; after which mix a pint of brandy or pure spirits of some kind thoroughly with the ketchup and bottle it, putting a strip of Horse-radish root in each. The bottles should be very carefully corked up and sealed. Store in a cool, dark place.

Fully grown, yet green, Tomatoes cut before they are damaged by frost, and hung up in bunches or stored on dry shelves either in a warm plant house or in a kitchen, will ripen in the course of time, and if not fit to eat in a raw state are very good when cooked. It usually happens that there are considerable numbers of partially developed fruits, and these it is useless to attempt to ripen. Instead, however, of allowing them to spoil they should be utilised for pickle-making, and with a little trouble they can be made very palatable. Take 4 lbs. of green Tomatoes and break or pull them into pieces, take also four or five medium-sized Onions and slice them up moderately fine, add six chilies, and scatter salt freely over the whole. Let it stand for fifteen hours, then strain away the moisture, place the remainder in a jar, and cover it with good vinegar. Bake this in an oven for one hour, and then press it into jars. Next take two dessert-spoonfuls of a mixture of mustard, pepper, and spice, a teaspoonful of sugar, a few cloves, a little cinnamon, and four chilies, adding sufficient vinegar to make the whole quite thin; boil for a short time; while still boiling hot pour this mixture over the contents of the jars. Carefully cork the jars or wide-necked bottles, that answer equally well, and cover them in the usual way with bladder. Store them in a dry place. The following is also a good method of pickling green Tomatoes, and this will not be found so peppery as the preceding: Scald and peel the fruits; lay them on dishes and strew salt thickly over them Let them stand twenty-four hours, occasionally pouring off the liquor extracted by the salt. Drain them and gently squeeze them at the same time, as it is this juice that interferes with their keeping. Take a large jar, put in a layer of Tomatoes, then a layer of sliced Onions, mustard seed, cloves, and white pepper, or whole black pepper; or two pods of red pepper may be broken up and put into the jar. When the latter is full pour very strong vinegar over the whole, and in a few days they will be ready for use, or will keep if need be all the winter. Store in a cool, dry place. W. I.

COLEWORTS.

There are few members of the Brassica family which more quickly show any tendency to roguishness than do the Rosette Coleworts. In this neighbourhood, where they are largely grown, one may look over a piece several acres in extent and not find a single defective one. There is such remarkable evenness throughout, that any bad form may be detected easily if present. Of course, such good form is found only where the strain is a first-class one and sown with care. Some seedsmen have special reputations with the market growers for this Cabbage, and are trusted to the utmost. At this time of the year, early in the morning or in the evening when vapour has settled upon the plants in the form of heavy dew, the breadths of Coleworts resemble broad sheets of silver. The general tendency of the plants to turn in simultaneously is so far advantageous to the grower, that he can clear off breadths as he goes, although very much exception may well be taken to the method by which bunching and loading is done, as too often the Coleworts are pulled, flung into heaps, pitched into carts and taken to where the bunching is done, pitched down again, and finally loaded, to receive several more tossings and tumblings in the market. All this sort of usage materially depreciates the quality and value of the Coleworts, as it necessarily robs them also of their freshness and beauty—if such a term may be applied to these really pretty little Cabbages. Were it the rule to cut Coleworts and pass them direct into big lattice baskets ready for loading, how much of all this tumbling and rough usage might be saved. The stalks go to London or elsewhere, to be returned again as refuse, perhaps as manure; whereas they might just as well be left at home. No doubt these stalks comprise quite one-third of the load where the plan so common of pulling roots and all and bunching them is practised. Anyone who has seen the sort of handling recorded must admit that through it the market value of the heads is materially affected. Without doubt, one of the chief elements in the delicious tenderness of texture found in good fresh Coleworts is due to the rapidity of growth made by the plants. They are invariably put out to follow early Peas or Potatoes, and as the soil is just then well pulverised, root is soon made and the plants are quickly established. Autumn rains very soon promote growth, and in some six weeks quite a remarkable transformation has taken place. If the soil be deep-worked and well manured, so much the better, because growth is so much the quicker. Coleworts have found in Autumn Giant Cauliflowers formidable rivals, as, like the Cauliflower, their season is limited to the autumn months. If the winter remains open, breadths may be left till Christmas, but too often rains and frosts discolour or injure the heads, and when that is the case, not only is appearance marred, but the fresh mild flavour found in Coleworts in November is destroyed. The practice which lately has grown up of getting Brussels Sprouts out early, and thus obtaining sprouts to gather quite early in the winter, brings in yet another formidable rival to the Colewort. On the other hand, this latter vegetable is so short a time on the ground, that it gives little trouble and is not exhausting. Put out at about 12 inches apart each way, the soil is literally filled with plants, and no further trouble is given beyond perhaps one hoeing until pulled in the autumn. Another dressing of manure fits the soil again for Peas or Potatoes, and so the round of cropping goes on. Market gardening around London is rarely high-class, and falls far below what may be seen about Paris or in Belgium. Our system is really market farming, for the gardens are practically farms, and the gardening art finds no appreciable display in them. A. D.

Effects of deep tillage.—As an illustration of the beneficial effects of a thorough breaking up of moderately stiff soil on vegetable growth, we may quote an experiment conducted at Rothamsted many years ago with white Turnips on three plots of ground, each plot being manured in exactly the same way, namely, with 11 cwt. of superphosphate per acre.

No.	Treatment of Land.	Average Weight of Bulbs.	Produce of Bulbs per Acre.
		Lb.	Tons cwt. qr.
1	Dug 9 inches deep.. ..	1·20	13 8 2
2	Dug 18 inches deep.. ..	1·30	14 4 0
3	Ploughed 5 inches deep ..	1·17	12 13 3

These results, says the *Gardeners' Chronicle*, indicate the character of the soil-conditions required in root culture, and show a more rapid bulb formation, with a corresponding increase of crop in proportion as the land was broken up and pulverised.

Garden Destroyers.

GALL-LIKE SWELLINGS IN CONIFERS.

I send you a specimen of diseased twigs of Pinus nobilis from a tree 70 feet high, and a very beautifully grown one it is, but it is feared the disease in question will impair its health. At present the evil is confined to the lower limbs of the tree, which last year produced an abundance of splendid cones; this year they are much fewer. I shall, indeed, be obliged if you can suggest a remedy. —S.

*** The gall-like swellings on the shoots of your Pinus nobilis are curious. I have seen somewhat similar ones before, and then (as now) was unable to ascertain their origin with certainty; there are no insects feeding within the nodules, and yet one cannot but feel certain that they are of insect origin. I sent some to one of our most eminent entomologists, and he replies: "I have little doubt that these swellings are primarily due to the attacks of one of the Pine tortrices" (a family of moths, many of whose caterpillars are very injurious, some specially to the young shoots of Firs). If this be the case, and I have no reason to doubt its being so, I imagine the caterpillars must have attacked the terminal buds of the shoots, but did not entirely destroy them, and the vitality of the shoots enabled them to continue growing beyond the injured parts, which, being in an unhealthy condition, a morbid growth was set up, forming swellings. In course of time the terminal bud was again attacked, and another swelling formed. This is the only way I can account for these abnormal growths. Next spring, in April and May, I should examine the young shoots and try and find the offender. At that time it would be worth while to thoroughly wet the branches with one of the following mixtures, applied with a syringe or garden engine: 2 ozs. soft soap, 2 ozs. flowers of sulphur, boiled in 1 gallon of water; or 8 lbs. of quassia and 4 lbs. soft soap, boiled in 10 gallons of water and strained before using; or soft soap 8 ozs., 1 gallon of water made to boil, then add 2 gallons of kerosine and mix thoroughly with a syringe for 10 minutes; for use, mix 1 pint of this emulsion with 9 gallons of water. I do not think because your tree bears fewer cones this year than last that it is necessarily an unhealthy sign. Few trees bear an equal amount of fruit every year.—G. S. S.

The Larch aphis.—I can find no account or description of Larch diseases in Brown, Grigor, or other books on forestry. I should, therefore, be very grateful if you could name the disease with which the twigs herewith sent are affected. The

rees are sixteen years old, grown in double trenched, ight land. They have been thus affected this year only, but previously many had sores on the stems, and these were cut out. Is there any chance of their recovery next spring? or should all be cut down and the branches burnt? Many trees have lost all leaf. This has happened on the outside of the covert, and in the case of trees more recently attacked.—E. R. P.

*** Your Larches are infested by the Larch aphis (Chermes laricis), a very common pest on Larches. Some of the latest hatched aphides survive the winter and lay their eggs in the spring just as the young leaves are beginning to appear; these now hatch, and the young at once attack the leaves. These insects appear to thrive best on trees which are not in a perfectly healthy condition from a damp, stagnant atmosphere, or some other cause. As soon as the leaves are down in the autumn or early in the spring just before the buds burst, syringe the trees with one of the following mixtures: 1 cwt. of fresh lime in 80 gallons of water allowed to stand for a week; then drain off the clear fluid and use. To 6 gallons of water add 10 lbs. of soft soap, and either 2 lbs. of bitter aloes or 6 ozs. of tobacco, and boil together; having strained it, add 36 gallons of water to every gallon before using it. Or, 1 gallon of water and ½ lb. of soft soap; make boiling hot, and add 2 gallons of kerosine, and mix thoroughly with a syringe for ten minutes; for use add 9 gallons of water to each pint of this mixture. I cannot imagine that your trees are hopelessly injured, unless they have been very much weakened by the sores you mention.—G. S. S.

TREES AND SHRUBS.

TAPERING TREES.

Essential as are the trees that drop their shoots toward the earth to the planter who wishes to realise to the full the beauty of our cultivated tree flora, they are scarcely so much so as those of which every branchlet points skyward—those of the tapering tree, from the stately Lombardy Poplar to the slim Irish Juniper. We have round towers as well as fountains of verdant life; the leaf-builders raise spires as well as castles. There is no tree yet discovered more effective in the landscape than the Lombardy Poplar, towering above our numerous round-headed trees. This is what may be considered the king of our pointed trees; it is as familiar to all as any tree can be, and abundantly planted. But there are other tapering trees to which we wish now to advert.

Pyramidal Acacia.—One of the trees next in value to the Lombardy Poplar is the pyramidal Acacia. Everybody knows the common Robinia or Acacia—which, if it never answered the expectations which Mr. Cobbett placed in it, is, nevertheless, a welcome ornament in our pleasure grounds, and is one of the best of all trees for garden or street planting in cities, as it retains its verdure for months after the common Lime. Every form of this tree has, indeed, "the verdure of ten meadows in its gracefully cut leaves." The pointed form of such a tree must be valuable, and this is one that is easily procured, and should be planted everywhere. It grows as compactly and is as distinctly tapering as the Lombardy Poplar, and has all the charms of the species as regards verdure. It is almost useless to plant such trees, or any trees, where, from being crowded up with other subjects or badly placed, their peculiar character is half obscured. Not growing so tall as the Lombardy Poplar, or not so vigorously, this should be associated chiefly with medium-sized trees and vigorous shrubs. It is also a capital plan when dealing with a subject of any character like this, instead of putting it in the centre of a group of low trees or as the centre to a company of vigorous shrubs, to boldly place it on the very margin of the mass. For isolation such subjects are peculiarly suitable.

Evergreen Cypress.—A lovely tapering tree is the Cypress (Cupressus sempervirens), as all know who have observed it in mild districts where it is much planted. We have noticed it thrive most commonly in districts under the influence of the sea, but the best specimens we have ever seen are at White Knights, near Reading. A fine, old, healthy specimen of this upright Cypress is one of the most charming trees to be seen in the world. The fact that it grows with us into such specimens as those at Reading proves that it is not those only who live round the basin of the Mediterranean, or in sunny Italy, that may enjoy it in their gardens.

Lawson's erect Cypress (C. Lawsoniana erecta-viridis) is likely to form one of the most valuable of all tapering trees. The normal form of Lawson's Cypress, found wild in Northern California and Oregon, is naturally one of the most graceful of all trees, attaining a height of 100 feet in its native wilds, and quite hardy everywhere in these islands. The erect variety is to the normal form what the Florence Court Yew is to the common Yew. It is very erect and dense in habit, and of a light rich vivid green, not glaucous like the species. There are other erect forms of the same species, but none of them have the peculiar and very desirable green hue of this, although in other respects they are very desirable. From its thorough hardiness, this tree may be used in districts where the upright Cypress would perish from cold; in fact, it is likely to be everywhere useful. As the species to which it belongs naturally attains a great height, it may be expected to form a stately tree. This should be borne in mind in planting it, as it will doubtless prove effective in many positions in which the medium and smaller sized tapering tree would not be suitable.

The Red or Virginian Cedar (Juniperus virginiana)—Sometimes in our rich and well-sheltered pleasure grounds the Virginian Cedar resembles common spiral or Fir-headed trees; but almost everywhere one sees it in the Eastern States it is as decidedly tapering as the upright Cypress, as anyone may tell who has travelled by rail from New York to Philadelphia. Along many parts of the line the Red Cedar is common—a close, tapering, low green tree, with from 4 feet to 10 feet of the base of the stem quite bare and weather-beaten. On the mountains near Newburgh, on the Hudson River, the wild specimens and groups of this species seemed in the distance upright Cypresses planted by man, so effective did they appear in the landscape, and so diverse were they in aspect from any tree common in natural woods. The Red Cedar grows over a vast area, inhabiting some of the coldest as well as the warmest regions, and is quite hardy in this country. Considering this and its peculiar habit, the tree is a neglected one, and far more worthy of the attention of planters than many of the half-hardy kinds sold at high rates.

The Irish Yew (Taxus baccata fastigiata).—This beautiful variety of the common Yew is so well known and so frequently planted that it need only be mentioned here. It is very likely that we shall soon have a variety of variegated forms of the same type, as, apart from varieties already announced and sent out, others of a decidedly tapering form have sprung up in several different nurseries. The Irish Yew originated at Florence Court, in Ireland, about a century ago. It is also known under the names of columnaris, compressa, and intermedia.

The Pyramidal Plane should prove attractive to every planter, and particularly to every city planter, as where there would not be room for the great arms of the common Plane to spread forth, this might find a place. We have, however, not seen specimens of it sufficiently developed to say anything of its character as a tapering tree; but young specimens promise well. There can be no doubt, however, as to its deserving a place in the front rank of our noblest trees.

Tapering Oak.—There is a tapering form of the common Oak (Quercus pedunculata fastigiata) which deserves attention from the planter, not only from its interest as a very remarkable variety of the British Oak, but also from its distinct and picturesque port. The best specimens I have seen were in Central France; but doubtless there are many good ones in various parts of England. It is to be regretted, however, that trees of this character so rarely show themselves in our pleasure grounds, as this proves that they are either not planted at all, or so badly placed that they are either unnoticed or hidden. Q. fastigiata viridis is another variety of Oak with a tapering habit, also well worthy of a place in our collection.

The Erect Birch (Betula fastigiata) must be classed among the best tapering trees, as it is so very ornamental. Amongst the varieties of the common Hawthorn may be found a good type of a pyramidal tree in a form of Cratægus Oxyacantha called stricta. This differs but little from the common May in anything but habit, which is erect and tapering, its branches being almost perpendicular.

The Irish Juniper (Juniperus hibernica).—This very distinct variety of the common Juniper originated in Ireland, most probably from seed, and on account of its singular habit of growing in a slender, compact column it has proved to be a most useful Evergreen for utilising in Italian and other geometrical gardens, where stiff and formal-looking plants are needed to please the tastes of those who cultivate this style of gardening. This Juniper is not only strikingly distinct in form, but its foliage also affords a decided contrast in colour to that of most other Evergreens, being a mixture of light green and silvery glaucous hues. It is effective when planted alternately, or in conjunction with the Irish and Golden Yews and standard Portugal Laurels. As a dwarf tree for planting sparingly in a cemetery or churchyard it is peculiarly suitable on account of its comparatively slow growth, as well as its slender form occupying but little space; it is, moreover, perfectly hardy, and will grow in any common garden soil, but doubtless prefers a moist, rich, heavy soil to a dry, gravelly, poor one. J. hibernica compressa is similar to the above in habit and colour, but very much slower in growth, and smaller in all its parts. It forms a compact, slender pyramid. For parterre winter gardening on a small scale this little Juniper would be invaluable. It is not difficult to transplant; indeed, it is so dwarf a tree that it could be grown on for years in a moderate-sized flower-pot, thus insuring its safety when removed from its summer to its winter quarters, and *vice versâ*; the rate of its growth I do not believe exceeds an inch a year. G.

Noteworthy evergreen Oaks.—In the beautiful grounds surrounding Wilton House, Salisbury, are two notable evergreen Oaks. One of these may be termed a souvenir of the Czar Nicholas. Fifty years ago, when on a visit to Wilton, he planted this tree, and as it bids fair to develop into a fine specimen, it may probably outlive some of the interest now attached to it. Nearer the house there is a much older specimen, remarkable not for either its history or height, but on account of the great spread of its branches, many of which have now to be propped up in order to keep them from being broken. The area of ground covered by this tree is about 177 yards, in this respect probably surpassing any tree of its kind in the country.—W. I.

Hardy Heaths.—I have just noted the following as being in bloom here: Erica vagans, the Cornish moor Heath, a free, vigorous grower, forms a bush about a yard high, and each shoot is terminated by a cluster of purplish red blossoms. There is a variety (rubra) deeper coloured than the type, and another very pretty form in which the flowers are white. This Heath is also sometimes known as Gypsocallis vagans. St. Dabeoc's Heath (Dabœcia polifolia) has been in flower for months, and still continues in that condition. It is one of the very finest of all hardy Heaths, for not only does it bloom continuously, but the flowers are among the showiest of any. Besides the ordinary purple-flowered kind, there is one with white blossoms, and another with both white and purple flowers on the same plant. Many forms of

the Heather are still in bloom, though in most cases their freshness is over, a notable exception, however, being the variety called E. Searlei, which, given favourable weather, will yet bloom for some time. The blooms of this are pure white. E. ciliaris and its beautiful variety Maweana are still in flower, and if the old blooms are removed as soon as they wither, they keep long bright and fresh in appearance; and the same may be said of E. tetralix and Mackiana. E. multiflora, a free-growing kind with rosy red blossoms, is also valuable as a late flowerer.—West Surrey.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

October 26 and 27.

A great show of vegetables was the chief feature of this meeting, nearly the whole of the building being occupied by them. A capital display of Chrysanthemums, pot plants and cut blooms, made the place attractive, and new plants and flowers were rather numerous. The following were awarded first-class certificates:—

Rhododendron jasminiflorum carminatum.—A variety of the well-known white greenhouse Rhododendron, having flowers of a beautiful rich carmine colour. It is a decided acquisition, as it flowers so freely, and the colour is quite distinct from that of all the hybrid sorts raised of late years. Shown by the raisers, Messrs. Veitch, Chelsea.

Cratægus tatarica.—A new and very handsome Thorn, remarkable for the large size and bright colour of its fruits and beautiful foliage, which is of a purplish hue. The fruits are the size of Cob-nuts and bright orange-red. We know nothing as to its habit of growth or hardiness. Shown by Messrs. Veitch.

Bignonia Chamberlaynii.—This old-fashioned greenhouse climber, known also as Anemopægma racemosum, was shown beautifully from Mr. Scrase-Dickins' garden at Coolhurst, Horsham, some long branches being quite wreathed with long, tubular, pale yellow flowers. It is one of the best greenhouse climbers we have for late autumn flowering.

Cattleya Eldorado virginalis.—A lovely variety having the flowers pure white, excepting a dash of yellow on the lip. In other respects it does not differ from the type. Shown by Mr. H. M. Pollett, Fernside, Bickley.

Odontoglossum blepharicanthum.—A pretty plant, much resembling O. crocidipterum. The flowers are of the size of those of O. odoratum, white, and copiously spotted with coffee-brown. Exhibited by Mr. Tautz, Studley House, Hammersmith.

Chrysanthemum Flambeau Toulousaine.—A Pompon variety with small compact, globular flowers, quilled petals of a deep rose edged with white. Shown by Messrs. Cannell, Swanley.

Chrysanthemum Wm. Stevens.—A beautiful Japanese variety, having large flowers, long narrow florets of a bright chestnut-brown. Shown by Mr. Stevens, Putney.

Chrysanthemum Buttercup.—A valuable addition to Japanese Chrysanthemums, as it is the brightest and finest yellow sort yet raised. The flowers are large, finely formed, and of a peculiarly rich yellow. It is one of Mr. Salter's new seedlings. Exhibited by Messrs. Veitch.

Chrysanthemum Mdlle. E. Dordan.—An exquisite little pompon variety, having medium sized flowers, perfectly globular. The colour is a deep lilac. It is one of the most pleasing Pompons we have seen. It was shown by no fewer than four exhibitors, viz., Messrs. Laing, Forest Hill; Messrs. Cannell; Mr. Davis, Camberwell; and Mr. Owen, Maidenhead.

Primula Reidi.—A botanical certificate was awarded to this plant, which is described in another column.

Among other interesting exhibits were the following: A remarkable specimen of Dendrobium superbiens came from Mr. Tautz's garden. It had a growth quite 2 feet high, bearing two fine flower-spikes. A cultural commendation was accorded to the gardener. Messrs. Low showed a very fine specimen of that rare Orchid, Warscewiczella cochleata. It has rather large flowers, ivory-white sepals, and a broad labellum of rich purple. Mr. R. J. Measures, Cambridge Lodge, Camberwell, sent spikes of Cattleya bicolor marginata, the flowers of which have the lips margined with white, as in the variety Measuresiana. Herr Max Kolt sent from the Botanic Garden at Munich a plant of Anthurium Martianum—rather a noble-leaved species, but not remarkable. Mr. H. B. May, Edmonton, sent plants of a new Fern named Pteris tremula grandiceps, but its resemblance to the typical P. tremula was not close. It is a graceful Fern, and may be a hybrid. Mr. Ware sent from Tottenham plants of the pretty Saxifraga Fortunei, the latest of all the genus in flowering, and a really beautiful plant, both for the open border and the greenhouse. It has large foliage and crowded spikes of white flowers. He also showed Colchicum speciosum, which is very fine just now. Mr. B. S. Williams exhibited a group of his autumn-flowering Amaryllises, which are hybrids from A. reticulata. There are now several varieties, all very lovely, the colours being so delicate and pleasing. Among the sorts shown were Mrs. Garfield (figured some time ago in The Garden) and Mrs. Lee, which is the darkest in colour. They are invaluable for the stove house just now. Messrs. Cutbush, Highgate, sent bushes of several sorts of Pernettya mucronata, with berries of various tints. They are very attractive at this season, and are really the prettiest shrubs one can have in the garden just now. Mr. R. Dean, Ealing, sent a gathering of Polyanthuses and Primroses—a remarkable exhibit at this season.

Among new Chrysanthemums shown the following were conspicuous: Among those from Messrs. Veitch were William Clarke and Alfred Chantrier, both Japanese sorts, the first a kind of pale nankeen yellow, the other buff-yellow. Mr. Molyneux, of Swanmore Park, sent flowers of a sport from Bouquet Fait, named Marie Louise. It is a fine flower, with white florets turning to deep lilac. Mr. E. Beckett, Elstree, sent a sport from Baronne de Prailly, named Carew Underwood. It is much lighter than the original. Among a large collection of cut blooms from Messrs. Cannell, of Swanley, were some uncommonly fine blooms of such beautiful sorts as Flambeau, Mad. Cossart, Mad. Jacotot, Mad. de Sevin, Margot, Gloire Rayonnaise, J. Laing, and the pretty single Mary Anderson. Mr. Owen also had some good new sorts, the best, we thought, being those named E. G. Henderson, W. E. Boyce, W. Bealby, and Villatte de Pragues. Mr. Owen also had some pretty varieties of Chrysanthemum carinatum and coronarium, both useful at this season for cutting from.

There was a competition for groups of Chrysanthemums in pots and for cut blooms. Four groups were shown, all excellent, the finest being that from Mr. Davis, of Camberwell, who had a compact and bright group, chiefly of Japanese sorts. Mr. Stevens' group was likewise bright and good; and that from Mr. Measures' garden, Camberwell, was distinct from all in being made up chiefly of white sorts, the new Lady Selborne being very prominent. The cut blooms were excellent, considering the early date. The best collection of twenty-four blooms came from Mr. Ridout, of Reigate, the sorts most prominent being Mad. Sevin, Dr. Macary, Lady Selborne, Mr. Laing, W. Robinson, Phœbus, Bouquet Fait, La Triomphante, Comte de Germiny, M. Délaux, Margot, Triomphe du Nord, Chang, and M. Rendatler. The other collections were all bright and composed of good selections of sorts, but it was evident that some of the exhibitors had a difficulty in making up a full collection of good blooms. Messrs. Paul, Cheshunt, showed a new pillar Rose, a single white, which seems to bloom freely in late autumn. It is pretty. They also sent plants of that handsome hardy Heath Erica Maweana, one of the best in every way. Messrs. Hooper sent a pretty new tree Carnation named Prince Alexander.

Fruit committee.—There were not many exhibits submitted to this committee, the most noteworthy being the following: A fine new kitchen Apple named Bismarck was shown by Messrs. Veitch. The fruit is very large, of even shape, and said to be of excellent quality. A pyramid bush was shown by Messrs. Veitch bearing several fine fruits. Some bush trees of the Melon Apple were shown by Mr. Roupell, of Streatham. These were on Paradise stocks, which evidently suits this variety. The fruits are large and handsome, and of delicious flavour. Mr. Scrase-Dickins sent from Coolhurst about a dozen fruits of the Hollandbury Pippin, as fine in size and colour as we have ever seen. Mr. Laxton showed fruits of his Pear Robert Thompson, and Mr. Divers, of Ketton Hall, Stamford, sent a dish of excellent Salwey Peaches from a cool house. Mr. R. Dean sent samples of Madresfield Court Grape grown out of doors. The berries were small, but of finer flavour than one would suppose.

Vegetables.

Turning now to the competitions and taking them in the schedule order, we find *Celery* in bundles of six heads first. Of these there were fourteen lots, mostly red, the judges showing a prejudice in favour of that colour by passing over a lot of Grove White, very clean and perfect, in favour of Clarke's Red, the best of this coming from Mr. Pope, of Highclere Castle, the second lot of the same from Amersham, and the the third best, Standard Bearer, from Somerley Park. Then of *Parsnips* there were seventeen half-dozens, mostly very large, almost too big in fact, yet full of flesh. Mr. Meads, of Shrivenham, had the best, viz., Student; Hollow-crowned Improved was second; and Maltese from Bletchley was third, and yet it would have puzzled anyone to tell why these Parsnips should have three diverse names. *Carrots* were represented by twenty-eight lots of six roots, nearly all New Intermediate or Matchless, and mostly very clean, tapering, and handsome. It is very evident that no other kind can stand on the exhibition table, or, indeed, anywhere against this recent introduction. Mr. Neighbour sent the best from Bickley Park; the second best came from Mr. Lee's garden at Aylesbury; and the third lot from Bampton, Oxon. A very beautiful lot from Wycombe, and a second and rather larger sample from Daventry seemed, in this case, to have been overlooked, so good were they. Then came twenty-four bunches of Turnips, nearly all of the Snowball and Six Weeks types, with just one yellow and one purple-topped lot. Snowball from Barnet, from Edgcote, Banbury, and from Bletchley had the prizes. Then followed twenty lots of *Onions* of various kinds and sizes. There the judges broke away somewhat from the usual course; passed over some huge flat samples in favour of a very fine rounded brown sample named Weldwich from Mr. Finlay, of Lee Court, Faversham; good Anglo-Spanish came second from Bampton; and very handsome, solid, good keeping Wroxton of the true oval or James' Keeping pattern from Coleshill was third. Brussels Sprouts were shown in dishes, but were hardly good, as it is yet a little early. The best, the Wroxton, came also from Mr. Finlay, neat, medium-sized, and firm; the Aigburth from Newbury came next, and Mr. Pope, of Highclere, was third with an unnamed kind. There were seventeen dishes of these, and twenty-five lots of *Beetroots*, generally rather large, the best good Dell's Crimson coming from Bickley Park, Mr. Waite, of Esher, having handsome Pragnell's Exhibition—a selection of Dell's—for second place, and the same kind was third. *Cauliflowers* came next, sixteen lots of three heads being shown—all capital samples, big ones being carefully avoided. All appeared to be Autumn Giant, the best coming from Mr. Miller, of Rood Ashton, clear white and solid, Mr. Miles having the next best; whilst Mr. Meads was third, our leading vegetable growers being thus well represented. Then came thirteen lots of *Leeks*, Mr. Miles having the finest in The Lyon; Mr. Ross was second with Ayton Castle; and Mr. Waite third with Prizetaker, all capitally blanched. Then of dishes of twelve *Tomatoes* there were thirteen, Mr. Farrance, Chadwell Heath, coming first with fine fruit of Trophy; Reading Perfection was second; and some smaller samples of the same kind third. Now came the great contest for the society's prizes, viz., the collection of eight kinds of vegetables, a grand competition of thirteen lots being shown and wonderfully even in quality. The collection from Wycombe Abbey was in Mr. Miles' best style, and literally perfect at all points. In it were Onions, Stamfordian Tomatoes, Imported Brussels Sprouts, Leicester Red Celery, Autumn Giant Cauliflowers, Chancellor Potatoes, Lyon Leeks, and Intermediate Carrots, all weighty

kinds; Mr. Neighbour came next with fine Mushrooms, Ne Plus Ultra Peas (really first-rate for the season), Vicar of Laleham Potatoes, Intermediate Carrots, Reading Perfection Tomatoes, White Globe Onions, &c.; Mr. Haines was third with a collection of the fine Coleshill form, including Student Parsnips, Rousham Park Onions, New Intermediate Carrots, &c. Collections were unfortunately unplaced that were highly meritorious.

Potatoes.—Two classes were set apart for these in the society's schedule, and there were no less than sixteen collections of twelve dishes, and twenty-one lots of six dishes. In the former class Mr. Hughes, the famous grower from Byfield, was first; Mr. Wills, of Edgecote, was second; and Messrs. Kerr, of Dumfries, and C. Clayton, of Mildenhall, Suffolk, were placed equal third. All the samples were beautiful, those from the two former exhibitors exceptionally so. The best included, of whites, Chancellor, Fidler's Prolific, London Hero, Harvester, Nelson's Seedling, Abundance, Favourite, Colonel, Reading Giant, Schoolmaster, Edgecote Seedling, First and Best, and Snowdrop. Coloured kinds good were Reading Russet, The Dean, Hughes' Purple Perfection, Adirondach, Vicar of Laleham, Rosebud, Rufus, Beauty of Hebron, and Edgecote Purple. The prizes for six dishes went to Messrs. Hughes and Wills; Mr. Howard, Canterbury, was third. Here, again, were singularly beautiful samples of Harvester, Blanchard, London Hero, Snowdrop, Chancellor, Sutton's Seedling, and Abundance; and of coloured ones, Purple Perfection, The Dean, Vicar of Laleham, Rosebud, Reading Russet, Edgecote Purple, Radstock Beauty, Rufus, and Mr. Bresee. It was distinctly noticeable that rounds greatly predominated in all the classes throughout the show. On the whole, the average, if hardly so good as that of last year, was almost as good as could have been anticipated.

Special Prizes.

Of these, and they were on this occasion numerous, the first on the list, given by Messrs. Carter, was for four kinds of specially named Potatoes, viz., Ashtop Fluke, a Lapstone form; Sukerete, rather large and coarse; Village Blacksmith, round, having a very rough tawny skin; and the purple Fir-apple kind, Cetewayo, which is ugly and utterly useless. Six collections were staged, making a very poor show indeed; the only good dish was one of Ashtop Fluke. It seems impossible to conceive what benefit can result from encouraging such kinds as the black Fir-apple forms.

Onions.—Mr. Deverill, Banbury, offered prizes for his fine Onions, Rousham Park, Anglo White Spanish, Main Crop, and Wroxton. The first three seem to be exceptionally fine white Spanish forms, and the latter, a capital, clean, oval-shaped Onion. The best collection of these four kinds, from Mr. Wingrove, Rousham Park, Oxon, were very fine clear samples; the second lot from Hassocks, Sussex, wanted finish; and the third lot, much cleaner, from Wroxton Abbey, were fine samples. Potatoes were again in strong force in the classes provided by Mr. C. Fidler, Reading. First, came nine dishes, distinct, including General Gordon, Reading Giant, and Snow Queen. Here Banbury, with Mr. Wills, was first, with a beautiful lot added to the above three kinds, being Abundance, London Hero, Chancellor, Edgecote Purple, Vicar of Laleham, and Queen of the Valley. Reading Russet, Mr. Bresee, &c., were also prominent in other collections. Mr. Hughes was a good second, Mr. Allen, Hungerford, third, and Mr. Kerr, fourth. A class for six dishes, including Fidler's Perfection, five lots being staged, placed Mr. Hughes first; he had Crimson Beauty, Reading Russet, Vicar of Laleham, Abundance, London Hero, Snowdrop, Reading Giant, &c., in prominence. In another class for three kinds of Mr. Fidler's Potatoes, the prizes went to Edgecote, Byfield, and Hungerford.

In the special prizes offered by Messrs. Sutton, Reading, the first class was for two of their kinds of Potatoes, Abundance and Seedling, both fine flattish, oval, white, round, and fine croppers. Superb samples of these came from Edgecote, Byfield, and Mr. Chopping, of Sittingbourne. There were nine lots in this class, and in the next one of nine dishes, open to any of the firm's sorts, there were eleven lots, and grand samples, too. The redoubtable Mr. Hughes was here again first, having Ruby, a beautiful red kidney, Prizetaker, Lady Truscott, Early Regent, Woodstock Kidney, Abundance, Seedling, Favourite and Reading Russet. The second best collection, from Edgecote, was a duplicate of the previous one. There were no less than seven prizes, comprising a total sum of nearly £13.

Celery of this firm's well-known White Gem, a dwarf, compact, and solid form, came next, three heads being shown. There were eleven lots, the best, though dubiously true because too tall, came from Somerley, the tops having been cut clean off. The next best came from Sutton District Schools, and the third from Esher, smaller, perhaps, but very clean and good. Then of Sutton's Dark Red Beet there were sixteen lots, Mr. Waite being a good first with very pretty and proper-sized roots, the second best coming from Byfield, and the third lot from Wycombe Abbey.

Carrots of the New Intermediate form were wonderful, exceeding in size and beauty all previous exhibits. There were no less than twenty-four lots of this fine sort, the best coming from Mr. Neighbour, though a little hard scrubbed. Mr. Robins, Aylesbury, came next with perfect samples in form and finish; the third lot, and very fine also, coming from Somerley. Then of

Prize-taker Leeks there were eight bundles, the best and the deepest blanched and very best in the show coming from Mr. Waite; the next best, also very fine white samples, coming from Wycombe and Brighton. Lastly, were thirteen lots of the *Student Parsnip*, wonderfully fleshy roots, the best coming from Mr. Lye, Newbury, Somerley, and Coleshill.

Collections of Potatoes from the trade growers were numerous and well displayed, Messrs. Sutton, Reading, showing an immense number of named sorts, with numerous seedlings not yet in commerce, showing that of new varieties there is a big reserve. As these are yet under number only, it is useless to particularise any of them, but of named forms very fine piles of Abundance and Seedling, very fine flattish round forms of the Reading Hero type were present, as also of Reading Russet, Reading Hero, Magoum Bonum, Ruby, First and Best, Early Regent, Ashleaf Kidney, The Dean, Vicar of Laleham, Miss Fowler, Chancellor, Prime Minister, Fidler's Prolific, and many other popular kinds. This fine display was quite in this celebrated firm's best style. Then from Mr. C. Fidler, of Reading, came a big lot, some of the prominent kinds, such as Reading Giant, White Elephant, Magnum Bonum, and Imperator being in great bulk; Snow Queen, Fidler's Perfection, Prolific, and Enterprise, Schoolmaster, Queen of the Valley, Vicar of Laleham, and others being in great form.

Messrs. Carter won a silver medal for their collection of dried Tobacco plants, which were effectively arranged on white card supports, the finest seeming to be Pennsylvania, Island Broadleaf, White Burley, and Glasner. They also had sixty dishes of Potatoes, including many popular kinds already often named, their rough-skinned Village Blacksmith and black Cetewayo being prominent. From the society's gardens came a collection of Potatoes, including several of the long French kinds. Mr. Deverill, of Banbury, had very fine samples of his large Rousham Park, Anglo Spanish, Wroxton, and Main Crop Onions; also Wroxton Brussels Sprouts, Ne Plus Ultra runner Beans, Leicester Red Celery, Crimson Beet, Intermediate Carrots, &c.

A selection of Canadian Apples, forming but a small part of the great display made of these fruits last week, was staged and received a silver Banksian medal, the rich colour found in most samples commanding warm admiration. A remarkable exhibit was a collection of wines of home production made from outdoor Grapes, Gooseberries, Rhubarb, and other fruit products, shown by Mr. Robert Fenn, Sulhampstead. Some of the samples had been in bottle since 1844, whilst others were of subsequent years' brewings, down to 1885. Many of these wines had been with the Royal Horticultural Society's shows at Birmingham and other provincial towns, and were also exhibited at South Kensington. Mr. Fenn complains naturally that people continue to use foreign wines, even though not good in quality, and utterly neglect the capacities of their own gardens to produce these drinks. Some of the wines were tasted by competent judges and pronounced exceedingly pleasant and refreshing. The chief difficulty in dealing with an exhibit of this sort seems to be in finding palates not previously vitiated by the partaking of French or Portuguese brandied wines, in which the alcoholic percentage is so much greater and the flavour so much more spirituous.

A full prize list is given in our advertising columns.

National Chrysanthemun Society.—At a meeting of this society, held at the Royal Aquarium, Westminster, on Wednesday last, Messrs. Cannell, Messrs. Veitch, Mr. Martin, Mr. Owen, and others exhibited Japanese and Pompon varieties of Chrysanthemums in great profusion, very few incurved kinds being presented. First-class certificates were awarded to Mr. Martin for Japanese Chrysanthemum Phœbus, a clear bright yellow flower with drooping petals, and La Triomphante, a large pink, flat-petalled bloom of good substance; to Mr. Shoesmith for La Triomphante; to Mr. Owen for Pompon Wm. Bealby, creamy mauve; to Messrs. Veitch for Japanese Chrysanthemum Phœbus and Buttercup, also a good yellow; to Mr. N. Davis for Pompon Wm. Bealby; to Mr. George Stevens for a new Japanese Chrysanthemum called Wm. Stevens, a dull crimson-orange; to Messrs. Cannell for Pompon Mdlle. Elise Dordan, an exquisite little flower, almost a perfect globe, and of a light mauve colour, and Pompon Toulousain, a good flower of a much deeper shade; for Japanese Chrysanthemum La Triomphante and large Anemone Cincinnati. There is every prospect that the show of this Society, to be held at the Royal Aquarium, will eclipse all others in extent, as it is yearly extending its influence over the country.

QUESTION.

5529.—**Cotoneaster Simonsi.**—Will anyone tell me how to prune this? It is growing up a wall, and for the last two years it has had single berries only when pruned, but when left alone it has bunches of scarlet berries. Unluckily, from its position it must be pruned.—G. C.

Celery (*W. W.*).—We do not find much the matter with your Celery. It has the appearance, however, of having been attacked by the Celery-leaf maggot; otherwise it is good.—R. C.

Names of plants.—*R. H., Didcot.*—Hieracium aurantiacum.——*A. Kingsmill.*—Calendula maritima.——*G. Close*, —1, Reidia glaucescens; 2, Adiantum Capillus-veneris; 3, Asplenium Fabianum; 4, Sclaginella uncinata; 5, Rhus Cotinus.——*W. E.*—Two Asters without numbers: small flower, A. dumosus; blue, A. Amellus.——*J. L. B.*—Salvia Pitcheri.——*James Graham.*—Orchid flowers correctly named.——*G. G.*—1, Spiræa callo a alba; 2, Pyrethrum Parthenium; 3, apparently Silphium laciniatum—cannot be certain without seeing bottom leaves; 4, Anthemis tinctoria; 5, Helianthus divaricatus; 6, Pyrethrum uliginosum.——*C. R. S.*—1, Cryptomeria elegans; 2, Taxodium sempervirens; 3, Juniperus—specimen insufficient; 4, Cupressus Lawsoniana.——*S. Knowles.*—Lælia Perrini.——*H. M. W., Rosrea.*—1, Phymatodes peltidea; 2, Adiantum affine; 3, Adiantum formosum; 4, Doodia caudata.——*L. H. L.*—Cyrtomium caryotidium.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*R. T., Stroud.*—1, Duchesse d'Angouleme; 2, Beurre Bachelier; 3, Golden Noble; 4, Cellini.——*H. E.*—1, Dumelow's Seedling; 2, Pearson's Plate; 3, Constauzer.——*R. A.*—1, Hanwell Souring; 2, Dumelow's Seedling; 3, Marie Louise.——*S. D. K.*—Apple, Blenheim Orange; Pear, Alexandre Lambre.——*T. B. F.*—1, Marie Louise; 2, Broom Park; 3, Swan's Egg.——*C. H. S.*—13, Oslin; others not known.——*D. Bouse.*—1, Beurre Diel; 2, Vicar of Winkfield; 3, Fearn's Pippin.——*E. K. Bridge.*—1, Lane's Prince Albert; 2, not recognised.——*H. K. de W.*—1, Cox's Orange Pippin.——*R. W.*—1, Calebasse Bosc; 2, Brown Beurre; 3, Beurre Rance; 4, not known.——*W. Burn.*—1, Ribston Pippin; 2, 3, Blenheim Orange; 4, Lemon Pippin.——*Caboon.*—Scarlet Russet; now is the time to gather these.——*H. E. Jacobs.*—1, Beurre Clairgeau; 2, B. de Capiaumont; 3, B. Hardy.——*A. R. T.*—Cox's Orange Pippin.——*P. J. F.*—1, Beurre Clairgeau; 4, Bergamotte d'Esperen; 6, Pitmaston Duchess; 16, Fondante d'Automne; 19, Van Mons Leon Leclerc. Others next week.

WOODS & FORESTS.

THE REVIVAL OF FORESTRY.

I am strongly of opinion that the want of interest in forestry in this country in times past has been largely due to the lack of periodical literature on the subject. I think also that I am correct in my surmise, that since *Woods and Forests* became identified with The Garden, there has been a revival of interest in the subject among not a few proprietors of woods and their subordinates, and a looking-up generally in matters of management, disposal of timber, &c., where the woods were almost neglected before. I hear of instances in which a very active interest is being taken in the woods by those most concerned, and of enquiries on the subject of planting and the like that bodes well for future management. In some cases the result of investigation into the subject has led to the stopping of all work in the woods, except felling timber for sale and planting on a moderate scale—proprietors deciding that if they did not earn anything from their woods they would at least not lose by them till things mended, and no one can blame them for that decision. I have very good reason for saying, and I say it deliberately, that many woods, if not the majority, on large estates have for many years back been either a dead loss to the proprietor or have done little more than pay expenses. I could name some of the most extensive estates in England and Scotland of which this is said to be true; and it is a lamentable fact if it is so. The only woods that pay are small plantations belonging to small proprietors who have planted in times past waste spots and done nothing to the trees whatever till they were ready for felling. What a pity Sir John Lubbock's committee did not elicit information on this point; the revelation would have been startling. On one great estate in the north, at the death of the proprietor some time ago, when the legacy duty came to be paid, one of the first things done was to stop all work in the woods and plantations except such as was urgent, and for what reason does the reader think?—to save expense—the cost of the "able management," combined with the preservation of game, having resulted in times past in dead loss year after year. I doubt if you could find many examples of management that could bear being tested by a debtor and creditor's account. You may be told of instances of successful planting, &c., and that So-and-so has planted most extensively, and that his forester is an authority on everything connected with the subject, but you never by any chance hear how the ledger stands one year with another. In short, I doubt if many woods on gentlemen's estates do much more than pay expenses, except where left alone without any superintendence in the usual sense of the word. This is a strange thing on estates where the woods extend to thousands of acres perhaps, and where planting, &c., has been going on for generations, but I fear it is true.

If the subject of wood management, however, comes to be constantly and energetically discussed in periodicals like The Garden, an interest is sure to be created, sooner or later, in the subject among foresters and their employers, and the result, we may be sure, will be beneficial to all concerned. It is disappointing at present that there should be so few writers on forestry in those papers which are open to them, and that of those few some of the most pretentious have so little information to give us. In some quarters there appears to have been a rattling of dry bones in an attempt to keep abreast of current topics, but it seems clear we must look to other sources for inspiration than the present generation of woodmen, who, notwithstanding their number, appear neither to read nor write on anything connected with their business.

One sees so much work to be done in our woods wherever they go, and so much that represents real value and money's worth going to waste for want of judicious management and advice, and so much real loss generally, that such topics as the above force themselves upon the attention. One thing especially strikes all thoughtful persons, and that is the immense quantity of timber dying and going to waste on so many large estates through the inexcusable reluctance of the proprietor to have it cut down and sold to the advantage of himself and the public. No wonder we have discontented socialists, and the like, amongst us, when the sight of parks filled with thousands of dead or dying timber trees that should long ago have been disposed, like any other crop grown for use, meets them in so many places in the country—left to gratify a whim, probably, of some wealthy proprietor who could afford it. It is really amusing to read some of those exacting covenants drawn out for farm tenants, regulating the conditions of tenancy and the cropping of the land on estates, where by the far the worst offender is the landlord himself or his agent, whose mismanagement of the woods and the home farm is perhaps the worst in the whole district. Still I would exculpate proprietors in a larger degree than their agents and foresters, unless it be in the matter of game, and even in that matter they are becoming open to conviction. My experience is that proprietors are quite alive to their own interests in such matters when they are explained to them, and laid before them in a plain and intelligent manner, for they do not, as a rule, profess to be practically acquainted with the routine of estate work of any kind, hence the employment of agents on whom they rely, and who should be able to give them good counsel when required.

Y.

THE MANAGEMENT OF WOODS.

Mr. D. J. Yeo's letter on this subject last week is remarkable in its way. If he is a forester and really believes what he writes, viz., that an estate carpenter, because of his "accidental" association with the woods, may as readily become a forester as a gardener, then all I can say is that he must himself be ignorant of what a gardener's duties are, and must believe little or no education necessary for a forester, except it be to handle an axe and sell the timber. "There is no reason why a carpenter may not as readily and successfully undertake the management of woods as a gardener," says Mr. Yeo. What a confession to make from the forester's side. What insight it reveals of the duties of the gardener and woodman. I advocate the gardener's claim on the score that at the present time he is practically and theoretically acquainted with the forester's duties, and a great deal more that never comes within the ken of the forester. This knowledge of the gardener relates to botany, vegetable physiology, plant and tree culture, and everything bearing upon it connected with the soil, air, and moisture. These are the acquirements that fit him for the care of plantations, and, according to Mr. Yeo, such knowledge is synonymous with ability to use a hammer, a saw, a chisel, and a foot-rule—that is to say, the two sets of attainments are equivalent to each other for the same purpose. This is the inevitable conclusion to be drawn from Mr. Yeo's argument, that the carpenter is equally fitted with the gardener for the forester's duties. What a low estimate he must have of the latter. On the same line of argument a tailor or a shoemaker would be equally well qualified to fill the forester's place. But it is not so. With everything relating to propagation, planting, pruning, thinning, and the general culture of plants and trees the gardener is, or ought to be, familiar, and the periodicals and books practically created and written by him alone are a mine of wealth on almost everything relating to forestry and gardening, but in the pages of which the forester is conspicuous by his absence. When he does write he has to avail himself of the pages of a horticultural paper. Mr. Yeo is mistaken, too, in supposing that the positions of gardener and forester are "interchangeable." I never meant this. The forester cannot be a gardener, nor have I ever heard of his assuming the position. The average gardener differs from the woodman, inasmuch as he possesses a far more extensive experience of plants and trees and their culture than the forester does, whose duties are few and simple compared to the multitude that engage the gardener's attention. Some of the best and greatest authorities on forestry have been gardeners, like Loudon and Speechly, for example. Even Robert Brown, forester and author, admits in his book that a forester should have an education like a gardener to properly qualify him for his duties.—Yorkshireman.

—— "Y." fails to show in his writings why or on what grounds a gardener should supplant the forester, and he contents himself by denying that a forester needs any of the "ologies." I differ from his opinions, and I further say that a knowledge of all the "ologies" which I mentioned in my previous article are necessary to make a man a skilled forester. He endeavours to show that woodmen are ignorant persons, while gardeners are a cultivated race. It is true that now and then one may meet with an educated gardener. I know that the majority of gardeners about here possess but little of the scientific knowledge required by a forester. I am led to think that it would benefit a forester if he were to apply his study to land surveying, estate carpentering, selling, barking and timber conversion, than to Cucumber forcing, Potato or flower growing. "Y." admits that all woodmen are not experts in valuing timber; but of course a woodman is not a forester. But if such be the case, how are gardeners going to value and measure timber so easily as he would have us believe? Then, again, where are the handy labourers to manage the sawmill coming from? Many a handy labourer, and good labourers too, have I seen with ribs broken, arms, hands and thumbs and fingers off through attempting to work the circular saw. "Yorkshireman" had better visit the sawmills of his neighbourhood and inquire of the men their ideas of sawmill management before writing again. A forester is what I always put down to be a person to superintend general estate management—well, we may say an under or outdoor agent—men that can direct others rightly when they are doing a job wrongly. To get such foresters, we must have men that have passed through the plantation sawmills and estate offices. Until then our woods and timber will never be managed rightly.—Omega.

TREE GUARDS.

In forestry few things, it must be admitted, are so unsightly or have a more neglected appearance than trees and shrubs cut and barked by ground game and farm stock, and as various devices for preventing this evil have been suggested, I have thought that a line or two regarding our methods of procedure at Penrhyn may be useful and not at all ill-timed.

At the outset it is, however, well to bear in mind that fencing as a protection against ground game—hares and rabbits—is totally different to what is found necessary to prevent the incursions of farm stock generally—cattle, horses, and sheep; deer if you like—for what is found suitable in grazing ground is equally applicable, or at least with slight differences, for the deer park.

First, then, let us give an explanation of the various methods employed to counteract the mischievous and hurtful injuries caused by horses, cattle, and sheep—goats might likewise be added—to specimen trees and shrubs in the parks and grounds of an estate. As a neat and efficient tree-guard perhaps nothing equals the iron hurdles now made for the purpose; but as these are at first somewhat expensive and cannot, from a rustic point of view, compare with such as are neatly made from timber grown on the estate, we will confine our remarks wholly to the latter class. Another argument in favour of wooden erections might likewise be adduced, viz., that as timber of the class required for such work is at present almost unsaleable, what better purpose, might we ask, can it be put to than in the erection and repairs of its owner's fences instead of, as is unfortunately too often the case, allowing it to lie and rot on the ground while expensive iron and wire are substituted? As a guard for all large trees with unbranched boles we know nothing better and, when neatly put up, more ornamental than upright poles placed in a circle around the stem and joined near the top and bottom with hoops or wire.

Cut the poles—ordinary fencing poles, preferably Larch—about 9 feet or 10 feet in length, and not less than 2 inches diameter at the top end; lay them on the ground, butt ends equal and side by side, at 3 inches apart, until sufficient is arranged to equal the stem's girth. Next nail an iron or wooden hoop—extra strong wire we often use—to the poles, at about 2 feet from the top ends, and a similar one along within 1 foot of the lower or thick end. Now lift the whole guard intact, bend it around the tree's stem, fasten the ends of the hoops or wires, and the task is completed. It should be made to fit on easily, so as to give room for trunk expansion; but this, too, is immaterial, as the ends of the wires or hoops can be added to, and a pole inserted when the guard is getting too tight.

Another method of erecting the same protection is by having four of the poles made longer than the others, inserted 6 inches to 1 foot in the ground, and attached to the hoops. The remaining poles can easily be put in, and nailed one by one to the hoops until the whole is completed. I forgot to mention in the proper place that the top ends of the poles should be finely pointed, which not only prevents penetration of damp, but gives a more finished appearance to the guard, and likewise, to a great extent, keeps the horses from rubbing on and damaging the top portion of the erection. The guard should never be less than about 9 feet in height, as horses can easily reach to the trunk and injure the branches and bark if lower. This is a very effective and easily mended erection, and when tarred over is anything but unsightly, even in the more public portions of the grounds, and as neither horses, cattle, deer, sheep, nor goats can get near to injure the bark, it is well suited for use in the park, lawn, or on the farm. For single specimen trees that are branched to the ground, circular wooden fences, run just outside the spread of foliage, are best. These need not exceed 5 feet or 6 feet in height, and are constructed as follows: Dig pits 2 feet in depth and 6 feet apart in a circle around the widest spread of branches. Into these insert Larch posts 7 feet long and not less than 3 inches diameter at the small end; be sure they are put in perpendicular, and ram the soil previously taken out firmly around each. Paling rails 3 inches wide and 1 inch thick may then be nailed from post to post and at 15 inches apart, the intervening space between every pair of rails being taken up by a single wire placed exactly in the centre of the space and stapled firmly to the posts. This latter, which has a lighter appearance than if wood were altogether used, prevents the animals that may graze around the tree from inserting their heads between the rails and browsing on or injuring in any way the extending branches. The tops of the posts should next be rounded off, the whole fence tarred or painted over, and, should it be deemed advisable to protect the tree from ground game, a piece of 24-inch-high wire netting, rabbit-proof, nailed around the fence, 2 inches of it being inserted in the ground as a preventive against the burrowing of rabbits. A fence of this kind, if properly erected and made of well-matured, well-seasoned timber, will give no trouble for the first ten years, and even after that time, when repairs do become necessary, a post or rail is easily substituted for damaged ones at any time. A coat of tar given annually will considerably lengthen the lasting properties of the fence, as well as add to its appearance.

A much neater, but more expensive, fence than that just described is made as follows: Dig the pits and place the posts as directed for the last, nail two bars horizontally at 2 feet from top and 2 feet from bottom along from post to post. They should be morticed into the posts and the ends of every pair neatly joined for equality of surface in nailing on the uprights. These uprights are made of from 5 feet to 6 feet in length, 2½ inches or 3 inches wide, and 1 inch thick, and nailed at 2 inches apart on the horizontal bars, the top of each being neatly and sharply pointed. From the number of uprights required to erect a fence or guard of this kind, and as they must be run through the saw-mill to insure uniformity of size, it comes to be rather expensive, but this is to a great extent minimised by the stability and neatness which characterise such an erection. On an estate in Ireland I was much pleased with the guards of this kind that had been erected around the rarer Conifers in the park; and what I thought considerably heightened the effect and added much to the convenience of entering, as well as for cleaning, pruning, and repairs, was that a little gate of similar construction to the fence was added to each.

Where trees, hardwoods in particular, are simply to be protected from farm stock rubbing against their stems, the erection commonly in use is a single rail placed on and nailed securely to the posts that have been driven into the ground in a circle around the stem, but with the heads projecting outwards at an angle of, say 45° degrees. The posts should not be placed nearer the stem than 3 feet, and held in a slanting direction while being driven, a stout rail nailed from one to the other and on top of the posts completing the structure. We have found this method valuable, easily and cheaply erected, and not at all liable to get out of order. Of course, sheep will not be kept out from trees around which this is placed, but that is of little importance, for unless to young and tender-barked specimens their injuries are not of a deadly nature. A three-fold purpose is aimed at by such an erection—first, it withstands rubbing against better than posts that are driven in a perpendicular manner; second, less of the ground around the tree is taken up, although a like purpose is performed as regards keeping the stock at bay; and third, the expenses of wood and erecting are small indeed.

Wire netting placed around the stems of trees we have likewise found valuable for preventing horses barking and gnawing at them, but I am sorry to say that after a half-dozen years' trial we are not continuing the method, which of itself certainly speaks bad for the adoption of the practice generally, in this district at least. The second class of guards which are employed for protecting young trees principally from the attacks of ground game—hares and rabbits—we will now consider, but only such will be described as we have found really well suited for the end in view.

For small standard specimens having unbranched stems, nothing, in my opinion, equals, whether for appearance sake, efficacy, cheapness, or ease of application, guards made of bark. These we have used for a number of years, and, I may add, with the most satisfactory results, most of those made ten years ago being almost as good as when put up, and looking at present as if they would faithfully serve the intended purpose for years to come. The bark used is either Larch or Oak, but I have no doubt other kinds, such as that from the Spanish Chestnut or Elm, would do well; and I have also learnt on good authority that the bark usually sold for decorating ferneries, &c., is perhaps best of all. Cost will, no doubt, debar the latter from being used commonly, and rightly, too, for if that from home-grown trees, and which can be obtained for the stripping, lasts for half a score of years, it may be considered waste on the forester's part to cast this aside for the ready-made and costly foreign article. The bark should be put aside for the above purpose when Oak and Larch stripping is going on in the season, the straightest, cleanest, and that of medium thickness being preferred.

In applying the bark, simply bend it around the stem requiring protection, overlap the edges for half a foot or so, and fasten with wires at distances of 2 feet apart. Usually the bark laid aside for this purpose is taken off in 3-feet long strips, so that one length is perfectly sufficient for a single tree. The advantages of overlapping the edges are, that room is given for expansion of the stem, and additional bark will not need to be applied to make up this deficiency.

Ordinary galvanised tying wire we use for fastening on the bark, which is run right round the stem on the top of the bark and securely and tightly fastened wherever the ends meet.

For newly planted trees of small size, and such as are branched to or near the ground, either of the following guards will be found to answer well, and, being cheap and easily erected, should be largely employed on every estate where game abounds. Palings 3 feet long, 2 inches wide, and half an inch thick are cut at the sawmill—the remains of Spruce Fir or any other timber that has been converted for estate purposes will answer the purpose admirably—the ends pointed, and driven into the ground all around the young tree with the tops inclined outwards. Small-sized fencing wire is then interlaced between the palings at about 9 inches from top and bottom, this serving not only to strengthen the erection, but unite it together. A fence of this kind, including labour, costs but little over 6d, gives no trouble for many a day, and not only guards the young tree from the depredations of ground game, but in exposed situations is of immense value in the way of shelter. Frequently, when sawn wood runs short, we use small Larch poles of perhaps 2 inches or 3 inches diameter for the same purpose, and erect in a similar manner to that above described.

Another guard, cheaper than the latter, and of easy and almost similar construction, is made as follows: Drive 3-feet-long Larch posts of 3 inches diameter into the ground in a circle around the tree and just outside the range of branches. They need not be closer than 6 inches from one another, and inserted in an outward, slanting direction; warp Birch branches or Heather out and in between the posts from bottom to top, and an effective and durable fence, and one that costs but a trifle, is thus speedily erected. Numerous other guards made of rabbit-proof netting might also be described, and will, perhaps, be referred to in a future paper.

A. D. Webster.

Penrhyn Castle, North Wales.

TIMBER IN MONMOUTHSHIRE.

It may be interesting to some of the readers of *Woods and Forests* to know the present state of the timber trade with us here in Wales. The demand for Oak timber has fallen away considerably, chiefly owing to the railway wagon building being very slow just now, and, on the other hand, the Americans in many cases deliver Oak scantlings cheaper than we can.

I should advise landowners to be very careful in selecting their timber for felling, as there is little or no call at all for small Oak. Oak to sell now about here must be straight, clean, and of a girth of 12 inches and upwards. Even with Oak timber of large and clean dimensions prices have fallen very low. The Elm timber is at present about the same. Elm of good dimensions is in more favourable demand than for some time past. Poplar is somewhat the same as of late in price, but the demand for it seems to be increasing. Beech seems to be on the wane in price; we have bought and sold Beech much cheaper this year than last. The demand for it is lessening and prices lowering. Good Ash timber holds its position as well, and still continues to realise a good price per foot when of clean dimensions. For rough Ash, only fit for rough purposes, there is little or no price, as it is a difficult thing to dispose of. Ash at present must be clean and good; then it will fetch a very good price. Cherry, Alder, &c., stands with Beech. Pitwood and logs are very low here, and where a long carriage is on it, it is not worth cutting. French pitwood is filling our ports, and is bought up before our English pitwood. Coppice is not worth felling without it is of clean Ash, &c., fit for hurdle and fence making. I trust that our markets will again look up, so as to give landowners some encouragement to go on with planting and cultivating our woods in a proper manner. The timber sent into this country now by America is far ahead of home-grown timber for clean dimensions, and I consider it a question whether the merchants of this country will be able to compete with the Americans. If they are to do so, no time must be lost in planting, as there are very few lots of first-class hard-wood trees to be found in this country. The Oaks of 40 feet and 50 feet in height with proportionate girth which we once had in this country are seemingly all cut down, or, if not cut down, they are preserved for ornament. I measure daily large lots of Oak in Wales and the bordering counties, and I find but very few first-class trees, and the same will apply to Elm and Ash.

Young Forester.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BUSH FRUITS.

THE heavy demands made on all small fruits this scarce Apple season will doubtless have a tendency to direct increased attention to their culture. A dish of well-flavoured Gooseberries generally finds as many admirers as a dish of Grapes, or one of any other kind of fruit. Gooseberries should, therefore, be well treated. One thing is absolutely essential in light soils, and that is never to allow spade or fork to be worked amongst them after they are once planted; each quarter should receive instead a good heavy mulching of half-rotten manure as soon as fruiting is over, and this should remain until it is time to renew it another season. Our Gooseberry plantations are in three separate positions, viz., on wires in a warm sheltered spot, from which the bulk of our dessert fruit comes; Warringtons under a north wall for furnishing a late supply; and a main plantation of large bushes to produce fruit for picking green and for preserving. The trellis devoted to the dessert-fruiting series is some 4 feet 6 inches high, and consists of four stout galvanised wires, held firmly in their places by standards at either end, and running through (at intervals of 8 feet) uprights of flat thin iron. Each tree is furnished with about half-a-dozen branches, trained vertically, and these are invariably covered with fine fruits; indeed, as a rule, they literally hang like ropes of Onions. Some little discretion is required during the first year or two as regards the management of the different varieties, such as removing the fruit from the weaker growers in order that all may reach the top about the same time; but this end once attained, they give hardly any trouble except the removal of superfluous shoots in summer and an examination of the ties in spring. Where quantity from individual bushes is required, this mode of culture will not find favour, but where dessert Gooseberries in variety are needed it can be heartily recommended.

Late varieties (chiefly Warringtons) under a north wall furnish dishes after the greater part of the fruits on the trellis has been gathered, and thus prolongs its season. The main plantation for culinary purposes receives exactly the same attention in the way of planting, mulching, &c., as the quarters that furnish the dessert fruit, but the pruning is on quite a different scale; indeed, these last and the trellis bushes are examples of extremes in the way of extension training and restriction. We plant the bushes 6 feet apart each way, and allow 1 foot of room all round so that the heads are 5 feet through. We are not much troubled with bullfinches, which, I think, are kept in check by giving a good syringing with soapy water before lime is sprinkled on the bushes after pruning. The lime in this case adheres to the branches and buds until it is pushed off by spring growth.

With respect to varieties in Gooseberries, the following can be recommended for light soils, although, like all other fruits, they may doubtless vary considerably in different situations: For purely dessert purposes, irrespective of size, Green Walnut, Ironmonger, Keen's Seedling, Leader, Red Champagne, Rumbullion, Whitesmith, and Yellow Sulphur may be selected; for size, Freedom, Green London, Thumper, Leveller, Railway, Speedwell, and Dan's Mistake are good. These, however, are now comparatively old varieties, and may have been superseded. I may add, for the benefit of those who care to go in for trellis culture, that all varieties seem to answer well under this treatment. Weak growers, however, must not be cropped too heavily until they have become established.

As to Raspberries, where the soil is naturally light, it is as well to select the coolest part of the garden, and to substitute cow for stable manure at the first planting. If this is done, and attention given afterwards to annually mulching and keeping the surface firm, this delicious fruit gives very little trouble, except the yearly tying to stakes or trellises, as the case may be. I decidedly prefer the latter on the same scale as recommended for the Gooseberry. Old canes and all new wood not required for another season should be removed directly the fruit is gathered. Such treatment has the effect of ripening up the fruiting canes early, and is in every way better for the plantation. Carter's Prolific, Fastolf, and Fillbasket are the varieties which we grow.

Exactly the same system of culture as given for the Gooseberry is practised in the case of Red and White Currants, with the exception that in their case walls are utilised instead of trellises; and the Cherry Currant, Raby Castle and Warner's Grape are used respectively on south-east and north-west walls. To extend the season of fruits for tarts, the White and Red Dutch, together with Raby Castle, are grown as bushes. Black Currant culture may be briefly summed up in the advice to plant wide, *i.e.*, 6 feet or 7 feet apart each way. We thin fairly hard and early when the trees are established, and mulch at the fall of the leaf on a firm surface. It must be remembered that in the case of this fruit, as also in that of others, we are located on a very light soil. The planting in the first instance should always be thoroughly well done; a trench should be taken out the entire length of the row, and of sufficient width to give freedom to the roots without crowding; a layer of well-rotted manure should be placed in the bottom, and this should be lightly worked into the soil. A little of the same manure should be shaken over the roots before the soil is filled in, and the earth should be firmly settled and a mulching given. In the case of the Raspberry, and indeed, wherever the soil is naturally lighter than is thought to be conducive to the well-being of the fruits in question, cow-manure mixed with road-scrapings in the proportion of two to one, should be substituted for stable manure. In the event of very hot weather it is advisable, where the foliage is scant (as with trellis Gooseberries and Currants on south-east or south walls it generally is), to give a soaking of liquid manure and a little extra mulching just as the fruit is beginning to change colour. E. B.

Zonal Pelargoniums.—In the garden at Bridge House, Tooting, the residence of Mr. Bonner, it would appear to be a maxim that a few different kinds of plants should be cultivated, and that they should be grown as well as it is possible to grow them. One of the chief attractions here at present is the display of Pelargoniums, which give life and colour to the plant houses. The growth of the plants amply proves that the treatment to which they have been subjected has been congenial to them, and the selection indicates the advantage to be derived from not taking any kind for winter blooming that may happen to turn up. There are many varieties excellent as summer bloomers that cannot be induced to make themselves useful in winter. Amongst the sorts grown here we singled out the following as being the most showy and desirable, viz.: Queen Matilda—a charming variety of dwarf habit and a very free bloomer; trusses large; pips excellent in form, soft pink, the base of the upper petals being white; Queen of the Belgians—trusses and individual flowers large and pure white; a free bloomer, and excellent all the year round in any position; Lucretia—a profuse bloomer; pips medium sized, white, with just a faint tinge of rosy pink round the eye; John Gibbons—brilliant scarlet, and good all the year round; Surprise—a gem for winter blooming; flowers, although not large, numerous, and white mottled with salmon-pink, and very attractive; it is sometimes called Salmon Vesuvius; Queen Anne—another dwarf variety with very dark zone on the leaf; flowers large and rich salmon; Fanny Catlin—flowers mottled salmon, white eye; another salmon flower, but of a different shade and very handsome is Mrs. J. Gibson; Ferdinand de Lesseps is an old favourite; flowers large and brilliant scarlet with a distinct white eye; Henri Jacoby—one of the deepest crimsons in cultivation, useful also as a summer bedder; Mrs. Sturt—purplish pink; Sophie Birkin—mottled salmon; Queen Elizabeth—deep rose with a white eye; Circulator—cerise; Queen Adelaide, mottled salmon bordered with white.

NOTES OF THE WEEK.

Gladioli from Scotland.—On the 1st of November, Mr. Matthew Smith cut some spikes of Gladioli in his garden at Roselea, Prestwick, and sent them to us—magnificent spikes, quite as large as any exhibited in August, and equally brilliant in colour—a fact which shows that the Gladiolus can be grown to perfection in the north, and that its flowering season extends over a much longer period than in the south. Northern growers, however, are not able to get bloom so early in the season as we do in the south. The spikes from Mr. Smith arrived perfectly uninjured, even after such a long journey. They were ingeniously packed in specially made Gladiolus cases. These have a light wooden framework, the four sides of which consist of canvas, thus affording ample ventilation. The spikes thus enclosed are tied firmly to upright sticks, secured at the bottom of the case and also at the top. So treated they are immovable.

Clerodendron fœtidum.—For several weeks past this handsome shrub has been in flower against a wall in Kew Gardens, where it is seemingly quite hardy. It grows from 3 feet to 5 feet high, has broad noble-looking foliage of a peculiarly deep green, a colour which contrasts strikingly with the reddish brown shoots and deep rosy red blossoms. These are borne in dense clusters, terminating all the shoots, and often measure 6 inches across. In gardens along the south coast this plant is perfectly hardy, even if not planted against a wall. In Mr. Kennard's garden at Shopwyke, near Chichester, we lately saw a grand specimen of it carrying numerous heads of bloom.

November flowers.—From Mr. Loder's garden, at Floore, Weedon, I send you a few Dahlias, Tobacco, Heliotrope, Ageratum, &c.—a very unusual presentation at this season of the year. I also send you a bunch of Begonias, cut in the open, from plants raised from seeds sown in January. For the last month they have been as good as at any time during the season. Castor-oil plants are also as vigorous now as they were in August, and should the weather continue mild for a few days more, Cistuses will be in full bloom. We have now out of doors considerably over 200 varieties of plants in bloom.—GEORGE GOLDSMITH.

*** A beautiful and interesting collection of open-air flowers, all excellent for the season. The Begonias particularly fine.—ED.

Hybrid Nerines.—I send you three seedling Nerines, hybrids of 1885, viz., N. flexuosa × corusca major (Henderson), flexuosa × Fothergilli, and flexuosa × pulchella. They all throw up their foliage before they do their flower; that of flexuosa × corusca major is glaucous and 1½ inches broad; that of flexuosa × pulchella partakes more after that of flexuosa. The plant of flexuosa I possess I obtained from Henderson. I send you a blossom of it. My corusca major I also received from him. I observe in THE GARDEN of last week that you have received a flower of corusca major from Mr. Peters, of Guernsey, so that you will be able to judge the effects of

the application of pollen of it on flexuosa. I also send you flowers of two hybrids I sent you on a former occasion. They are hybrids of flexuosa × undulata and undulata × flexuosa. There is not much difference between them. I call one of them erubescens and the other roseo-crispa. One point I have aimed at in my hybridisation is to produce plants which are evergreen and which send up their leaves before their flowers.—THOMAS CAM.

*** An interesting and beautiful series of Nerines was sent with this note, some of which are very lovely, the best being those which have resulted from crossing the brilliantly-coloured N. cernsca major and Fothergilli with flexuosa and crispa. These have flowers almost as large as those of Fothergilli with the wavy-edged sepals of flexuosa and crispa, and of a bright carmine-cerise colour. That named erubescens has pale pink flowers with wavy sepals. These three new hybrids are decidedly worthy of distinctive names, though we think that, instead of Latin names, they should receive simple English names; otherwise confusion will arise, as in the case of Narcissi and other bulbs of which there are numerous hybrids.—ED.

Eucomis regia.—Accompanying the gathering of Gladioli from Mr. Smith came a very fine spike of this little-known Cape bulbous plant. It is not very showy, but interesting and attractive, owing to its being very unlike most other plants. The spike sent measured just upon 18 inches in length, and consisted of crowds of flowers, each about the size of a shilling, and greenish in colour with a purple centre. The leaves are a yard long, 3 inches or 4 inches broad, and wavy on the edge. Altogether, it is a noble plant, and one that many would like to grow were it more easily obtainable. There are a few other species grown in botanic gardens, among them being E. punctata, E. undulata, and E. nana, but E. regia is the finest of all.

Cestrum aurantiacum.—I have grown this beautiful Mexican shrub out of doors all this summer, and it is still beautifully in bloom, the brightness of its long spikes of orange-yellow flowers being most striking. I believe that this plant is as hardy as any of the kinds of Habrothamnus which thrive so well in the open air in summer in our climate. I presume it is a scarce plant, as I have not heard of it nor seen much of it.—W. E. R., *Paignton, Devon.*

*** It is by no means common. It used to grow and flower beautifully in the conservatory at Chiswick before it was converted into a vinery.—ED.

A November gathering.—This morning (November 1) I gathered from the open borders in my garden good flowers of the following plants, which is, I think, somewhat remarkable for a garden so near London. The plants now in flower are—

Abutilons, red and white	Mignonette
Ageratums	Pansies
Anemones	Petunias
Antirrhinums	Phloxes
Campanulas	Portulacas
Calceolarias	Pyrethrums
Chrysanthemums	Roses, Provence and Souvenir de la Malmaison
Dianthuses	Scabious
Dahlias, single and double	Stocks, single and double
Fuchsias	Salvia patens
Gazanias	Salpiglossis
Heliotropes	Sunflowers, two varieties
Helianthuses	Tropæolums
Helichrysums	Verbenas
Hollyhocks	Veronicas
Jasmines	Xeranthemums
Lilium auratum	Zinnias
Lobelias	Zonal Pelargoniums, twelve varieties
Marguerites, white and yellow	
Marigolds, African and French	

—J. DREDGE, *Clapham Lodge, S.W.*

Bouvardias.—I saw the other day in Messrs. Veitch's nurseries, at Chelsea, a new double Bouvardia, named Triomphe de Nancy, having pale bright red flowers of the colour of those of B. elegans and the foliage of B. Vreelandi. It is an excellent companion to President Garfield and Alfred Neuner. Elegans is a capital red variety—one of the best among the single forms; and Vreelandi is very free, and produces fine trusses. Maiden's Blush is very pretty indeed, and should find a place in every collection, and so should jasminiflora; one of the very best, and a gem in a collection is Priory Beauty, pale pink, very pretty indeed and exceedingly free; it beats longiflora flamnea. Hogarth is still very fine, and will hold its own for some time to come. There is just now a house of Bouvardias at Chelsea, and opportunity is afforded to anyone interested in these plants to form a collection. Those I have mentioned are well worthy of cultivation.—R. D.

Three good basket Ferns.—A beautiful trio of Adiantums for basket purposes are A. Edgeworthi, A. caudatum, and A. dolabriforme. The two first have simply pinnate fronds, the upper edges of the pinnæ being more or less deeply divided; the last named very much resembles A. lunulatum both in shape and habit; but A. lunulatum is a deciduous species, and always loses its fronds in winter, whilst the fronds of A. dolabriforme are persistent, and the semi-lunate pinnæ retain their vivid green throughout the year. These Ferns all produce young plants at the points of their fronds, a circumstance which gives them additional interest. We saw them all three in baskets, the other day, at Mr. Henderson's nursery, Maida Vale.

INDOOR GARDEN.

EUCHARIS AMAZONICA.

THE accompanying illustration of an exceptionally fine specimen of the well-known large white Eucharis (the correct name of which is E. grandiflora) is from a photograph, for which we are indebted to Mr. Boulton's gardener at Eastbourne. Mr. Jupp, who grew this specimen, informs us that it produced thirty-five spikes of bloom, each spike having from six to eight flowers, or buds, all at the same time. It was planted in a pot 20 inches in diameter, and has exactly doubled in size in five years. Mr. Jupp says he has never been troubled with the Eucharis mite, and we believe him, so far as this plant is concerned, for it is the largest and best flowered we ever heard of. Some correspondence took place in THE GARDEN a year or two ago relative to the number of times this Eucharis would flower in the same year; it is therefore interesting to hear that Mr. Jupp expects to have this same specimen in bloom again this Christmas, notwithstanding the heavy crop of flowers it bore in September last, when the photograph was taken. Many of our readers will say that there must be something else to relate in connection with this plant and its vigorous health, besides the negative information that it has not been troubled with the Eucharis mite. What soil, temperature, position, amount of water, rest, and light had this fine example of cultivation to bring it to such perfection, for it is to these points we must look for the real cause of Mr. Jupp's success. This Eucharis, and in fact all indoor bulbous plants, are easy enough to keep in health and in flower annually, if only they are in an atmosphere they like, and watered with the kind of water that suits them. We have seen gardens where the Eucharis has grown "like a weed without any trouble," and others where it has been the bugbear of the gardener's life; "it won't do here, no matter how I treat it." Of course, the latter's plants may have the Eucharis mite, and he not know it, in which case careful and rich cultivation aggravates rather than alleviates the disease. There can be no doubt now that the little mite which is found on the roots and between the scales of the Eucharis and other bulbous plants, and which is cousin to and not unlike the cheese-mite, is a most destructive enemy to the Eucharis plant. We have seen it increase at a rapid rate and literally destroy a healthy plant of E. grandiflora (amazonica) in one season. At the time when the controversy raged as to whether this mite was the cause of the disease, or whether it only played the part of scavenger, eating up those parts of the plants which had been disorganised in some other way, we saw an experiment conducted as above, and in one summer a few mites, which had been placed about the roots of a healthy Eucharis, took possession of all the space between the bulb scales, causing the roots to curl and look as if they had been poisoned with some corrosive substance, and after a time prevented the leaves from growing out of the bulbs by attacking them when inside. There are still cultivators who believe that the Eucharis disease is the result of bad treatment in some form or other, and of course these plants are subject to various other ills besides that of falling a prey to the mite; but the cause of the collapse of this plant in many gardens, as, for instance, in the gardens at Trentham, was the appearance of the tiny destroyer, known to entomologists as Rhizoglyphus Robini, among the bulbs. On plants infested with this disease the leaves, especially the younger ones, have patches of curled rusted tissue in more or less abundance, and on the roots the same reddish disfigured parts are also apparent. The best and only cure for this pest is the fire; at all events, we have never heard of any insecticide that will eradicate the disease without injury to the patient, or even destroying it. Sulphur, carbolic acid, paraffin, and lots of other specifics have been recommended, but they do no good, and after expending a great deal of time in applying them, one finishes by having to throw the plants away. We had this disease not only amongst the Eucharis, but on Pancratiums, Phædranassas, and Crinums, but directly it revealed itself we examined each plant carefully and burned all that we found infested with the mite.

The secret of growing this plant apparently rests on the depth the bulbs are planted and the kind of soil used, at least as much as on any other factor. Here is what we find answers for E. grandiflora, which grows well, has abundance of foliage, and flowers twice or thrice a year: Soil, a good fibrous loam with about one-sixth rotted cow manure; pots, roomy; depth bulbs are planted, their necks about half way down the pot; watering, copious all the year round, rather less before the flowering season; temperature, that of a stove all the year round; light, shaded in summer from bright sunshine. If Mr. Jupp would kindly say in what points his treatment differs from ours, we should all of us then know wherein our comparative failures with this plant laid. W.

Amasonia punicea.—This is undoubtedly a very valuable mid-winter flowering plant, and it may be said to have two successive periods of service; one when the pendulous tubular creamy white flowers, produced in twos and threes, are developed, the other when they have faded; and the vermillion-crimson Poinsettia-like spreading bracts, which are arranged in pairs along the entire length of the racemes, increase in size, become more brilliant in colour, and remain so for a space of two months. It is so free, that quite small plants obtained from cuttings were flowering in 2½-inch pots. It bids fair to rival the Poinsettia as a winter decorative plant, and it can be treated just as this well-known plant is. It is easily propagated by means of cuttings, and it does well in a mixture of peat and loam. It yet remains to be seen whether it will prove an exhibition plant in spring or summer; if it will also flower at these times, it is likely to prove of great value. As a winter-flowering plant it is undoubtedly in the front rank.—R. D.

Begonia John Heal.—This is a valuable winter-flowering hybrid Begonia—valuable not only because it is so free, but because its blossoms are so persistent. A few days ago I saw a plant in one of the houses at the Royal Exotic Nurseries at Chelsea, and I was informed that the flowers had been open for a space of fifteen days. This is such an unusual experience in the case of Begonias of this type, that it is worthy of notice. Some very interesting crosses have been made between the above and a fine form of the tuberous-rooted type, and I anticipate the result will be in the shape of some startling developments.—R. D.

BROMELIACEOUS PLANTS.

The Bromeliads, as the various genera which constitute this Order are called, consist of a large family of highly ornamental plants; some of the species have brilliantly coloured flowers and flower-leaves or bracts; others are remarkable for the extreme beauty of their foliage-markings, whilst not a few possess both handsome leaves and showy flowers. Notwithstanding these recommendations, they have never received that amount of recognition from English plant growers which they deserve, and which they certainly obtain on the Continent. This neglect is doubtless due to the fact that no English amateur has become a specialist as regards bromeliaceous plants, as has been done in the case of other Orders, of which Orchids, Ferns, and Palms are familiar examples; and thus, despite their great beauty, the majority of Bromeliads have remained comparatively unknown to most plant growers in this country. By the death of Prof. Morren, Belgium lost its great authority on Bromeliads. Under his fostering care the rich and rare collections of them to be found in that country acquired unprecedented dimensions; and if some one in this country would take this class of plants in hand with the same loving care, and make them popular, their cultivation would soon be taken up by others. Bromeliads are, without exception, natives of America or the American Islands, but many have been introduced to the western parts of Africa and various places in the East Indies. They are all capable of existing in a hot, dry atmosphere, without contact with the earth, on which account they are favourites in South American gardens, where they are suspended in buildings or hung to the balustrades of balconies, situations in which they flower abundantly, filling the air with fragrance. The cultivation of Bromeliads is extremely simple, growing, as most of them do, in a state of nature upon the branches of forest trees or upon high rocks; the whole of the smaller kinds take kindly to block culture, and when firmly fastened to a block of wood by copper wire, with some Sphagnum Moss, they give little more trouble beyond watering and syringing. The stronger-growing sorts thrive best as pot plants, many of them being massive and heavy; they are not easily accommodated in any other way; for these the drainage must be open and free and the soil should consist of two parts peat to one of loam and one part sand. The majority of these plants have a vase-like habit of growth, and the sheathing and overlapping bases of their leaves enable them to retain water in their crowns, which is highly beneficial to them, and when water is given these plants it should be given in that way. Any water which trickles down from the leaves will usually supply the roots with sufficient moisture. Bromeliads cannot be said to be cool-house plants, most of them enjoying strong heat and full exposure to sun-light, but with due ventilation any house in which they are grown need never be oppressive to visitors. The flowers and coloured bracts of Bromeliads are usually vivid and very persistent, often lasting months in perfection, and goodly numbers are produced during the dull months of winter. The kinds here noticed are all worthy of a place in the most select collections, and, moreover, are all distinct from each other.

Æchmea.—This genus contains many plants of great beauty. In habit they are more or less vasiform, which may be taken as the style of growth belonging to the whole family. Æ. Mariæ-Reginæ is one of the boldest, and also, when in flower, one of the handsomest. The leaves are deep green on both surfaces, spiny at the edges. The scape is clothed for about two-thirds of its length with large, oblong, boat-shaped bracts, which are vivid rosy magenta in colour; these last for several months in perfection; the flowers are not showy. Æ. cælestis has long strap-shaped leaves, which are spiny at the edges and deep green on the upper side, but pale beneath and transversely banded with deep green; the scape bears a dense panicle of flowers, which are pale blue, ornamented at their bases with small bracts of rosy red. Æ. glomerata is a bold plant, with recurved deep green leaves, armed at the edges with large black spines, scape erect, panicle dense, bracts numerous and blood-red, flowers small, deep violet. Æ. fulgens has bold, arching, deep green leaves, and an erect panicle of coral-red flowers, tipped with blue and black, but destitute of bracts. Æ. paniculigera, a strong-growing kind, produces a scape from 2 feet to 3 feet high, purplish red in colour and clothed with a scurfy-down; the bracts are rose-coloured, and the panicle very large; the lower part of the flowers is bright rose, petals purple. Æ. Veitchi (sometimes called Chevalliera Veitchi) has deeply channelled leaves, upwards of 1 foot long, toothed at the edges, pale green and sparingly spotted on the upper side with dark green; scape erect; flowers crowded into a dense cone-like head; these are red at the base of the cone, but paler towards the top, and the small-toothed or spiny bracts which spring from the base of each flower are bright scarlet. In Æ. disticantha the leaves are long and narrow, furnished sparingly with spines on the edges; the panicle is ornamented with somewhat small, closely-set, bright red bracts; the base of the flowers is rosy crimson and the petals bright bluish purple. Æ. Melinoni has large panicles of scarlet flowers, tipped with rosy pink. Æ. bracteata is a fine, bold-growing plant, bearing a large panicle of small yellow flowers; the latter are accompanied by large brilliant red bracts.

Eucharis amazonica. Grown at Torfield, Eastbourne. Engraved from a photograph for The Garden.

Billbergias are for the most part strong and robust in growth. B. macrocalyx has broad, furrowed, dark green leaves, which are sparingly spotted on the upper side with pale green, and faintly banded beneath, with mealy stripes; spike unbranched, erect, base of flowers mealy; flowers bluish purple in the bud, changing to greenish blue when expanded; bracts large, boat-shaped, and deep rosy red. B. Baraquiniana is an erect plant, the leaves of which are recurved at the ends and edged with numerous reddish spines; they are pale green and ornamented with numerous mealy bands; the flowers are densely powdered with a white scurf at the base, recurved, and green, with long, exserted stamens, which are also green; at the base of the flowers are several large, deep rose-coloured bracts, which constitute the beauty of this plant. B. pallescens has erect leaves, nearly 2 feet long, deep green above, and ornamented with distant white spots; under sides paler, faintly banded, and edged with a few distant, small spiny teeth; spike towards the top drooping; flowers greenish, tipped with violet; the bracts, which are all below the flowers, are somewhat narrow and bright red. B. Moreliana has broad deep green leaves, transversely banded beneath with a grey scurfy powder; flowers violet, bracts large and rosy red. B. thyrsoidea has plain, green, spiny-edged leaves, whilst both flowers and bracts are rich bright crimson. B. Libioniana is a

slender growing plant, with finely-toothed leaves, about 1 foot in length and plain green in colour; spike erect, bearing towards the top numerous large flowers, which are bright red and bluish purple. B. rhodocyanea, a bold-growing, erect plant, has leaves formidably armed with large black spines; their upper surface is deep green, the reverse paler and transversed with grey bands; the flowers, which are borne upon erect spikes that rise level with, or just above, the leaves, are blue and white, each being furnished with a large, pointed, and spiny-edged rose-coloured bract. B. miniata rosea is a small plant with recurved leaves, spiny-toothed at the edges, and pale green, dusted with a scurfy powder; flowers numerous and deep rosy red; bracts large, slightly mealy, red tipped with blue. In B. longifolia we have a handsome species bearing large crimson bracts and numerous long tubular flowers, which are yellowish green and blue. Other good species belonging to this genus are B. marmorata, melanocantha, nutans, sphacelata, Wetherelli, Reginæ Ameliæ, and Leopoldi, &c.

Tillandsia.—This genus contains some handsome species, the smaller-growing kinds of which succeed best when grown upon blocks suspended from the roof. The leaves of some are marked in a remarkable manner. In T. mosaica their ground colour is deep green, cross-banded on the upper side with creamy white or pale green, and on the under side they are reddish brown and crimson; the flower-spike, which is erect, bears rosy bracts and yellow blossoms. T. argentea possesses quite a different style of beauty, the whole plant being clothed with short, silvery white hairs, which give it the appearance of being covered with hear-frost. T. pulchella, which is similar in size and habit, has pale green scurfy leaves; the flower-spike, which is erect, is clothed with large bright red bracts, from which protrude white flowers. T. dianthoidea has short, closely-set, dark green, pointed leaves covered with a scurfy farina; the spike, which is erect, is furnished with (for the size of the plant) large rosy pink bracts and deep violet flowers. T. recurvifolia is similar to the two previously named kinds, but is scarcely so large, and the scurfy leaves are recurved; the flower-spike, which rises just above the foliage, is furnished with numerous broad, boat-shaped, rose-coloured bracts, whilst the flowers themselves are pure white. T. Lindeni has light green leaves streaked on the under sides with reddish brown; the scape, which is erect, bears an ovate, flattened spike furnished with rosy carmine bracts arranged in a two-ranked manner; the flowers, which are large and beautiful, are azure-blue, shading to violet, and the base of each petal is streaked with white, thus forming, as it were, a distinct white eye; there are several varieties of this plant, the most notable of which are Regeliana and Morreniana, which differ from the others principally in the size and colour of their distichous bracts and in the colour of their flowers. T. tessellata is large and vase-shaped, and its leaves are extremely ornamental; they are light glaucous green, mottled on the upper sides with transparent greenish yellow, and veined beneath with rosy purple. T. xiphioides has wholly grey leaves and flowers large, pure white, and very fragrant. Other good species of Tillandsia are splendens, ionantha, stricta, Rollissoni, Legrellei, Pastuchoffiana, &c.

Caraguata Zahni.—This plant resembles a Tillandsia in habit. It branches near the base, and ultimately forms a dense tuft. Its leaves, which are about a foot long and upwards of 1 inch wide, are broadly sheathing at the base, where the colour is yellowish amber, veined and lined with crimson; the upper part, as it ages, becomes suffused with reddish crimson, the tips only being green; the flowers, which are borne in dense panicles, are golden yellow, as are also the short intermediate bracts, those that are lower being larger, boat-shaped, and lengthened into long points, tipped with scarlet; below the flowers the stems bear a quantity of large, long, and narrow bracts of a brilliant scarlet hue. C. cardinalis has plain green leaves and erect spikes of scarlet flowers.

Pitcairnias.—These are mostly slender-growing plants with long narrow, spineless leaves and long spikes of handsome flowers. P. staminea bears large pendulous, tubular-shaped, brilliant red flowers, the stamens of which are very long and of the same colour. P. flavescens has long deep green leaves, clothed on the under sides with greyish scurf; the flowers, which are bright yellow towards the base, become greenish yellow at the tips. In P. Andreana they are erect and rosy red at the base, the upper half passing into canary yellow. P. undulatifolia has white flowers with brilliant scarlet bracts. P. tabulæformis is thoroughly distinct in habit from that of any other species; its leaves, which are broad and somewhat ovate, are closely imbricated and pale green, the whole plant being as flat as a table-top; the flowers, which are long, are dull red, and rise just above the leaves. Other good species are corallina, sulphurea, speciosissima, polyanthoides, &c.

Pepinia.—This genus consists of only a few species. P. aphelandræflora resembles more Dracæna congesta than a Bromeliad; it produces long spikes of brilliant scarlet flowers, with greatly exserted yellow stamens.

Guzmannias.—These are Tillandsia-like in habit, but nevertheless when in flower distinct and handsome. G. tricolor has smooth dark green leaves, and bears erect scapes, clothed with short ovate bracts; the lower ones are yellowish green, striped longitudinally with deep purplish black, the upper ones tipped with scarlet; the flowers are pure white. For a long time this was the only species of the genus in cultivation; now we have several others, the most noticeable of which are G. melinonis, grandis, Reginæ and grandis.

Nidularium.—In this genus the flowers are for the most part arranged in crowded terminal heads, which do not rise above the leaves, in which the chief beauty of the plants belonging to this genus resides. N. spectabile is a dwarf, vase-like plant, with leaves about a foot long and 2 inches broad; their upper sides are deep green, the ends blood-red, and they are sparingly edged with small teeth-like spines; on the under sides they are dull purplish and transversely banded with scurfy lines; their tips are blood-red, the calyx being large and of the same colour, and rising above the lavender-blue petals. In N. Innocenti the leaves are green above, claret-coloured beneath, and the flowers are orange-red. N. Laurenti has green outer leaves, and towards the base white inner ones shading off into pale green and spotted with brownish dots; the flowers are pale blue. Other good kinds are Morrenianum, amazonicum, Scheremetieffi, and princeps.

Encholirions.—These resemble Nidulariums in habit, but produce tall spikes of showy flowers. E. corallinum has sheathing, recurved, slightly glaucous leaves, dark green above and dull purple beneath; the flowers are yellow tinged with green, whilst the bracts are bright crimson. In E. Saundersi the leaves are glaucous green above, and mottled beneath with reddish purple; the spike, which is erect, bears flowers and bracts of a soft canary-yellow. Other notable kinds are Jonghi and sanguinolentum.

Vriesia.—This genus contains many showy plants, most of which bear erect scapes, furnished with flattened spikes bearing large bracts, arranged in a two-ranked fashion; some, too, are conspicuous on account of their curiously marked and beautiful foliage. Amongst the best known and most prized are V. speciosa, oftentimes called the Tiger plant from the markings of its leaves, which are bright green above, but on the under side barred broadly with transverse bands of black. The scape, which is tall, is somewhat sword-shaped, and the bracts are imbricated and bright scarlet; the flowers are white. V. brachystachys is very showy; the leaves are pale green; bracts crimson tipped with green; flowers crimson at the base, passing into rich yellow; tips of petals black. V. sanguinolenta has long, erect, spreading leaves of a glaucous hue, the undersides of which are profusely mottled and blotched with reddish crimson. V. guttata is a much shorter-leaved plant than the preceding, but equally handsome, the sheathing leaves being very broad at the base, glaucous green and distinctly marked with numerous, somewhat distant spots of purplish crimson. We have not seen either of these two plants in a flowering state. V. psittacina rubro-bracteata does not bear a flattened scape, and the leaves are dark green throughout; the flower-stem and bracts are brilliant scarlet, whilst the flowers are bright yellow with the faintest tinge of greenish blue at the tips.

V. hieroglyphica, a superbly handsome and robust plant, is vase-like in habit; the leaves are long and broad, with blunt ends; in a young state their ground colour is bright yellow, transversely banded with zig-zag lines of bright red; as they age they frequently exchange the yellow ground for bright light green, but in some instances the yellow only becomes deeper, whilst the zig-zag bands become very dark green on the upper side, those on the underside changing to purplish black.

V. heliconoides is a somewhat upright vase-like plant with recurved leaves of a metallic appearance. The scape, which is erect, bears very large Heliconia-like bracts arranged in a two-ranked manner, the lower half being rosy carmine, the upper part white; the flowers, which are white, do not rise above the bracts.

Puyas are large, bold-growing plants, requiring considerable space in which to develop their beauty. Being mostly natives of Chili, Peru, and Mexico, they thrive in a lower temperature than that needed for the majority of their kindred. P. grandiflora, gigantea, Whytei, and recurvata become grand ornaments for a large house.

Hechtias comprise a few handsome massive species, natives of Mexico. They produce long leaves, which are armed with rather formidable spines. Amongst the best kinds are Ghiesbreghti, glomerata, and argentea.

Ronnbergia Morreniana, a beautiful plant, bears leaves upwards of a foot long and nearly 4 inches broad, rounded at the base and tapering to a sharp point. The ground colour is light green, profusely streaked with irregular shaped lines and blotches of deep green, somewhat after the manner of Dracæna Goldieana. The scape, which is erect, is furnished with large sheathing, pointed green bracts. The flowers are white, and the petals are edged with blue.

Ananassa.—To this genus belongs the Pine-apple, and it also contains some few ornamental foliaged plants, of which the best is A. sativa variegata, the spiny leaves of which are green in the centre, broadly bordered with golden yellow; it also produces a small bright red fruit, which, although decidedly ornamental, is of little value for the dessert table, as the flesh is meagre and the flavour harsh and strong. A. Porteana is scarcely so showy as the last-named kind; although thoroughly distinct, it differs from it principally in having the centre of the leaf striped with white or yellowish white, and in the margins being of a deeper green. W. H. G.

Camellias as stove plants.—I do not see why any experienced plantsman should question the ability of the Camellia to endure a stove temperature, *i.e.*, if permanently treated as a stove plant. I can, however, speak from experience that Camellias will do so, as many years ago I had to manage a conservatory the temperature of which was never allowed to fall during winter below 60°. In this house, trained to pillars, and I think also on the roof, were such creepers as Stephanotis and Dipladenias and that heat-loving Passion-flower, Passiflora princeps; in this structure, too, were Camellias planted out in a border, and there they flowered freely every winter. It is sudden changes of temperature that Camellias dislike.—J. C. C.

*** We learn that the average temperature of the stove in which the Camellias are grown at Beddington, in Surrey, is during winter from 55° to 60° at

night and from 65° to 70° during the daytime. There are, we are informed, three Camellias in the house—one white, one red, and one pink.—Ed.

BOUVARDIAS PLANTED OUT IN PITS.

For producing flowers in abundance, choice in quality, and always highly appreciated during the months of August, September, and October, no plant excels the variety of Humboldt's Bouvardia called corymbiflora when grown under favourable conditions. It produces its blossoms so freely, that anyone having a pit or frame to spare cannot do better than devote it during the summer and autumn months to this Bouvardia. One-year-old plants, or even older ones, are preferable to plants grown from cuttings during the current year, as they are better furnished with shoots, and more bloom can be had from them; therefore anyone possessing a stock of plants which have bloomed the year previously in pots will do well to prepare them with a view to planting them out, and this can be done in the following manner any time during January; prune them down to within an eye or two of the old wood; then place them in a gentle heat. A vinery just started suits them well; syringe them freely, to induce new shoots to break from the old wood as well as from the new. This keeps the plants dwarf, and therefore they do not need much head room later on in the year. As soon as they show signs of breaking into growth, shake the roots out of the old soil, and replace them in pots as small as will hold them, simply allowing space enough for the roots. Use a light compost, consisting of equal parts of loam, peat, and leaf soil, with a free admixture of silver sand. Return them to the warm house, keeping them as near the glass as possible, to prevent them from becoming drawn. As soon as the shoots have grown about 2 inches, top them, and repeat this operation when 3 more inches of growth have been made. Keep them in a temperature of about 60°, gradually hardening them off until about the middle of May, when they can be placed in their blooming quarters. If old plants are not at hand, young ones can quickly and easily be had. Early in February procure some stout cuttings about 2 inches long, taken off with a heel; insert them singly in 3-inch pots, or several in a 5-inch pot in sandy peat and leaf-soil, and plunge the pots in a brisk bottom-heat. Keep them carefully shaded until rooted; then they should be potted off, but be careful not to use pots too large, as they do not make roots of large size, but simply a mass of fibres. Water carefully, and keep them near the glass in a temperature of 60°, and when about 4 inches high pinch out the point of each shoot, to induce the formation of side branches. When growing freely, gradually harden them off in the same manner as old plants, stop the shoots once more, after which no more pinching must be allowed, or the plants will not bloom so freely, nor will the flowers be so large as they should be. Then prepare the soil for planting, using the same proportion of ingredients as before; but it should be used in a much rougher state, and add to it a sprinkle of bone-dust. Choose for them a frame or pit in which the shoots can have about 2 feet of head room. The cuttings may be planted about a foot apart each way, the older ones 1 foot 6 inches or more, according to their size. Give a good watering, and keep them nearly close, syringing daily until they become established, when the supply of air should be increased until the lights can be left off altogether, except during long-continued rains; they will then need protection, in order to prevent them from being saturated. Well attend to them during the summer with water, both at the roots and over the foliage, and about the middle of August they will commence to bloom, when the lights should be placed over them, allowing, however, a free circulation of air. When the centre spike is cut from the stem, blossoms will start from the side branches, and will continue to do so until the end of October, *i.e.*, if protection is given to them on cold nights by covering the frame with mats. When they have finished blooming some of them can be taken up and saved for supplying cuttings for another season; but, if not required for that purpose, they can be thrown away. Other varieties of Bouvardia that are amenable to this method of cultivation are elegans and Vreelandi. Some of the later blooming kinds do not prosper so well, owing to their requiring more heat later in the autumn to induce them to expand their flowers.

Swanmore Park. E. Molyneux.

WINTER-FLOWERING PLANTS.

Cypripedium insigne.—There are a great many more attractive Orchids than this, but, as far as my experience goes, there are none more serviceable. We keep several dozen strong plants of it in pots ranging from 5 inches to 9 inches in size. These are now coming fast into bloom, and for many weeks they will be available for house and conservatory decoration. In a cut state, too, they are useful for filling vases and specimen glasses. For whatever purpose they are applied they will be found to be very durable, and a long stay in a house or cool conservatory does not injuriously affect them. For about four months in the year, viz., March to June inclusive, they are treated as stove plants, and during that time they form healthy fresh growth. When this is fully developed, *i.e.*, about the beginning of July, they are placed in sunny unheated pits, and there they remain till October, when they are transferred to a slightly-heated Rose house. They then speedily open their blooms, and a good succession is maintained till Christmas, and sometimes later. When treated as stove plants all the year round, they seldom do so well, as, instead of flowering, they are constantly forming fresh growths. A warm greenhouse suits them exactly, but, as a rule, they do not, under cool treatment, flower much before the spring. It is, however, during winter they are most prized, and it is then when all should strive to have them in bloom. At no time do we allow them to become dry at the roots, and when growing and rooting strongly they must have plenty of water, and occasional supplies of weak liquid manure. Four years ago last spring ours were all shaken clear of the sour soil and badly-drained pots in which they were trying to root, and were repotted. We used for them clean pots one-quarter filled with drainage, and a compost consisting of two parts of rough fibrous peat, one of fibrous loam, and a liberal addition of sand, charcoal and broken pots. The old plants, which were large, were pulled to pieces, and all had their dead roots cut away, and were then repotted, the divided portions being placed in pots just large enough to comfortably hold them, and the rough compost was firmly packed about the roots. This was done in the spring of 1882, and, with few exceptions, they have not been disturbed at the roots since. Constantly repotting them means constantly mutilating the roots; these cling tenaciously to the sides of the pots, and disturbing them does more harm than good. An annual top-dressing of turf is all that our plants get, and it is all that healthy, strongly-rooted Cypripediums require. When growing they will stand a moderate amount of shade, and an early vinery then suits them well, but they must be well exposed to full sunshine and light in order to mature their growth and ensure floriferousness. C. insigne Maulei, of which there are several forms of more or less value, is a decided improvement on the type, and quite as easily cultivated. According to my experience, there is little demand for this class of Lady's Slipper, but large quantities of cut blooms of it are now being sent to Paris from Belgium, and its blossoms may yet become fashionable on this side of the Channel. Quaint, but not pretty, is the verdict frequently passed upon them, but their very quaintness may give them a money value in the future; and therefore those who possess large stocks of this Cypripedium ought not to neglect them or be in a hurry to get rid of them.

Poinsettia pulcherrima.—During the latter part of November and December many stoves and plant houses are enlivened by the showy inflorescence of this plant, and it would be difficult to point out one more brilliant or useful. Nor is it at all difficult to cultivate. Cuttings made of the ripened growth, or young shoots taken off with a heel, may be struck in spring with the help of a good hot-bed or a close propagating frame; these may be gradually shifted into 6-inch pots, and transferred to a sunny pit or frame while yet dwarf and sturdy. Old plants that have been rested in a cool house will, if cut back in spring and started in gentle heat, break strongly; they may then be shaken out and repotted, using sizes a trifle larger than those from which they were taken. No particular compost is needed, though some growers consider peat indispensable. We find that a mixture of two parts fibrous loam to one of good leaf soil and plenty of sand suits them well. After the old plants have recovered from their rough usage they, too, will do best in sunny pits or frames, and all will require a little thin shading during the hottest part of bright sunny days. Then if given plenty of air all will be strong, though not lanky, by the middle of September, at which time they ought to be transferred to a sunny position not far from the glass in a warm stove or forcing house. They are certain to increase in height after this change, and no attempt that I have yet seen made to shorten them other than striking the tops can be said to have improved their appearance. The stems are somewhat flexible, and at the present time those of young plants may be safely coiled round the inside of the pots, the points being brought to the centre and staked upright. Last season we fairly doubled up some of the stems, thus reducing their height by about two-thirds, and, the work being done neatly, the stakes partly hid the bends. These sharp curves naturally had the effect of slightly reducing the size of the heads, while those coiled round the sides of the pots are much less checked; but they are not ornamental, and I should not think of placing them on a dining-table. Experts sometimes succeed in rooting strong tops of plants taken off with a few leaves as soon as the flower-heads show themselves, and I have seen very dwarf plants with fine whorls of floral leaves thus obtained. A brisk bottom-heat is required, but even with this more fail than succeed satisfactorily, and I should not advise anyone to attempt it unless they have abundance of tops to spare. All our plants, young and old alike, receive very liberal treatment. After the bloom-heads show themselves, abundance of liquid manure, either from the farmyard or made from sheep droppings and soot, is given, and also soot-water or sulphate of ammonia. These manures are applied frequently, and not too strong. Failing any of these, an occasional sprinkling of either Standen's, Beeson's, or Clay's fertiliser may be resorted to. Old plants are thus made to perfect three or four heads, and the young ones one head extra strong—*i.e.*, on an average about 12 inches across. Unless wanted for house or conservatory decoration, we prefer to keep our plants in heat, and if a rather drier atmosphere than usual is maintained, they will last much longer in good condition than they do in a cool house. The dry heat also hardens the stems, and a second lot of small heads is frequently pushed out lower down than the principal ones, and these prove serviceable for vases and table decoration long after the principal display is over. A dry heat also induces some of the flowers to set, and a few pods of seed are the result; the seeds germinate in heat as quickly as those of the Ricinus do. If the bulk of the plants must be employed in either the house or conservatory, they ought at least to be given the warmest positions possible, and in no case should they be set on a cold damp bottom. Water at all times should be given very sparingly. Unless these conditions are ensured them, both foliage and flower-heads soon damp or drop off. As a rule, Poinsettias are thinly intermixed with a variety of other plants, but small groups of them at intervals, or one large group in a favoured spot, will be sure to attract attention. We have two single varieties, equally valuable, one being a duller red than the other. It is also very distinct in habit, more short-jointed, much earlier, and of the two I consider it to be the more easily grown. The later variety develops the largest whorls and the colour is very brilliant.

Neither the double form nor the white variety is appreciated here.

Chinese Primulas.—These rank amongst the best of winter-flowering plants, and they well deserve all that is frequently stated in their favour. Not only has there been a marked advance of late years in these Primulas generally, but we have also improved in our methods of cultivating them. At one time it was the fashion to sow as early as March or April, the consequence of which was that either the seedlings were much neglected in their earlier stages, or the plants were grown to a great size long before they were wanted, several trusses of blooms perhaps having to be removed. The result of such treatment was shabby plants and shabby flowers. Now-a-days we sow quite two months later, *i.e.*, in May for the earliest, and in June or early in July for plants to form a succession. Then if grown steadily on in frames or pits, and finally shifted into 5 inch or 6-inch pots, they attain a good size by the present time or quite as soon as they are wanted. Moreover, when there is no need to remove the central truss, this and the surrounding later trusses gradually develop into a pyramid of bloom, which the fine healthy foliage shows off to advantage. Last season nearly the whole of our stock was raised early in July, and the bulk of the plants was flowered in 4½-inch pots. They received their final shift late in October, and no crocks were placed in the pots. During the early part of the winter they stood on the front bed of a house maintained at an intermediate temperature, and when transferred to a cooler house in February they were flowering grandly, surpassing any in the neighbourhood in much larger pots. Chinese Primulas must have a light position at all times, and warm greenhouse shelves suit them admirably. If mixed among a variety of other plants, they soon lose colour, and in cold positions damp off badly. Occasional supplies of liquid manure stimulate growth and improve the colour of the flowers. They are not much troubled by insect pests, but many plants are annually lost by disease in the form of canker attacking the stems. The old idea as regards prevention was to keep the collars of the plants clear of the soil, and I have, when a boy, spent hours splitting up sticks and propping up the long-legged youngsters, yet by this very plan of high potting we actually invited the disease. The seedlings should be sunk into the soil, so that the collar rests closely on the surface; the stems will then emit roots freely into the surrounding soil and become a source of strength instead of a sure source of disease. W. I M.

NOTES.

Nature's revenge.—We are beginning to patronise Nature a little by imitating her in the garden. It has simply come to this at last, after all our progress, viz., we are to-day planting our bulbs in the grassy lawn, while only yesterday we dug them from the grassy meadow, or hilly slope or mountain-side. Our ways are really very wonderful. For a long time we have tried to improve on Nature, or to "mend it rather," and although she has continually appealed to our eyes and hearts, yet it has only just dawned upon us that she knows more and can do more than is possible to us in the garden. I never met with evidence that Carl von Linné ever went into ecstasies over anything particularly rare or beautiful in the garden at Upsal, but history tells us that when he landed in England he reverenced the golden glory of our native Gorse and Broom-blossom by falling bare-headed on his knees. I was going down a valley in Sussex last April where the rocks cropped out naturally surrounded by great cloud-like patches of wild Primroses in the Grass. I was taken there by a friend who is responsible for the *renaissance* of hardy flower culture in England, and one remark made sank deep in my memory tablets just as the graver cuts into copper or steel. I was remarking the magic glow of even ing sunlight lingering on the budding trees, the bold grey rocks, and the flowers. "Ah! yes," was the reply; "the best of beauty is often outside the garden wall, if one only has the gift of seeing it." And so Nature takes a noble revenge; she is not flattered by our toy gardens or by our imitative moods; she is the great teacher ever luring us on to follow her, but how gently and how easily she surpasses us after all.

The best Ivies.—I wish some "wise man" would tell us of the best dozen kinds of Ivy, and more especially of the best of all the green-leaved kinds. Now that chill November has banished Clematis and Tea Rose, Ceanothus, and the great white Magnolia flowers, we shall every day value the deep green Ivy leafage more and more until such time as Daffodils and swallows return to us again. Veitch's Japan Creeper (Ampelopsis Veitchi) is fast losing its leaves of blood colour and bronze or gold, but the Ivies are now just attaining their freshest condition, and all the winter through will afford us pleasure. We have or may have varieties suitable for all purposes in the garden—some sorts which will not climb, but which creep and cling most beautifully to half-buried stones. Of tall or climbing Ivies there are many all perfectly hardy, long lived when once well planted, and most beautiful as seen on walls from 7 feet to 70 feet in height. There is a little dodge in connection with coaxing Ivy up a wall worth recording here, although as a matter of fact most people must have repeatedly observed the principle for themselves. If a broad expanse of bare wall has to be covered quickly, several years of waiting may be saved by fixing upright strips of timber or battens to the wall, near or up which the Ivy is not slow to make its way. You may often have observed that Ivy or Virginian Creeper makes most rapid ascent when it can creep upwards in the shelter of the down spouting from the ground to the eaves. The slightest protection or shelter of this kind makes a wonderful difference, and by fixing upright supports, which need not be in any way unsightly to the wall, Ivy may be induced to cover a wall in a third of the time generally necessary in exposed positions. I am very fond of Ivies, and never neglect procuring any good distinct kind. Of the best are the large-leaved or Irish, the large-leaved golden, the Algerian or dentata, Glynn's Ivy with a glossy leaf, the true Bird's-foot, the dark purple-leaved, the palmate, and the cordate or Hedera Rægneriana; but there may be others as good, or better, than these.

The winter Cherry.—Physalis Alkekengi is the name of a distinct plant of the Potato family, which is well worth growing in a sunny corner for the sake of its Cherry fruitage at this dull season of the year. Please note that that little word "dull" is added for the sake of euphony; it is a sort of poetic license; in a word, an untruth, for no true gardener can ever really believe that any season is dull or uninteresting in the garden. Flowerless it may be to a great extent, but dull, never, while there is life and hope of rootlet and bulb, and future beauty resting or working beneath the soil. Now this Physalis is, when growing all the summer time, a sombre, commonplace, or, as some say, a weedy sort of thing; but now that the yellow leaves have fallen, its fruits yield us precious glints of rich orange colouring, and light up warm and bright in the sun. Some people have called it Chinese Lantern, on account of its balloon-like shape and lamp-like brightness, as seen under the conditions above named. For indoor ornaments during winter its fruits are useful to those who have not yet learned to value fresh green leaves more highly, or they skeletonise most beautifully, if one has patience to dissolve away the cellular tissue from the fibro-vascular bundles, which last is the termed used by botanists when speaking of Nature's plant-warp or scaffolding. In some gardens whole beds of this plant are especially grown for the sake of its ornate fruitage, and the wonder to me is, that the market growers have not cultivated it by the thousand in pots for the flower markets of our large towns. Its thong-like white stolons or roots creep about in all directions, so that its increase is of the easiest possible kind. There is another sort commonly called the Cape Gooseberry (P. edulis), which is not hardy, but may be grown on the back wall of a warm greenhouse or vinery. Its fruits are not highly coloured, but they are edible, possessing an agreeably subacid flavour, something intermediate between a Gooseberry and a Tomato. It is easily reared from seed.

Wallflowers and Polyanthuses.—Again the rich crimson-brown and golden-yellow Wallflowers diffuse their rich odour, and the seedling Polyanthuses are also throwing up a profusion of flowers. The sunny weather and late drenching rains have been especially useful in adding freshness and vigour to these homely flowers. Both Wallflowers and Primroses, or Polyanthuses, are most vigorous and floriferous as raised from seed sown as soon as it ripens every summer. This is a point, for Primrose seeds sown as soon as ripe not only germinate quickly, but the plants are finer and more numerous than from an equal quantity of dried seeds. Another point is to give away your own seed in exchange for that of other growers, as in this way variety and luxuriance are both attained. Some of the finest Polyanthuses of the large yellow and white, or Oxlip, race I ever saw were grown in a Surrey garden in a deep sandy soil; but Ireland is, after all, the real home of the Primrose and Polyanthus, just as one must cross the Tweed to see the finest of velvet Pansies. I wish some one in Ireland would take up the race of coloured Primroses, pure and simple, as distinct from the Polyanthus. Home-saved seeds of these are useless if there is a Cowslip or a Polyanthus in the same garden, for the Primrose proper deteriorates in such company, as surely as do Melons or the best of Cauliflowers when rogues or bad varieties are allowed to flower near them. Of course, one can increase good forms by division, and with the double kinds this is the only plan. After all, in most gardens seedlings raised by the hundred give an abundance of flowers for cutting all through the early spring months, and in mild places all the winter also.

Muhlenbeckia complexa.—This is a New Zealand shrubby Polygonum not nearly so often seen as it deserves. It has been recommended as a plant for rockwork, but a more murderous Thug could scarcely be planted amongst delicate or dainty things. Planted along with any good Ivy at the foot of a tree, on the Grass, or near a wall, this complex puzzler, as it has been named, becomes a thing of grace and beauty, quite distinct in habit and elegance from any other climbing plant known to me. It was introduced about 1870, and is readily increased by layers or cuttings of the young shoots. I once saw a good mass of it on a lawn amongst outcropping rocks, its only companion being Cotoneaster microphylla, and the combination struck me as being a very happy and effective one. The foot of an Ivy-covered tree-trunk seems the most suitable place for this plant, or it may be planted with Cotoneasters, winter Jasmines, Honeysuckles, and Roses near a porch or doorway. It is a rapid grower, forming trailing shoots 10 feet or 12 feet long in a couple of years if near any suitable support, but n fully exposed and sunny places on the Grass

its growth is dense, and the mass roundish in outline. It is one of the plants worth a good and suitable place, and it then becomes one of the most distinct and interesting of all trailing or climbing shrubs.

PRIMULA FLORIBUNDA.—Of all the tender species of Primrose, this is, as I think, one of the most pleasing and distinct. It seeds freely, and seedling plants in small pots seem neater and more floriferous, to boot, than are those propagated by division. Its flowers are bright golden yellow, and at once suggestive of those of Jasminum nudiflorum, or Winter Jasmine of Japan, just now opening its earliest flowers on our old walls, its glittering stars set off to the best advantage by the wine-dark leafage of Hedera atropurpurea. As a plant for a sunny window outside in summer and in winter inside, I know of no Primrose quite so neat in its habit, so continually in blossom, and at the same time so bright and cheery, as is this with its golden clusters and fresh green foliage, always presentable all the year round. The pale lilac-blossomed P. obconica is another ever-bloomer, but it is coarse in habit and colourless when compared with this yellow-blossomed gem. It grows and blooms freely in small pots, and the best compost is sandy loam and leaf-mould, and just as the plants attain blooming size, which is when they are about six months old, then a little weak liquid manure helps them wonderfully, due care being taken not to pour it over their leaves. Both the species above mentioned are nearly hardy, but grow and flower all the winter in a sunny greenhouse, never below 45°.

ANEMONES AS ANNUALS.—The best plan of growing Anemone coronaria on rich, light soils is to rear it from seeds every year. In mild localities near the sea it may be had in bloom all the year round by a simple system of successional sowings or plantings of the roots, as the case may be. The best time to sow seeds for early autumn flowers is in February or March, and if the seed-bed is enriched well with cow-manure, the growth will be far more vigorous than in ordinary soil. The surplus seedlings transplant fairly well if the operation be performed during wet weather in properly prepared beds or borders. It is curious to observe that during very severe winters the transplanted seedlings seem hardier and flower more profusely than do those left undisturbed in thinning out the seed-beds, while during mild winters the reverse of this seems to be the rule. A good handful of crimson-red Windflowers, snow-white Christmas Roses, and sweet Violets is well worth any trouble to secure during December and January. It is now the fashion to import nearly all our bulbs and tubers from abroad, but Anemones and Ranunculuses have been as well grown in England in times past as anywhere, and the named double or semi-double Anemones are not better than those which may be raised from a packet of well-selected seed at home.

HANGING BASKETS.—Bare rafters are not the prettiest things to see, and yet in many plant houses they are most conspicuous, although easily draped with suitable creepers or climbers or, for the most part, hidden by hanging baskets. These last are easily made of stout galvanised wire. A ring 12 inches across is fixed to three upright pieces, twisted into a hook or loop at the top for suspension, then the lower part of the basket is formed of galvanised poultry netting, 1 inch mesh, which is firmly tied to the hoop or rim with galvanised wire. The bottom of the basket is covered with green Moss, and then soil and plants at discretion may be added. Ivy-leaved Pelargoniums, pendent Fuchsias, Harrison's Musk, Nierembergia frutescens, and such bulbs as Lachenalias form nice baskets for a cool greenhouse. In a warm conservatory or plant stove one may grow Maiden-hair Ferns, such as Adiantum amabile or A. farleyense, a lovely basket Fern, and Begonias, Fittonias and Panicum, or Selaginella may be used below pricked into the Moss. Begonia fuchsioides is a very pretty basket plant, so is the common Elk's-horn Fern (Platycerium alcicorne), and Davallia bullata also forms a lovely basket when well established. Very pretty baskets may be carpeted with green or golden Selaginella, and then planted with seedling Ferns, such as Pteris serrulata or Adiantums, or with the Begonias having coloured leaves. VERONICA.

FLOWER GARDEN.

LARGE WINTER-GREEN.

(PYROLA ROTUNDIFOLIA)

THERE is a charm about the modest beauty of some wood plants that cannot be equalled by the most brilliant of our border flowers, and their wonderful harmony with the sentiment of poetical mystery that reigns in woodlands cannot fail to impress every true lover of Nature. Such gems as the little Twinflower (Linnæa), Trientalis, and the Winter-green might escape notice in the full light of an open place, but in the half light of their shady world, set in Moss, and the rich quiet colourings of forest earth-clothing, their little bells and stars have the value of precious jewels.

The Winter-green (Pyrola rotundifolia) in a Surrey garden. Engraved from a photograph for THE GARDEN.

Christmas Rose failure.—Will some kind correspondent of THE GARDEN tell me the reason why my Christmas Roses are showing neither bloom nor leaf? In February—or rather nearly March—I bought a fine large stock of established plants, consisting of niger, maximus, altifolius, &c., from a garden which was being done away with. They apparently did well and the leaves grew, but early in the summer there was a great drought and the Hellebores were much scorched. However, the crowns still looked plump and well, and I was told not to mind, as in the winter time the flowers would all appear as usual. This, I am sorry to say, has not been the case, as, where the flowers are appearing on isolated crowns, they are stunted and unhealthy-looking, and in many cases I see as yet no appearance whatever of bloom. Are the plants likely to recover? Should they be shaded from April onwards? They are planted in a corner under an east and south wall in rows to admit of their being covered by frames in winter. The soil is rich and rather heavy loam mixed with a little clay.—D. E. W.

OCTOBER PRIMROSES.

THE note on Pansies in September reminds me that I have been gathering Primroses quite plentifully all through this month. It is by no means uncommon to see Primrose blooms in autumn, but these generally come sparsely and are seldom much as regards quality. In the present instance, however, the blooms are abundant enough to render the plants fairly effective, and they are almost, if not quite, as good in size, form, and colour as those produced at their usual blooming time. I used to think that I should not care to see Primroses in bloom out of their ordinary season, but when they flower as well as they have with me this autumn they are certainly welcome. My plants were raised last September twelvemonth; they remained in the seed pans, and were sheltered in a cold frame till the end of March. They were then planted out in good free soil in a north border, and were well watered and daily sprinkled in hot weather. Although we had red spider bad enough on many things the Primroses escaped entirely, and to this, the good food and attention in watering which caused an uninterrupted growth all through the hot months, I attribute their floriferousness. In August, when Primroses and Polyanthuses generally have lost their foliage, these were green as Leeks. I do not know if this autumnal bloom will prejudicially influence the spring display. I do not think it will much, for the plants are so strong that they ought to be able to throw up well again in spring. The quality of the bloom on young plants is so superior to that furnished by old specimens, that everyone should annually raise some seedlings. The annual raising of Primroses from seeds forms the keystone of success in the culture of these charming spring flowers, and on parching soils it is the only way of growing them successfully. J. C. B.

Anemone japonica.—At page 172 it is inferred by "D. K." that the type of Anemone japonica is the peach-coloured form in the accompanying plate (558). To most gardeners who have known these plants for many years, this statement will appear most novel. Is not the dark purple form with very irregular flowers the original type? This surely is what is figured in the *Botanical Magazine* or *Botanical Register* about 1840, then lately introduced by Fortune. I think he states that he found it on Chinese tombs. I do not remember that he says anything about Japan; nor have I ever seen it or its varieties in any Japanese paintings. Where does "D. K." find his reference for the *locale* of Anemone japonica? It has always seemed to me that there must be a truly single type, and perhaps a white variety, somewhere in China or Japan, of which Fortune's dark purple was only a garden variety. Granted that the dark variety of Fortune was the first variety introduced and named Anemone japonica; next, I believe, came Anemone japonica hybrida, the peach-coloured form. I have not the time to search the pages of THE GARDEN, but, I believe, some years back Mr. Niven, of Hull, explained that this was raised at Kew as a cross between Fortune's dark Japanese Anemone and Anemone vitifolia. That

accounts for the peach-coloured form; and is it not a likely origin, seeing that it has some of the irregularity of Fortune's flower and much of the extreme regularity of vitifolia? Next, for the glorious white kind. Was not this introduced by Lady Amherst from her garden in France—at Tours, I think? and somewhere in THE GARDEN will be found an account of the original plant sporting from a plant of the peach-coloured variety. And I well remember it was first called Anemone vitifolia var. Honorine Jobert. What does Max Leichtlin or Mr. George Nicholson say in reference to this matter?—FRANK MILES, *Sunnyhill, Shirehampton.*

THE PAMPAS AND OTHER GRASSES.

I HAVE occasionally heard it remarked that the Pampas Grass is a grand plant by the side of streams and brooks. So situated in some places it is, no doubt, quite at home. But the finest plumes are always on plants grown in good holding loam, well drained, and where the plants can be well fed with manure water during the summer months. We have several specimens in various parts of the grounds—some on a steep sloping bank facing the south; others in different positions. All grew and flowered satisfactorily, with the exception of two plants, which had a very stunted appearance compared with the others. This was observed for three seasons in succession. When we examined the roots we found them in a very wet and stagnant condition. We, therefore, ran an ordinary drain pipe nearly close to the bases of the plants, and since then they have greatly improved. This season they have each produced from 3 doz. to 4 doz. plumes. Another variety (G. pumilum) I saw a short time ago, which is much dwarfer and more compact than the ordinary Pampas. This seems but little known, but it would be valuable for planting in the foreground of shrubberies and similar places. Arundo conspicua is another valuable early flowering Grass, though its plumes are not so fine as those of the Pampas. They may, however, be improved by an occasional deluge with manure water. This Grass is useful in the flower garden, blossoming as it does when the flower-beds are at their best. The striped-leaved Eulalia japonica is another valuable plant in isolated positions. If planted in good soil and afterwards well fed with manure water, it assumes a very different appearance from what it does when left to take care of itself. The Eulalia japonica zebrina makes a grand companion to the last-named kind, *i.e.*, if treated in the same liberal manner. J. R. HALL.

Fox Warren.

HARVESTING GLADIOLUS BULBS.

As this important process must now be effected, it may not be out of season to consider how it may best be done, the time and mode of doing it, and, of course, there will be here, as in most other things, differences of opinion. The French growers say always in their catalogues that November is the season for the lifting of the bulbs, and yet in a letter I had about a fortnight ago from the celebrated Fontainebleau growers, Messrs. Souillard and Brunelet, they say, we have already commenced the lifting of our bulbs at Montereau (where, and not at Fontainebleau, is their principal culture); where acres of them are grown, there must of necessity be a forestalling of the time which to an amateur might seem the best, or the work would never be done. Mr. Burrell, of Cambridge, tells me that he likes to see the stem keep green as long as possible, and will even cover them over with litter when there is fear of frost. I think, perhaps this late lifting, running on into December, may be due in some measure to the character of his soil, which, being more retentive of moisture, would naturally keep the plants fresher than in a lighter soil; and, therefore, the end of October or beginning of November is about the best time. It must be remembered that there is also a difference in the time of flowering these bulbs, some varieties being much earlier than others, and, therefore, it will not do to go to a bed and at once lift all, no matter what their condition, but judiciously take up such as show signs of being fit for it, by yellowness of the foliage, &c. I have to-day (Oct. 25) cut a spike; now it would be absurd to lift that bulb at the same time as others which flowered a month or five weeks ago. We had a fine ripening time in September and the bulbs were evidently enjoying it, but during this month we have had nearly 4 inches of rain already, and this, especially where the ground is at all heavy, must retard the operation. I do not quite understand what "W. I. M." is aiming at when he finds fault with me in what I stated about Cambridge. I never said that the climate was the same as at Fontainebleau, but that it approximated towards it more than any other part of England that I knew. I know Fontainebleau well; I know sweet Clonmel too; and I had rather grow Gladioli in Cambridge than in Tipperary, or, indeed, notwithstanding so many things in its favour, than in Somersetshire.

How, then, are they to be harvested? Here, too, there is some difference of opinion. I think it was "W. I. M." who advocated lifting them up with the soil and storing them in that manner. All I can say is, that I have never anywhere seen it done. It is not so done either at Fontainebleau or Langport. The point to be arrived at is gradual drying off. I have tried various plans, but think that hanging them up with the stem cut to about 18 inches in a dry shed where they can have a good current of air is about the best plan. It will sometimes happen that the stem breaks off, so that there is nothing to hang them by. In that case I place the bulbs on a shelf. When all are well dried off I take them down, cut the stems close off to the bulbs, and place them in a frame specially made for them, through which the air can pass; I then write on each bulb its name, and then place them in a cellar out of the way of frost. There they will remain until planting time comes round again. I may say that, so far, the bulbs have lifted very well, but I found, as usual, many going off in the inexplicable way they do. It is utter nonsense to talk of degeneration being the cause. Let me give one instance that has just come before me. I received, amongst other bulbs from France this year, two of Mascarille, a new variety let out last autumn. They bloomed—did not seed; but after flowering there was a suspicious look of premature decay I did not like, and on taking them up I found them as black as coal; in fact, I never had any worse diseased. Independently of its being a French bulb, it being a new variety entirely put degeneration out of the question; in fact, whatever be the cause of the disease (for disease it is), it is one of those things of which we know as little, and against which we are as powerless, as the Potato disease.

In harvesting the bulbs care will be taken where the variety is at all scarce to save all the spawn or bulblets which cluster round the bulb in greater or smaller numbers, according to the habit of the individual variety. Some grow a large number, and some hardly any at all. I do not think that it is worth while to trouble oneself about the spawn in the case of the older varieties, as they are to be had so low priced now. When the spawn has been taken off it should be put into paper bags, with some quite dry sand.

I should like to put in a plea for Gladioli, as now is the time for purchasing bulbs. Many are deterred from growing them by, 1, their supposed dearness; and 2, by the fact that so many go off without any means of preventing it or curing the attack when it comes. With regard to the first, let me say that things are greatly altered within the last few years, and that, except in the case of novelties, they are to be had—really good exhibition varieties—for a few pence. I have now two lists before me, one of Messrs. Vilmorin, the other Mr. Burrell, of Cambridge (Mr. Kelway's I have not yet received), and I find that such kinds as Meyerbeer, Horace Vernet, Archduchesse Marie Christine, Benvenuto, Dumont d'Urville, Flamingo, Jupiter, Ondine, Le Vésuve, Adolphe Brongniart, Murillo, Dalila, Rossini, and others are to be had for under 1s.; while newer kinds are 1s. 3d. and 1s. 6d.; and then it must be recollected that every one of these bulbs, if judiciously examined before planting, may be cut into two, so that if a purchaser buys a dozen bulbs, he may make two dozen of them at planting time. The second objection, that one loses so many of them, is partly met by the above; it may be so, and sorrowfully I bear witness to the fact; but there is this consolation, that they are very cheaply replaced. If we take another very popular bulb, the Hyacinth, every year those who grow them order a certain number of bulbs with the positive certainty that they will be of no manner of use the following year, unless to put them out to take their chance, and no complaints are made; but in the case of the Gladiolus such a result need not be anticipated; some are sure to succeed and bloom a second year well, although others go off, and Mr. Burrell tells me that some of his exhibition spikes were from bulbs cultivated by him for three years. Of course, all growers will understand that it is not the same bulb, but that a fresh one is formed each year above the old one.

I now subjoin a list of what a beginner may safely grow as some of the very best exhibition kinds, and which in Messrs. Vilmorin and Mr. Burrell's list are all priced under 1s.:—

Addison,	Jupiter,
Africaine,	Lacepede,
Amalthee,	Leandre,
Anna,	Le Vesuve,
Benvenuto,	Matador,
Cameleon,	Meyerbeer,
Carnation,	Adolphe Brongn'art,
Cervantes,	Murillo,
Colbert,	Ondine,
Dalila,	Orphee,
Dauberton,	Ovide,
Dumont d'Urville,	Panorama,
Feu Follet,	Rayon d Or,
Flamboyant,	Rossini,
Flamingo,	Schiller,
Hesperide,	Shakespeare,
Horace Vernet,	Teresita.
Jeannette,	

All of these have appeared in winning stands this year. Another list of dearer varieties, varying from 1s. 3d. to 2s. 6d., is as follows:—

Abricote,	Gloire de Fontainebleau,
Atlas,	Grand Rouge,
Baroness Burdett Coutts,	Mabel,
Bicolor,	Mount Etna,
Camille,	Nereide,
Colorado,	Tamerlane,
Crepuscule,	Tour de Monde,
Demosthene,	Victor Jacqueminot.

There are, as in all flowers, newer and dearer varieties, but I very much question if there are better; at any rate, I should be perfectly satisfied to confine myself to these for exhibition, and should hope to be successful with them. Probably when people succeed with them they might be tempted into larger ventures; but, at any rate, I would advise plant-lovers to try these most charming and graceful of autumn flowers.

DELTA.

Schizostylis coccinea.—We have lately been cutting basketfuls of brilliant spikes of bloom from plants of this growing in the open ground, and they give just the colour that is required for mixing with Chrysanthemums, which still lack a real scarlet or crimson, although there are near approaches to the latter colour. Our plants of Schizostylis are grown between rows of bush Apple trees that afford a good deal of shelter and shade as long as the leaf holds on, but as soon as the leaves drop, if the weather turns cold, we lift the whole lot with as much soil as will cling to them, and transfer them to a cold house. Generally we plant them in rows right across the inside border of vineries from which the Grapes have been cut; but if these are not available we take cutting boxes to the beds, and, digging up the Schizostylis clumps, drop them in until it is full, and set them in any cold house in which they can be accommodated. Thus managed, they keep sending up spikes for an indefinite period. Many of ours had bloom-spikes on them when they were replanted

in the open air. This Schizostylis is of the easiest possible culture. It is greatly benefited by dividing the clumps. When we left ours in dense masses the flower-spikes were small and thin; but since we have taken to lifting and dividing them frequently the flower-spikes have much increased in strength and size. Ours are from 2½ feet to 3 feet high, and are more like Gladioli than Schizostylis, as usually seen in half-starved crowded rows. I doubt not that anyone giving this plant a fair trial will be equally well rewarded, for even in colder places than this it can be grown out of doors. It should, however, be covered with temporary glass lights on the approach of frost, for its flowers in a cut state are of great value in autumn and winter, and the fact of this plant supplying a colour not obtainable in quantity from any other cold-house plant of its season ought to commend it to everyone who has cut blooms to supply.—J. G., *Hants.*

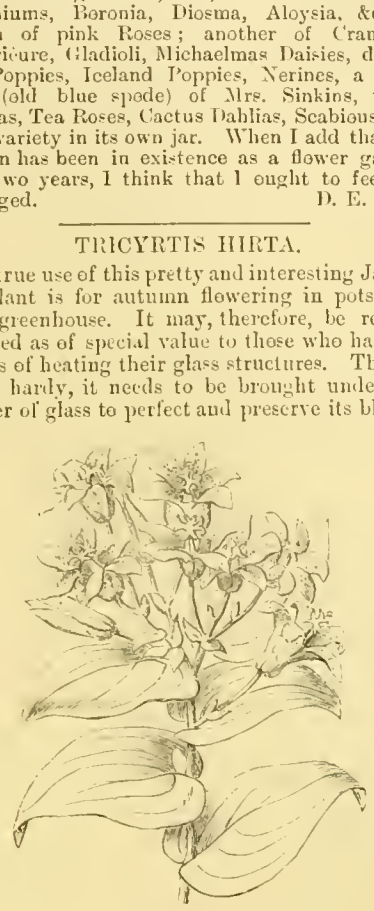
PLANTS IN FLOWER IN A SCOTCH GARDEN.

Autumn is here and winter is at hand, yet there are still flowers in the garden. Leucanthemum maximum has hardly given place to Pyrethrum uliginosum; Michaelmas Daisies are at their best; Amellus bessarabicus continues to brighten the borders with its beautiful purple stars. Iceland and French Poppies are still in quantity, and a wild Campanula, which troubles us greatly as a weed, persistently flowers where it used to be most unwelcome, but where now we have hardly the heart to condemn it for appearing. Early-flowering Chrysanthemums are a great "stand-by." Madame Desgrange, Jardin des Plantes, Golden Gem, and the very fine yellow variety, George Wermig, give sheaves of bloom daily. I have had several beds of this latter, some plants of which are left to bloom out of doors, and others are lifted with balls, potted, and flowered in the conservatory. The flowers are paler when grown inside than they are when out of doors, but come to greater perfection there. Those of Madame Desgrange, too, are of a purer white when bloomed under glass than in the open. The Dahlias were killed one very frosty morning a month ago. Mrs. Sinkins Pink still yields a fine bunch of bloom weekly from a bed two years old. Lady Fitzhardinge Pink has also occasionally fine flowers. Anemone Honorine Jobert is still in great beauty, and Tea Roses on the south wall are yet beautiful. Dinner-table decorations have never been prettier than this week, when the whole garniture was sprays of China Roses in clear glass vases on a silver plateau. Lupins are producing stray flowers, and white Phloxes are not yet quite over. It is even still possible to collect a nice little bowl of Carnations, white and flaked ones. Cloves are about over. The Hornbeam and Chestnuts (which turn blood-red here) have furnished gloriously tinted foliage, and the Hips and Haws on the Briers in the hedges are in the greatest profusion this year. Ceanothus Gloire de Versailles is still flowering on a south wall, close to a fine Madame Falcot Rose. I cut the last Lilium auratum last week, which grew on a south border surrounded by beautiful bushes of a variegated Malva, which I strongly recommend to the notice of admirers of sub-tropical bedding. Tropæolum speciosum is over now, and T. tuberosum has flowered but sparsely and late in a rich light soil on a south wall. The Gloire de Dijon Roses are as fine and as sweet-scented as in July, and there seems no prospect of these coming to an end if we but have fair weather. Stray Gladioli, the *débris* of the Dahlias, Mignonette, and masses of purple, yellow, white, and fancy Pansies, Violets, &c., go towards making a goodly show of late autumn flowers.

Under glass, Chrysanthemums are beginning to bloom. James Salter leads the way; Margot follows, and in about ten days we shall have a very beautiful show of them. Geraniums and Pelargoniums are grand. Primula obconica is never out of season. A few Orchids and an unusually fine show of Cypripedium insigne in the hothouse keep us in choice flowers; but best of all are the fine plant-yielding masses of bloom now of the Jasminum grandiflorum. A few sprays will scent a room, and keep fresh and open in water for more than a week. Up till last week I picked many bunches of Roses, none of which were prettier than a Rosa polyantha of a bright blush pink, and Cramoisie Supérieure. I have a small pale pink Nerine with thread-like petals planted at the very foot of a vinery wall, and there it flowers well and increases every year. Before me, as I write, is a table covered with jars and jugs and glasses of flowers, comprising: Chrysanthemum J. Salter, G. Wermig, Mme. Desgrange, Jardin des Plantes; white Anemones, Cypripedium insigne (a large beakerful), a silver cupful of sweet-smelling leaves, viz., four sorts of sweet Geraniums, Boronia, Diosma, Aloysia, &c.; a bunch of pink Roses; another of Cramoisie Supérieure, Gladioli, Michaelmas Daisies, double red Poppies, Iceland Poppies, Nerines, a large mug (old blue spode) of Mrs. Sinkins, white Azaleas, Tea Roses, Cactus Dahlias, Scabious, and each variety in its own jar. When I add that my garden has been in existence as a flower garden only two years, I think that I ought to feel encouraged. D. E. W.

TRICYRTIS HIRTA.

The true use of this pretty and interesting Japanese plant is for autumn flowering in pots in a cool greenhouse. It may, therefore, be recommended as of special value to those who have no means of heating their glass structures. Though quite hardy, it needs to be brought under the shelter of glass to perfect and preserve its bloom.



Tricyrtis hirta.

The plant represented by the accompanying illustration stood out-of-doors in a pot throughout the summer, and when showing buds in September, it was removed to a light conservatory, where it has been in bloom for some time. The colouring is as nearly as possible that of Disa macrantha, figured in The Garden, Vol. XVII.

K. L. Davidson.

Double white Begonias.—It is a mistake to say that the pretty variety of the above-named beautiful flowers, exhibited by Messrs. Cannell at South Kensington on Tuesday last, and described on page 402 of your last issue, is new, as it is by no means so, having been sent out at least three years ago under the name of Octavie by Mons. G. Mallett, of Plessis-Piquet, near Paris. I have grown it ever since it was sent out, and consider it to be one of the few varieties which, from delicacy of habit and want of vigour in its constitution, will do no good in the open air, and will only succeed when cultivated in a pot under glass. Another such variety with much larger flowers is Crousse's Antoinette Guerin. By far the finest double white variety I have yet seen is Lemoine's Avalanche, sent out this year, which has also the great advantage of producing no female flowers, all the blooms being fully double males.—Begoniaphile.

PLANTING HARDY BULBS.

It is a great mistake to defer the planting of any spring-flowering bulbs until the approach of winter. Bulbs put in the ground early in September will by this time have made roots several inches long, and in their case activity will be progressive, inactivity only supervening in a time of severe frost. About the middle of September I took up some Narcissus bulbs, from the majority of which roots were pushing; and it occurred to me in this last week of October, when planting others, how much greater must be the chance of obtaining a strong bloom from those planted at the first-named period. It is just as easy to obtain bulbs in the early part of the autumn as at its close, and I am convinced that if the condition of bulbs planted early in autumn was compared with that of such as are planted at the beginning of the winter, very little late planting would be done. In the case of Tulips, Hyacinths, and such bulbs as are used for filling beds on the Grass, very early planting is not practicable, owing to the presence of the summer bedders. In a general way tender plants are not effective after the second week in October, and if the bulbs are got in between the middle and end of that month they will have time to begin the formation of new roots before winter. When hardy bulbs are planted at so late a period as the present, I doubt if there is wisdom in putting them at once into the earth. There is a great difference between the dry and comparatively warm atmosphere of a stove-room and the earth, surcharged as it frequently is at this time of year with moisture, and the sudden violent change may oftentimes act prejudiciously on bulbs which have an element of tenderness in them. Of course there are some bulbs so hardy and impervious to changes of any kind, that precautions of any description are thrown away on them. The common double Daffodil is an instance of this, but take the white Trumpet kinds, such as cernuus, moschatus, &c., and you intensify their natural delicacy of constitution by subjecting them to what must be a chill. In September the natural temperature of the soil is still sufficiently high to warrant planting immediately, but later, I think, that in a general way it would be better to accustom the bulbs gradually to the altered conditions. This may easily be done by laying them out for a week on moist Cocoa fibre, or something similar. The sudden change from a quite dry condition to a wet one would thus be avoided. I have not a doubt that many failures occur in hardy bulb culture simply because they are exposed to damp and cold, the circulation being at a standstill through the absence of roots during the coldest months of the year. Spring comes with its influence on top growth before there is a sufficient quantity of roots to give it strength. The first year there may not be much evidence of injury, the stored-up energy in the bulb enabling it to bloom fairly well; but a bulb has two things to do, *i.e.*, to bloom well and make a strong growth, to lay in another store of vitality for the ensuing year. Under suitable conditions the flowering process is not in a general way exhausting, but when for some reason a good roothold has not been obtained, bloom production so lowers vitality as to leave the bulb quite the ruin of its former self. Then it requires a year or two wherein to recoup itself for an exhaustive effort, and this is a very dangerous position for delicately constitutioned bulbs, as they are rendered incapable of bearing with indifference the cold and damp, and they frequently disappear by the second year. It therefore follows that the more tender the bulb the sooner should it be got into the ground. Many a bulb that disappears mysteriously in the course of a season or two would, if well and early planted, remain to gratify its possessor for years.

Then, again, as to planting, there are various ways of doing this. You may dig a hole in your

border just deep enough to hold the bulb, and thus leave it to its fate. If your soil is well worked and drainage is fairly good this will do; but there are cases where this simple treatment is not enough. Take a clayey loam, for instance; many bulbs will perish in it which would, under identical climatal conditions and in a different soil, live and thrive. Bulb-planting is, I find, a favourite occupation with many owing to the ease with which it may be done, but if as much pains were taken in bulb-planting as are bestowed on plants in an active condition, how different would the result frequently be. Let anyone try the experiment of taking out a hole say 15 inches deep and filling it with a well-manured compost, and compare the vigour of bulbs thus planted with those treated in the ordinary slipshod fashion. The difference is very striking, not only in bloom production the following year, but in perennial vigour. In cold, stiff soils a heap of soil should be kept in readiness, and nothing can be better than the refuse from the potting bench. This, mixed with the natural soil in the proportion of one-half of each, will ensure a suitable rooting medium. It should be remembered that bulbous flowers remain generally some years in the same place, and, through the absence of roots for a considerable portion of the year, the soil is more likely to come into a close condition than when more or less occupied with fibres. There is, consequently, a greater need for that preparation which ensures a certain amount of porosity than in the case of other hardy flowers. These remarks apply with the greatest force to Lilies, which so quickly and severely feel the effects of stagnant moisture around the roots. It was, I think, Mr. Miles who once observed that the presence of a layer of brick rubble near to the roots of some bulbous flowers was life to them. I believe that in naturally unfavourable soils many bulbous flowers would succeed if 6 inches of drainage were put into a hole 18 inches deep, and in many cases the liberal admixture of pounded brick with the soil would do much towards preserving vigour. The question of depth is one that demands more consideration than it in a general way gets.

There is the nature of the plant and that of the soil to be thought of before it can be determined whether more or less deep or shallow planting is best. In shallow soils strong-growing bulbous flowers are frequently planted too shallow. Take Hyacinths, for instance. I have proved that in a light loam they bloom remarkably well at a foot under ground. It is evident that a bulb set so deep must feel drought less than one more within atmospheric influences. In cold, adhesive soils such a depth is not necessary for any bulb, and in the majority of cases would undoubtedly prove harmful. There is, of course, the question of nourishment to be taken into consideration; the lower the bulb is put into the soil the less amount of good soil can there be under it; consequently, deep planting reduces the feeding ground for the roots, and, after all, it is them that give vigour. If they can strike downwards to a depth of 15 inches in good, well-worked soil, it matters little whether the bulbs be covered with 2 inches or 6 inches of soil. In some instances, however, deep planting would be a great help. Bulbs might be planted deep enough to admit of their permanent residence instead of being taken up when the summer-blooming plants have to be got into place. In light soils I see no reason why early-blooming Daffodils, Tulips, Crocuses, Snowdrops, Triteleias, &c., should come out of the soil at all; at any rate, they might remain for several years at a time. Summer bedders will do very well in 8 inches of good soil, and if the ground were well made to double that depth in the first instance, they would be sure to get all they need. It cannot be too strongly impressed upon those who have porous soils to deal with that the thorough breaking up of the soil is absolutely necessary to the perfect blooming of hardy bulbs. Bulbous flowers generally send down the first roots they make deep into the soil, as if they wished to make sure of a safe anchorage. Thes are the mainstay of the plants, and secure them against drought. The deeper the soil, the lower down they go, and the amount of moisture at their disposal is consequently greater. A mulch of decayed manure is also wonderfully helpful, and this is the time to put it on. J. C. B.

LILIES OUT OF DOORS.

In a note on our Lilies written in July (see p. 27) I proposed adding a few particulars later in the season. Lilies in the open may now be considered over for the year, as only a few chance ones remain in flower. I will begin with what is usually considered the queen of Lilies, L. auratum, though some good judges consider L. speciosum rubrum in its best form, and others L. candidum simplex, to have at least equal right to the title. L. auratum has on the whole succeeded well with us this season, though some beds were more cut than usual by spring frosts. L. auratum rubro-vittatum was finer than we have ever had it before among our few plants, which have been in the open border since 1881; one had eight and another seven flowers. This is a truly gorgeous Lily with its broad stripe of crimson, but after some days, while the flower seems still fresh, the crimson turns to a dull, stale claret colour, and then most of the beauty is gone. The next finest of the family is L. auratum platypetalum, of which there appear to be two varieties, one variety known as L. auratum macranthum being low growing. The first L. a. platypetalum exhibited was almost without spots, like L. a. virginale, but the species includes all varieties of colour up to pictum. Two small clumps of L. a. macranthum were most beautiful and were much admired; a petal from one of these measured 3½ inches in breadth. The bulbs should be planted wide enough apart to prevent their knocking against each other in high winds; ours were not so. Our two finest of the ordinary L auratum both bloomed in the wood at the Weybridge cottage garden; the one seemed to dwarf all the flowers about it; one of the petals measured 7½ inches; therefore it was 15 inches across the flower. In another bed one grew to 9½ feet, and yet was so well proportioned, that it looked neither drawn up nor gawky. L. pardalinum and L. californicum were cut by spring frosts in some beds, and bloomed well in others a few yards off where the frosty wind had not reached them. L. speciosum rubrum and album were very fine, and so were L. Leichtlini and L. longiflorum album-marginatum, or, as I suppose it ought to be called, L. longiflorum foliis albo-marginatis. L. Szovitzianum in good soil always does well; L. Hansoni was moderately good; L. Krameri was fine and seeded freely; L. giganteum bloomed well, but was not very tall. L. cordifolium, the Japanese dwarf form of L. giganteum, was cut down by spring frosts in our Wisley Wood, as it was not sheltered from the sun which followed them. In the orchard house at Weybridge in a pot it had eight good flowers on a stem.

L. longiflorum bloomed well in some places, best in shelter, but failed in others. L. chalcedonicum did not bloom well, but the bulbs are strong and healthy. They were in full sun; I have moved them into a sheltered place. All the Martagons bloom well, and L. superbum. The question as to the relative merits of full sun or shade and shelter for Lilies, especially L. auratum, crops up from time to time in the different gardening papers. It is not an easy one to solve. L. auratum often blooms thoroughly well in complete shade and also in full sun. Rhododendron beds, as I have often before said, are the easiest places to grow it in, and the question of the necessity of sun to ripen the bulbs is settled by my friend Mr. M'Intosh's Lilies, which themselves or their children have thriven for more than a dozen years in the full shade of his Rhododendrons. I believe two great points to aim at are to prevent the bulbs getting too wet or the roots too dry, and especially to keep clear of many tree roots, which dry the soil as well as exhaust it. Rhododendrons keep their roots to themselves, and do not interfere with the Lilies, unless indeed they are grown very strong and very close.

In our little field of L. auratum in full sun, though with some shelter from wind by hedges, many hundreds bloomed well; some not more than a foot high with stems not thicker than tobacco-pipes had two fine flowers; many had one.

I have made no mention of Tiger Lilies. They always bloom well. I do not think the species without stem-bulbs, L. tigrinum jucundum, is sufficiently known and grown; it is a beautiful form for cutting. George F. Wilson.

Heatherbank, Weybridge Heath.

GARDEN FLORA.

PLATE 569.

HARDY CYCLAMENS.

(WITH A COLOURED PLATE OF C. ATKINSI.*)

Few plants are more interesting than hardy Cyclamens, especially to those who may not have convenience for growing the more tender Persian kinds. The latter have in recent years been improved in quite a wonderful way, and the hardy kinds, through good cultivation and cross-breeding, have also been much improved. With the exception of C. cilicicum, cyprium, persicum, and perhaps C. africanum, all the others are perfectly hardy, and could ill be dispensed with as far as the rockery is concerned. Dwarf or low-growing kinds, such as Coum and some of the smaller varieties of Atkinsi, are not, indeed, adapted for situations where straggling, lanky Grass would be likely to overpower them. All that hardy Cyclamens require is perfect drainage; indeed, the looser the material the greater will be the success. In loose limestone *débris* they seem to be quite at home; in such a medium they seed freely, and it is not unusual to see thousands of seedlings of Coum and Atkinsi, as well as of others, struggling for space round the parent plants. They like, as a rule, partially shaded positions; C. neapolitanum, europæum, repandum, &c., indeed, do well in the wood or wild garden under the deep shade of deciduous trees. The only difficulty in such places is keeping them moist during the growing season, but this is easily accomplished by a top-dressing of short Grass or old spent manure, which serves also as a medium in which the seeds can vegetate. Little, if anything, can be gained by sowing the seeds in pans or boxes. We have found it equally successful, and certainly less troublesome, to allow them to sow themselves. The varieties of Atkinsi make very handsome plants for greenhouse decoration in spring if grown in pans and kept in a cool frame during winter. Thus treated, they flower earlier than they otherwise would do. In planting, it is always safest to well bury the tubers, with the exception of the very small ones.

C. neapolitanum. Showing the first appearance of the flowers.

C. AFRICANUM.—This, although perhaps botanically little more than a form of C. neapolitanum, seems sufficiently distinct under cultivation to warrant its separation from that species. It is

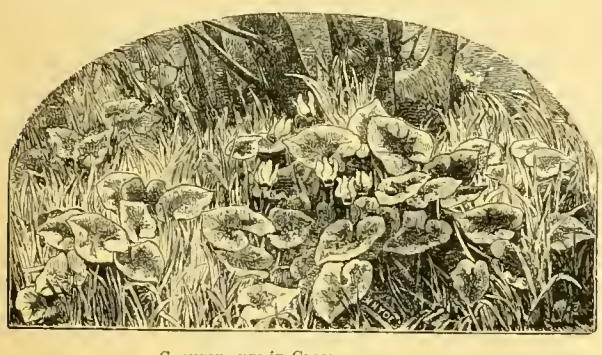
* Drawn in Messrs. Paul's nursery, Broxbourne, October, 1885.

remarkable for its enormous leaves, which not unusually measure from 6 inches to 8 inches or 10 inches in diameter, with a corresponding length, and they are beautifully marbled with white. It is questionable whether it would stand the rigours of our winters very far north, but in the south, at least, it stands well, and makes a very effective, fine-foliaged plant from December onwards. The tubers are unusually large, irregular, and covered with fibrous roots all over the surface; from the

C. neapolitanum.

upper surface proceeds a rhizome, often 2 inches or 3 inches in length, from which flowers are produced during the latter end of September and October. The lobes of the corolla are spatulate and bright rose, with a deep purplish spot at the base, and distinctly auricled where they reflex, as in C. neapolitanum. The leaves are not developed until after the flowers have appeared. They are orbicular, toothed, and cordate at the base. It is a plant which requires limestone or lime rubble in which to grow and good drainage. It is a native of Algeria. (Syns., macrophyllum and algeriense.)

C. Coum (of which the type may be seen in Curtis's *Botanical Magazine*, tab. 4) is a charming little spring-flowering species, and perfectly hardy. It, however, not unfrequently flowers at a time when some protection is necessary; this consists in placing a square of glass over the plant, or, better still, choosing a situation for it near a Pine tree, or affording some other covering so as to protect it



C. europæum in Grass.

overhead. The best plan is, doubtless, planting it out in a cold frame and allowing it to flower there. This, however, is not always convenient or available, and a square of glass or a handlight serves the purpose just as well. It may also be grown in deep pans with little trouble, and although the flowers are small, they are numerous, and make a brave show. The tubers of this Cyclamen are almost round, smooth, and produce roots only in a tuft from the base. The leaves, which appear along with the flowers usually in February and March, but often in January, are set on short stalks. They are quite round and firm and leathery in texture, dark green above without marbling and purple underneath. The flowers are deep red and without auricles. Of this species there are a few varieties—album, with white, and carneum, with rosy red flowers, being among the best. It comes from Armenia, Greece, Turkey, and other places.

C. EUROPÆUM.—This is one of the oldest, and perhaps the best known, of all the Sowbreads, and, judging from the synonomy, it seems to be a variable kind. A variety of it is said to have been cultivated by Gerard in 1569. It is quite hardy, and suitable for such positions as C. neapolitanum, though not so robust or free flowering. It is, however, worth attention, for the sake of variety. The leaves are contemporary with the flowers; the rootstock, which is irregular in shape, often throws up a rhizome, as in africanum, but much longer, and if broken up into small pieces it is capable of producing tubers, thus affording the only means of propagation we know of, except seeds. It seems to grow best in loose *débris*, and must have good drainage. It varies considerably both in the shape of the leaves and in the size of the flowers. In the southern forms the leaves are round and cordate at the base, marbled on the upper surface with white, and purple underneath. The flowers generally are bright red and fragrant. The variety Clusii has toothed leaves. The names of the slighter forms or synonyms are littorale, Peakianum, purpurascens, officinale, and reflexum.

C. IBERICUM.—To this belong the kinds represented in the annexed coloured illustration, many of which, especially the forms of Atkinsi, rank amongst the most charming of spring flowers. The varieties of Atkinsi are, we believe, the result of crosses between C. Coum and C. ibericum. While these two species are kept apart the seedlings come true to name, but when grown together or in close proximity they cross readily. Where attention is given to the raising of new forms, an essential point is a medium in which the seeds will germinate freely. We find finely sifted leaf-soil or spent manure to answer the purpose. In growing these varieties out of doors the same objections hold good as in the case of C. Coum. By far the safest plan, therefore, is to grow them in cold frames or in pots for greenhouse decoration, unless a specially favoured, well sheltered spot exists for them on the rockery. Grown in tolerably deep pans and kept in cool frames during winter, these Cyclamens make a charming show in the greenhouse or conservatory in February and March. From six to twelve plants in each pan according to size will be sufficient. The pans should be well drained, the soil rich and free, and the tubers should be almost or quite covered with coarse sand. The tubers are round and much larger than in Coum, and the roots form a tuft at the base. The leaves, which are produced at the same time as the flowers, are roundly oval, firm or leathery in texture, and have a distinct white zone on the upper surface. The flowers, which are bright red in the type, are larger than those of Coum, and without auricles at the base of the segments. In Atkinsi they vary from bright purple to rose, delicate white, and white with a bright purple spot at the base of each segment. The varieties are known under the various names of Atkinsi album, roseum, rubrum, &c. The type is a native of the Caucasus. (Syns., Coum var. ibericum, vernale, vernum, elegans, and others.)

C. NEAPOLITANUM.—This, the Ivy-leaved Sowbread, is well known, and has been long cultivated in gardens under the name of C. hederæfolium, and also often as C. repandum, which is, however, a totally different plant, both as regards leaves and flowers, to say nothing of its blooming in spring, while the Ivy-leaved species produces its flowers in autumn, the leaves developing in succession some time afterwards; it seems very variable both in shape and size of leaf, and also in the colour of its flowers. It is, however, undoubtedly one of the most useful of Cyclamens for out-door culture. Being perfectly hardy, it makes a good subject for naturalisation; indeed, in many places, notably in Devonshire and Cornwall, it is said to grow in copses quite wild, the tubers increasing until they have attained quite wonderful dimensions, bearing in good seasons over a hundred flowers. They are orbicular, slightly depressed, and roots are produced all over their surface. The leaves, which are beautifully marbled, are oval, cordate, and from 3 inches to 5 inches long. The flowers, which represent various shades of red, have a bright violet-purple spot at the base. They are also often pure white, and always furnished with distinct auricles on both sides of the segments at the base. It is a native of Central and Southern Europe, and flowers from August till October. One variety in particular called C. grandifolium is very distinct. (Syns., hederæfolium, subhastatum, ficariæfolium, &c., C. linearifolium being a monstrosity without a corolla limb.)

C. GRÆCUM.—This is often considered to be a species, but it is, we think, hardly more than a variety of the above. Its leaves, which show a great diversity in shape and marking, are developed at the same time as the flowers. The latter are variable, rarely white. The tubers are more irregular in shape than those of C. neapolitanum. It is a native of Greece, and flowers in September and October.

C. REPANDUM.—This is not so plentiful as the others are, but it is very useful in the spring garden, taking the place of C. neapolitanum. The tubers, which are small and round, have a few slender roots proceeding in a tuft from their base. The leaves, which are produced at the same time as the flowers, are oval and cordate at the base, with a wavy, deeply toothed margin. They are generally zoned with white and tinged with purple on the underside. The flowers, which are fragrant, are sometimes white, but generally bright red with a bright purple spot at the base, and the segments are truncate or flat, not auricled, as in C. neapolitanum. It is a native of Southern Europe, and flowers with us from March to May. C. romanum is another form, and others are C. cyprium, which blooms in October, its flowers being pure white with a purple spot at the base. It is nearly allied to C. neapolitanum, but differs from it in its unlobed leaves and very narrow segments. C. cilicicum flowers in October and also in November. D. K.

WORK DONE IN WEEK ENDING NOV. 2.

OCTOBER 27 TO NOVEMBER 2.

We have been favoured with a week of drier and unusually mild weather, so that our garden operations have gone on without let or hindrance. The summer bedded-out garden we have donned in winter garb, every bed being filled with hardy plants, and it now only remains to spread a thin layer of new gravel on the paths to give the final touch of neatness to the whole. "Hants" does not belong to that section of gardeners who have adopted the creed that gardens can be too tidy, and if ever his employer makes the acceptation of such a notion a condition of servitude, he will begin to think of flitting; he would like that all the rising generation of gardeners should make the same resolve, for neatness stamps the character of a gardener; just now though it is a condition that is difficult to maintain, owing to falling leaves, worm-casts, and the unavoidable dirt from soil and manure wheeling and transplanting operations. But even at some little hindrance of time from other labours, cleaning up should be done at least once a week. This has been our own rule for many years, and I question whether there has been any the less of other work done than there would have been had neatness not had

say, about a sixth share of the labour of each week. Kitchen garden work has been solely of a prospective description. Cauliflowers, of which just now there is an over-supply, have been guarded from injury by frost by breaking down the larger leaves over the flowers. Cleared decayed leaves off the plots of Brussels Sprouts to admit light and air to the buttons, a few of which are rotting owing to the work having been deferred so long. The useless underneath leaves of Scotch Kales have also been pulled off, and side sprouts have now full play for development. Cut the old stems of Asparagus away and weeded the beds, and the first frosty morning that wheeling can be done without spoiling the gravel paths, the plots will be given as rich a dressing of manure as can be afforded. There is still abundance of dwarf French Beans on our latest sown lot, and we have prepared protection for them in case of frost, which consists of Hazel rods bent over—both ends in the ground—over which thick canvas will be spread whenever appearances bespeak a frost. Runner Beans and old Pea haulm are being cleared away, and every bit of vacant ground is being got ready for manuring at first opportunity. We gathered the last of our Pears and Apples on the 29th of October, and our anxiety on this head is now transferred to the fruit room, which, in such exceptionally damp and warm weather, it is difficult to keep in that dry, airy state that is specially desirable during the first week or two after housing. However, we air as freely as weather permits, and shut up closely when raining or misty. Our soil is a little too wet to do the little fruit-tree planting that we have in prospect, but not for root-pruning of established trees. Pears grafted on Pear stocks frequently require such manipulation to keep them fruitful, and our plan is to do half the roots (one side of the tree) this year and the other half next. Trees on the Quince never require root-pruning after the third or fourth year, but they do require an immense quantity of water and manurial mulchings to keep them in good and fruitful growth; still they fully repay all that attention by the production of full crops of finely coloured fruit of the first quality. We have relieved the trees of both Apricots and Peaches of a quantity of their foliage by a gentle brush upwards with a long-haired broom, our object being to let sunlight and air to the young fruiting shoots and spurs of next year. The foliage came away with but the slightest friction, showing that its loss would be no detriment. Soon as all the foliage is off, the surface of the border will be weeded, suckers cut out, and a fresh top-dressing of soil and manure given. Potting-up of bedding plants has done, and still does, take up much of the time of indoor hands; then there is the scheming to house the greatest number in the smallest space; besides which it is an indispensable condition that no plants shall be lost owing to unsuitable positions as regards temperature; but all kinds that will bear rough usage are necessarily relegated to that category. Fuchsias, Cannas, herbaceous Lobelias, Begonias, and a few others winter well in any place, light or dark, that is free from frost. At this dull season, flowering plants of all kinds have the first consideration; and the show that Pelargoniums, Cyclamens, Bouvardias, and Chrysanthemums just now make bespeaks their worthiness to hold that position. The temperature for these flowering plants we keep at about 60°, and the atmospheric moisture inclining to the dry side, to avoid damping and mildew. Potted for forcing bulbs of Gladiolus The Bride, also a later lot of Hyacinths, and a few more Deutzias, Spiræa palmata and Thunbergiana; the latter is not so generally grown as its merits for forcing deserve. Its light, Maiden-hair Fern-like foliage and freely produced small white flowers are of the very best for cutting to intermix with flowers of larger size that require plenty of greenery to display their beauty. Excepting Grapes that are still hanging on the Vines, and that want looking over carefully twice a week to cut out any bad berries there may be, work in fruit-houses has been at a standstill. HANTS.

FRUITS UNDER GLASS.

CHERRIES.

THESE, on the whole, have had a very fair resting period, and will now remain dormant until the time arrives for starting. Sometimes they shed their leaves very early, and unless the roof can be stripped, mild weather in the autumn causes an upward movement of the sap just when it is least wanted. This, however, is not the case with us this year, and, lest it should be with others, I may observe that root-lifting or forking the soil off the surface roots and leaving them hardly covered for a few days invariably produces the desired effect not only upon the Cherry and Plum, but also upon other trees when they show signs of getting too forward. The next best process is pruning, if properly managed trees require it, but where summer pinching has been attended to and extension training is practised, this is a very light affair, even upon young trees, whilst old ones will only require spur-thinning or the removal of dead or barren branches. Spur-pruning, or thinning, is an operation of some importance, but many there are who allow their trees to go on from year to year and do not become alive to the fact that their fruit is getting smaller and smaller until it is too late to restore them to a satisfactory condition. Their only remedy, then, is entire removal and replacement with young trees, two operations which cost money, independently of loss of time; and as few gardeners are now overdone with either, my advice is, annual thinning just before the trees are cleansed in November. This process has been so frequently enlarged upon every autumn, and the best modes of destroying insects have also been given, but unless remedies more destructive than the pests themselves are resorted to, complete dislodgment from old spurs is a very difficult matter. Young gardeners who have never been overtaken by myriads of green, black, or brown aphis just as their Cherries, Plums, or Peaches were coming into flower, may make light of detailed instructions for a thorough rout. Once caught and a crop lost, they may choose their own course for the remainder of their lives, as the writer has done, and he advises thorough washing twice over in preference to painting, always preceded by careful thinning with a fine-bladed knife, to let the insecticide well into the enemy's stronghold.

PLUMS.

These and Cherries from this time forward, or as soon as the last of the Golden Drops are gathered, require identical treatment. The secret of success in Plum culture consists in strict attention to the following details: The incessant pinching of pyramids and bushes, either in pots or planted out in the borders; limited root space to prevent them from becoming gross and unmanageable; freedom from insects throughout the growing season; complete rest through the early winter months, and a low temperature with plenty of air when they are started into growth. Trees in pots, like all orchard-house trees, do best and give the least trouble when plunged out in the open air as soon as the wood is ripe—a position they may occupy until the time arrives for taking them in again for forcing. If planted out or trained on trellises, a regular system of root-pruning induces the formation of a profusion of spurs and short growths, which require very little pruning, and reduces pinching to a simple operation. The soil which suits them best is a strong, but free calcareous or sandy loam, to which old lime rubble or burnt earth may be added; but, lacking these, they will do very well without them, always provided they are well drained to favour the quick passage of water, and a moderate quantity of the new compost is firmly rammed round the balls every year. The house from which these trees cannot be removed, it is unnecessary to say, must be light and liberally ventilated, and if constructed with portable roof-lights for removal during the early winter months so much the better. Newly introduced trees are apt to grow strong at first, and for this reason they should be well formed and furnished with blossom-buds before they are taken from the open quarters. Now is a good time for new beginners to make a start, or for others to replenish their stock if they have not already done so. The varieties of Plums, many of them of second rate or inferior quality, being so numerous, none but the very best should be considered worthy of culture under glass. It is not well to start with too many varieties, but all the following are first-rate, and may be duplicated to any extent: 1, De Montfort; 2, Oulin's Golden Gage; 3, Denniston's Superb; 4, Huling's Superb; 5, McLoughlin's Gage; 6, Transparent Gage; 7, Boddaert's Gage; 8, Kirke's; 9, Old Green Gage; 10, Washington; 11, Bryanston Gage; 12, Jefferson; 13, Reine Claude de Bavay; 14, Coe's Golden Drop. These are named in their order of ripening. All do well in pots, and will give a supply of fruit throughout the Plum season. In favourable seasons a long succession can be obtained from one set of trees by removing a portion of them to the open air as soon as they have passed the stoning process; but that best of all Plums, Golden Drop, should be kept under glass, where the fruit will attain quality and colour rarely met with on open walls.

PEARS.

There are few localities in the south, west, or midland counties in which the now popular method of working Pears on the Quince, and growing them as pyramids, cordons, or wall-trained trees, does not result in the production of fruit of the finest quality. In these places, although pot culture is as old as the most primitive orchard house, this mode of growing them would be altogether superfluous work, as high-flavoured fruit can be obtained from well managed pyramids in the open air. North of the Trent, and with few exceptions throughout Scotland, as observant visitors to the congress held in Edinburgh last year could note for themselves, the falling off in size and colour is sufficiently marked to render many of the varieties almost unrecognisable by southern growers. A few collections there were from localities in which Peaches will not ripen out of doors, and these being remarkably fine I was curious to ascertain how they had been produced. In reply to my inquiries, I gathered that the trees worked on the Quince and trained on trellises under glass, mostly as cordons, had not only borne these fine Pears, but that many of the varieties had been made amenable to gentle forcing. The forcing of late Pears into use when other fruits are plentiful may not be an advantage, but it answers the end I have in view, and that is the practicability of growing a choice selection in the most unfavourable districts. Hitherto the leading cultivators have advised keeping the trees in cool, airy houses until the fruit is set, and plunging them in the open air to swell and ripen when danger from spring frosts has passed away. This practice holds good in the warmest parts of England, but I question if it would answer in the bleak north, and, glass being cheap, I would advise all lovers of good Pears to put up light airy houses, heat them sufficiently to produce our southern climate, with free ventilation, and furnish them with well-formed pyramids. In houses of large dimensions the trees might be planted out in pure loam, well mulched and watered in summer and root-pruned annually. In smaller houses, pots plunged to the rim and a little below the level, so as to form a basin for the reception of top-dressing and water, might answer better. Large pots need not be used, but the vent holes should be enlarged to ensure the free passage of water, for, much as the Quince stock enjoys moisture, it must not be stagnant, neither must it be given grudgingly. Potters in some districts manufacture a perforated pot, I believe, for Orchids, which I have used extensively for fruit trees, Pines, Melons, and other subjects which require plunging, and can strongly recommend it. If a new name were wanted for it I would call it the "tyro's safety pot," as it is almost impossible to overwater moisture-loving plants grown in it, whilst the fine fibrous roots which find their way through the holes in the

sides often save the crop when the watering of a tree is overlooked or neglected. The soil or compost for Pears in pots should be made richer than that recommended for borders by the addition of bone-dust, or, the loam being light and poor, well rotted manure may be added in the proportion of one to four of the loam; otherwise a good Pear soil produces the best flavoured fruit without the aid of animal manure, except as a mulch or in a liquid form when the trees are growing. A celebrated fruit grower says twenty-four varieties of Pears will carry one over the eight months they can be had in season. I should be content with a smaller number, as it must indeed be a fleeting variety that will not last more than ten days. But, allowing for failures and simultaneous ripening, I would select the following to succeed such sorts as Doyenné d'Eté, Beurré Giffard, B. de l'Assomption, and Williams' Bon Chrétien, which in the worst localities should go into the open air as soon as all danger arising from spring frosts is past: 1, Madame Treyve; 2, Beurré Superfin; 3, Louise Bonne of Jersey; 4, Fondante d'Automne; 5, Beurré Hardy; 6, Gansel's Bergamot; 7, Thompson's; 8, Marie Louise; 9, Van Mons Léon Leclerc; 10, Glou Morceau; 11, Pitmaston Duchess; 12, Doyenné du Comice; 13, Durondeau; 14, Hacon's Incomparable; 15, Marie Louise d'Uccle; 16, Beurré Clairgeau; 17, B. Diel; 18, B. d'Aremberg; 19, Winter Nelis; 20, Josephine de Malines; 21, Marie Benoist; 22, Bergamotte d'Esperen; 23, Beurré Rance; and 24, Easter Beurré. All these varieties are good on the Quince. Doyenné d'Eté, Jargonelle, Nos. 6, 7, 8, 9, 14, 16, 21, and 24 are made more fertile by double grafting. Trees so worked can now be obtained, or owners of full-sized pyramids of inferior sorts can change them in one year by grafting every shoot close to the main stems.

Strawberries in Pots.

These, owing to the mild weather and continuous rains, are still growing, and, judging from the fresh, healthy state of the foliage, will not settle down to rest for some time to come. If the first batch of plants is wanted for extra early forcing, they may now be laid on their sides in the open air, to give them a slight check before they are taken in; but on no account must they be allowed to become what is termed "dry," or to cause the balls to part from the sides of the pots. Of two evils—too much or too little moisture—better choose the first by leaving them where they stand, provided the roots are not striking into the ground and they are safe from the inroads of worms. In moist mild autumns we sometimes find it good practice to elevate the plants on dwarf walls or low platforms, formed of boards or shutters, placed on inverted flower-pots a foot or more in height, where they remain until frost threatens the bursting of the pots. They are then plunged up to the rims in ashes and brave all weathers, no matter how severe. Strawberry growers in high, dry, and warm gardens do not find it necessary to resort to coaxing measures, but content themselves with an occasional turn over to give the plants more light and air, and at the same time to prevent the roots from getting away from the crocks. Others, like ourselves, are obliged to steal a march on the summer by getting early runners from strong maidens put out in the preceding month of August, by using medium-sized pots well rammed with not over-rich compost, and giving them a position above the cold clay to ripen their crowns. In such cold limestone—I was going to write enervating—situations, tender varieties like The Queen and Dr. Hogg sometimes suffer if left out all the winter, not, I believe, from cold, as plants in the open quarters winter well, but from the check which follows the quick growth of these sorts when placed in pots and the season continues mild and muggy up to Christmas. These plants we find it necessary to place in cold, shallow pits, where they can have the protection of well-tilted lights when heavy rain is falling, and full exposure in dry or ordinary weather. Where pits are not at command, the Plum, Cherry, or Pear house may be utilised, as dry frost does no harm, but the pots should be plunged on the borders, not in them, in any light, non-conducting material that will keep the roots moist and progressing. At one time it was the practice to fill the shelves in cold houses through which the parching wind whistled, when the pots and balls dissolved partnership and the fate of half the plants was sealed before forcing was commenced. This suicidal system, fortunately, has been given up, and we now find professional amateurs—save the mark!—as well as professional gardeners taking a leaf out of Nature's book, and treating perfectly hardy, moisture-loving plants in accordance with their requirements. Although open-air Strawberries frequently lose the major part of their foliage during severe winters, they always flower and fruit well; but what lesson must we learn from our early varieties, now the beginning of November, in every stage of growth from setting to swelling and ripening their fruit? Many crowns no doubt remain dormant, but this persistent growth will tell unfavourably upon our early crops next season. W. Coleman.

Eastnor Castle, Ledbury.

Trees and Shrubs.

THE MONTEREY CYPRESS.

Among coniferous trees there are few that possess more merits than Cupressus macrocarpa. It is fast growing and beautiful at every stage of its growth and in every form. Its verdure is exceedingly rich, dark and very luxuriant; its branches reddish; and the long whip-like shoots impart a peculiar grace to it. Unfortunately, it cannot be absolutely depended on as hardy in every position or district in this country. Notwithstanding, however, its liability to be cut off when a bad year comes, the beauty and grace of this tree, even in its young stage, are so great that we may be sure it will always hold a place around our English country houses. When killed it must be replaced. It should, perhaps, be noted that a variety of Cupressus Lawsoniana (a much hardier plant) has been met with, possessing exactly the same habit and port as the fastigiate variety of C. macrocarpa; its colour, however, is not equal to that of the latter, although very beautiful in its own way; but the green of C. macrocarpa is peculiarly rich, and no other Cypress possesses it. It is particularly distinguished from other species of Cypress by the great size of its cones, which are nearly 2 inches long, and are borne in clusters of three or four.

Those who were familiar with the Royal Horticultural Society's Garden at South Kensington for a few years after its formation will remember with regret two magnificent plants of Cupressus macrocarpa which stood immediately under the terraces, one on each side of the waterfall. These had been brought from Chiswick, and were understood to be the original plants raised from seed sent home to the Horticultural Society by their collector, Mr. Hartweg, in 1847. For a year or two they were one of the chief beauties in the way of plants that were to be seen in the garden. Then they get darker in colour, and less healthy in their appearance; their foliage lost its denseness, and the branches got scraggy, and finally they disappeared. It was the town soot that killed them, or at least so enfeebled them, that they fell easy victims to the first untoward circumstances with which they had to contend. But these were by no means the only fine specimens of this magnificent tree which, at that time, might be seen in the neighbourhood of London. At Kew there were splendid examples, and everywhere this Cypress grew with a luxuriance and a beauty that seemed to indicate that it was perfectly suited to our climate. It had stood with little damage the cold of 1860-61, the severest winter that has been felt by this generation; and yet where are all our fine specimens of it now? During the terrible winter of 1866 the London district was utterly denuded of this tree, so was the south and the east of England. The midland counties were less severely dealt with, and Scotland and Ireland suffered but little. This was the more remarkable, inasmuch as it is a native of a warmer climate than even the south of England. The facts connected with the wholesale slaughter of 1866 are difficult of explanation. It has been observed that a plant may stand one severe winter and give way to another not so severe if it occurs within a few seasons after the first. It is as if the vital energy of the plant had sustained a shock which weakened it and left it less able to withstand another. Cupressus macrocarpa is a tree which it is the interest of everyone to preserve amongst us. It is to Cypresses what Pinus insignis is to the Pines. Both are distinguished by their fine grass-green hue, which gives them a freshness and brightness unequalled by any other Cypress or Pine. The fine slender whip-like shoots of this tree, with their rich red bark, give an attractive elegance to its motion under the breath of the wind. This species may be regarded as the representative or equivalent of our largest European Cypress (the Cupressus sempervirens) on the Pacific coast of North America. Like it, it reaches a great age and a great size; its foliage is similar, and, as in it, the fruit is large and hard, differently shaped, indeed, being oblong instead of round, but of the same character.

The Tansy-leaved Thorn.—This Thorn (Crataegus tanacetifolia) is especially noticeable just now, not only on account of its sharply-cut, distinct hoary foliage, but also on account of its large yellowish fruits. It forms a stiff-growing tree, totally devoid of any graceful character whatever; but, notwithstanding that, it is so distinct, that it should be more popular than it is The bark is of a peculiar ashen tint, which, combined with the distinct greyish foliage, causes a specimen of it to have a hoary and venerable appearance. The flowers are produced very late in the season, frequently not opening till June is well advanced, while the berries are as large as a Cherry, of a yellowish hue, and borne in the greatest profusion. This Thorn is a native of Asia Minor, and has been known in this country for about a hundred years, but, except occasionally in some old-fashioned garden, it is very rarely to be met with.—H. P.

The white Dogwood (Cornus alba).—When planted in a sunny spot this Dogwood, as it is often called, furnishes a colour rarely seen among other shrubs during the dull days of winter, and by associating it with the golden-barked Willow (Salix vitellina) some charming effects may be produced. As the most prominent feature of this Dogwood is the bright red bark, the name of alba (which refers to the fruit) appears at first to be somewhat of a misnomer. It is a shrub interesting in all stages, as the clusters of white blossoms are ornamental, and the foliage is ample even under somewhat disadvantageous conditions. This shrub is a native of the northern part of North America, and is said to inhabit the banks of rivers and lakes, while here, though it prefers a fairly moist soil, yet it by no means refuses to grow in dry spots. Another name for this species is C. stolonifera. The common Dogwood (C. sanguinea) is a British plant, and is, besides, widely distributed throughout Europe. The specific name is derived from the bright red hue that the leaves acquire in autumn before they drop, but at no time is that feature so prominent as the red bark of C. alba, to which the name of sanguinea might more fitly have been given. There is also a variety of this in which the leaves are edged with white.—T.

The common Barberry.—Interesting notes by two correspondents in The Garden (p. 370), and the sight of some magnificent plants of abnormal size and perfect symmetry laden with berries by the roadside recently, urge me to add my testimony afresh to the extreme beauty of this native plant. Not only is there a purple-leaved strain of this Barberry, but on many soils the whole of the young shoots come purple in the early spring, and continue that lively colour till towards the middle or end of the growing season, when they merge into a dull green. The more normal type also fades into a variety of brilliant tints. In addition to the extreme beauty of its fruit,

excelling, if not wholly eclipsing, every berried plant in the garden in the extreme elegance of its drooping bunches of coral berries, the flowers are also beautiful earlier in the season, and, as your correspondent "E. H." well says, the plant has a chaste, elegant appearance when in flower in the spring, and even when leafless in winter it is not unornamental. This Barberry also makes a good hedge plant either mixed with White Thorn or alone, its sharp thorns and dense habit rendering it impenetrable. The chief reason, I believe, why it is so little used for the latter purpose is a prejudice against it among farmers, amounting almost to a rural creed in many parts of the country, that the Barberry causes mildew on Wheat. Barberries are not only used to make a most beautiful and chaste coloured preserve, but the bunches of fruit are also conserved whole, and in this state form a useful dry fruit for dessert as well as for the decoration of other dried fruits. Humble as it is, the Barberry has also proved very useful for dinner-table decoration, few combinations having a more cheerful and chaste effect than one of the leaves and fruit of this Barberry laid on the cloth, while the finger glasses are also furnished with tiny bunches of its delicately shaped coral berries.—HORTUS.

The variegated Walnut tree (Juglans regia variegata).—This remarkable variety was raised from seed of J. regia laciniata. The leaves, and occasionally the bark of the branches, are pleasingly variegated with yellowish white, which contrasts finely with the lively glistening green of the rest of the foliage. The variegation did not appear until about the second year of the growth of the seedling.

The Burr Oak (Quercus macrocarpa).—This is perhaps the most ornamental of American Oaks. Nothing can exceed the graceful beauty of these trees when not crowded or cramped in their growth, but left free to follow their own mode of development. Who has not admired these trees in American Burr Oak openings? Their large leaves are dark green above and a bright silvery white beneath, which gives the tree a singulary fine appearance when agitated by the wind. The wood is tough, close grained, and more durable than that of the White Oak, especially when exposed to frequent changes of moisture and dryness.

Buddleia globosa.—I saw this plant during early summer blooming very finely in Mr. Samuel Barlow's garden at Llandudno. It was planted on a warm, sheltered, sunny border, where it grew luxuriantly and flowered freely. It will hardly stand our winters north of the Trent, and when planted out in the northern parts of the kingdom, it should be against a south wall. Even if cut down by frost, however, it will spring up again luxuriantly. To those who are unacquainted with it I may describe it as a deciduous shrub, growing 10 feet or 12 feet high. It has lance-shaped leaves of a dull green, much veined and netted; the blossoms, which are handsome, are like round balls, as large as Cherries, and deep golden. They are in perfection in May and June. It should be planted in rather dry, and well-drained soil.—R. D.

Syringa Emodi.—This Himalayan Lilac is additionally valuable owing to its flowering late in the season. It forms a large, stout-growing bush or small tree, the flowers of which are white or sometimes tinged with lilac, and borne in erect panicles. A plant studded with these spikes of blossoms is very ornamental. They are also strongly scented—indeed, too much so for close acquaintance, but at a distance the odour is not unpleasant. It thrives as well as the common kind in ordinary garden soil, and is quite hardy.—T.

Double-flowering Cherry (Cerasus serrulata).—This Cherry forms a very ornamental deciduous, somewhat erect tree-like shrub from 6 feet to 8 feet high, with stout branches sparsely furnished with laterals, which in April are thickly clothed with numerous clusters of large double flowers that remain long in perfection; on account of this and its dwarf tree-like appearance, it is the most desirable of all the double-flowered Cherries for a small garden. It is a native of the north of China, where it is called Young-To. It grows freely in any good garden soil, and is increased either by budding or grafting on the common Cherry stock. It was first introduced into this country in 1822. The leaves are obovate-pointed, quite smooth, bristly serrated on the edges, alternate on the young shoots, but more or less crowded together on the other parts, and very like those of the Bigarreau Cherry both in size and shape. The flowers are double, white at first, but afterwards, when fully expanded, tinged with red and produced in clusters on the previous year's growth.

Retinosporas.—A score or more varieties of these hardy and graceful trees are grown in nurseries in the United States, and no fewer than thirty distinct varieties of the interesting Japanese Maples. The frequent communication between America and Japan now-a-days has led to the introduction of many Japanese plants, which are found to withstand the extreme cold of the Northern States.

Pinus koraiensis—In THE GARDEN (p. 371) this Pine is described as synonymous to P. parviflora. I can hardly think that "E." possesses the true kind, for, without doubt, they are perfectly distinct. The leaves of P. parviflora are about 1½ inches long, and much more glaucous than those of P. koraiensis. The tree also cones more freely and is not so compact in growth. The leaves of P. koraiensis are about 4 inches long, and the habit of the tree is compact. The two species are both worthy of a place in every pinetum.—W. O., *Fota, Cork.*

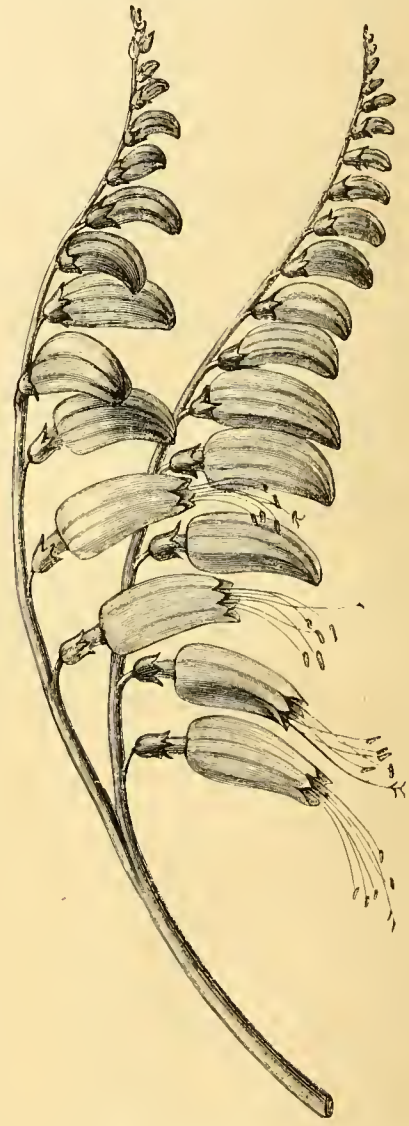
Autumn tints.—I send you a few autumn leaves—leaves of Acer Ginnala of the brightest crimson, and, more beautiful still, leaves of Rosa rugosa, of marbled green and yellow edged with the brightest red. We think the latter carry off the palm for beauty amongst all autumn leaves. Unfortunately, it is not every plant of Rosa rugosa which has such leaves. We have many plants, but only one has the leaves so highly coloured. This we cannot explain, but suspect the explanation lies in the fact that the plant in question is fully exposed to the sun all day, and perhaps there is something in the soil that affects the foliage. The leaves of Rhus typhina have also been very fine. The tree has been, as "E. V. B." beautifully describes it (in her delightful little book, "Days and Hours in a Garden"), as if a sunset cloud had settled down upon it." The leaves of Rhus Cotinus surpass, we think, those of R. typhina, but both and the Acer are, in our opinion, left behind by the Rose.—W. H. TILLETT, *Sprowston, Norwich.*

*** The leaves had, when they arrived, lost a little of their freshness, but when dipped in water they recovered much of it, and were very beautiful.—ED.

5529.—**Pruning Cotoneaster Simonsi.**—When properly managed, this fast-growing sub-evergreen is one of our best hardy wall trees. If "G. C." examines the young growths, he will find flower-buds formed in the axils of all or nearly all the leaves; spurring back removes them, when, as a matter of course, he loses the berries. Some years ago I planted a number of trees against an old stone wall facing the north, and tried the same plan, but finding I not only lost the fruit, but was in a fair way of losing the trees also, I changed my system, which is as follows: Old trees which had thrown up perhaps a dozen shoots early in the spring were pruned upon what Grape growers would term the long-rod principle, *i.e.*, every alternate shoot was cut down nearly to the ground; in some cases two out of three shoots were taken. The trees the first year looked rather thin, but they threw up vigorous growths, which were nailed in intact to flower, when the old ones in their turn were cut away. This long-rod principle has now been followed up for several years, and the wall, about 6 feet in height, is always furnished with fresh bright shoots, neither too close nor too trim, literally covered with berries. If the wall in question is too high for one or at most two years' growth to reach the top, "G. C." must try another variety: probably C. microphylla, a most beautiful evergreen wall shrub, might answer his purpose. This, however, in course of time gets rather wild, but it is not so impatient of the knife as C. Simonsi.—W. COLEMAN, *Eastnor Castle, Ledbury.*

MINA LOBATA.

THE genus Mina is closely allied to Ipomæa, from which, however, it differs in several particulars. The flowers, which are very persistent, are produced on forked racemes, and their bright colours are shown off to advantage by the deep green foliage, which is dense and luxuriant. The oldest racemes attain a length of from 15 inches to 18 inches, and produce from thirty to forty reddish yellow flowers on each fork. The flowers, which are tube-like, measure when fully developed three-quarters of an inch in length, while the uppermost coloured bud is only one-eighth of an inch long. The plant is a rapid grower; seeds of it should be sown in March and the seedlings cultivated in pots until the middle of May, when they can be planted out in the open ground. By the beginning of August they will have formed pyramids over 18 feet in height, well furnished with foliage and profusely covered with flowers, as will be seen by the annexed illustration, which shows part of a pyramid reduced from a photograph. It is a plant which likes a sunny situation and is well suited for covering arbours, trellises, &c. It was introduced to this country many years ago, but seems to have been lost. It was figured in the *Botanical Register* in 1842. In all probability it did not mature its seeds, and hence its disappearance.



Flowers of Mina lobata (natural size). Colour, reddish orange and yellow.

Messrs. Haage & Schmidt, of Erfurt, have, however, we believe, harvested good seeds of it this season, and therefore we trust it will not again be lost to cultivation. It is a Mexican species, and the only one with which we are acquainted belonging to the genus.

ROSE GARDEN.

"MANETTI THE ROOT OF ALL EVIL."

THE planting season is again upon us, and the question just now is continually being asked, What is the best stock on which to have Roses budded, or what kind of stocks had best be planted for budding next year? The question is not difficult to answer directly, but it is even easier to give a negative reply. To invert the words of Canon Reynolds Hole, the Manetti, as a stock for Roses, is the quickest, the easiest, the cheapest, and—the worst. To this statement it may be objected, that as the Manetti furnishes splendid maiden plants, often with shoots 10 feet long; that as Manetti stocks are no trouble to make, it being only necessary to cut sticks with a pair of clippers into 9-inch lengths and insert them in sandy soil to obtain 95 per cent. of workable stocks; that as plants on Manetti may be bought for less than any other kind of Rose tree; therefore the Manetti must be a very economical stock. But, all the same, it remains a most apt illustration of the saying, "cheap and nasty;" and I have no hesitation in saying that if I were offered a thousand Rose trees on Manetti as a gift, I would not be at the trouble of planting them.

The inferiority of Manetti as a stock for Roses is pretty generally admitted, but it is constantly urged as an excuse for its continued cultivation that plants on Manetti will thrive on light soils where plants on Brier will not grow—a contention which my experience at any rate entirely fails to support. Having grown Roses on six or seven forms of stocks, in soils of the sandiest and of the heaviest as well as on mixed soils of various intermediate consistencies, the plants worked on Manetti have in every case been the first to go. They grow magnificently (sometimes) the first year, wretchedly the second, and frequently fail to survive the third. Sometimes, after having appeared moribund during the season, a plant will suddenly seem endued with a fresh lease of life, and it will then be found that the scion has succeeded in establishing itself upon its own roots; in fact, the chance that any variety has of making a permanent plant when worked on Manetti is just in proportion to the facility with which that variety will strike as a cutting. To take a single instance: nurserymen will often tell one that it is no use working the Austrian Briers on Manetti—that they will not so succeed for long; and anyone who has ever wasted their time and material in trying to strike cuttings of the Austrian Briers will at once see the reason why. This is the real reason, also, for the constantly-reiterated injunction to plant with the union of stock and scion below the surface of the ground; not to keep down suckers, nor because it is good for the roots to be buried deep, but because, if otherwise, there is hardly a chance of the plant surviving for any length of time. The contention that the Manetti is the best stock for light soils seems to have been based on the assumption that its more fibrous and shallow roots would be better able to avail themselves of what moisture there might be on sandy land; but, on the other hand, in case of great drought, their roots, being fine and near the surface, are far more likely to be burnt up than those of the Brier, which are able to travel farther and deeper in search of moisture, and in case of a wet season the comparatively soft Manetti fibres are extremely liable to rot. Again, the roots being so shallow, they are sensitive to sudden changes of temperature, and a rapid alternation of heat and cold being especially conducive to mildew, it happens that Roses on Manetti get mildewed to an abnormal extent.

That this character of Manetti is not the accident of any local influences is shown by the fact that similar objections are made to it by well-known growers in such various parts of the country as Surrey, Berkshire, and Lancashire Hertfordshire, Essex, and Nottinghamshire, Oxford and Cambridge, and Kent and Stirlingshire, where, in comparison with other stocks, the Manetti has been largely tried and found wanting. A further very strong indication of its inferiority may be found in the fact that in some large nurseries, both in this country and in France, the Manetti stock has been entirely discarded, while in nearly all it is year by year further giving place to the native Brier. For it is the native wild Rose that long trial has proved to be the best stock for garden Roses in this temperate climate, and though we may well be grateful to the Italian rival that so long held undisputed sway as a dwarf stock, for having made Roses plentiful and cheap and for having broken through the system of growing Roses only as standards, yet we can well dispense with the further services of the foreigner. I say wild Rose advisedly, rather than R. canina, for there are several other species that may be employed. Of those practically useless as stocks may be mentioned, of course, R. spinosissima and R. mollis, also R. arvensis and rubiginosa; but those available are R. inodora, tomentosa, systyla, canina, and cæsia. The two last named are certainly the most valuable, R. cæsia especially, for those who prefer seedling Briers, since it always fruits in profusion, and being of compact, sturdy habit makes manageable young plants, while its native climate of Perthshire ensures it pretty complete hardiness; and R. canina's good qualities are enhanced by the great advantage of the very general distribution of the species.

The objections that are chiefly urged against dwarf Brier stocks by those who are enamoured of the fatal facility of the Manetti are, that the former are difficult or tedious to make and more so to bud; while in the case of seedlings the young plants are always smothered with mildew. To take the case of the seedling Briers first: It is obvious that if the seed be sown annually, the length of time taken by the seedlings to attain maturity is not very material, since as soon as the first crop of plants is ready to use there will always subsequently be a constant succession. It is true that in the young state the plants are very subject to mildew, but they grow out of it and seem none the worse, and by the time they

Mina lobata; showing habit of growth. Engraved from a photograph.

are ready to be budded no abnormal liability to this pest is apparent.

The best method to adopt in raising seedling Briers is to place the heps as soon as gathered in boxes of sand, to be left out of doors exposed to the weather during the winter; the fleshy part of the fruit thus rots away, and at the same time the seed swells somewhat, ensuring a more even and rapid break when it is finally sown than if kept dry during the winter. In March the contents of the boxes may be turned out and rubbed together between the hands to separate the seeds which will still be lying in hep-like aggregations, though the outer husk of the hep will have perished, and then the mixed seed and sand may be sown together on prepared seed-beds. The seedlings will come up thickly, and in November should be taken up and "heeled in" in some sheltered place under a wall or fence until the following March, when they are planted out in nursery beds. In this process two sizes should be made of the plants, as the largest will be ready to bud the year following, while the smallest will have to wait another year. The difficulty of working these stocks is unfortunately more real than any other objection urged against them, although, like all other difficulties, it may be overcome by practice. But the buds have to be inserted upon what may be called for practical purposes the tap-root of the plant; that is to say, just below the crown or collar from which all the branches spring, and as this root-like stem is often crooked and twisted, in addition to having but a thin bark, the successful insertion of buds is a matter requiring at first considerable patience and care; but that extensive trade-growers can afford to dispense with all other stocks is proof enough that the difficulty may be overcome, and the superiority of the resulting plants to those worked on Manetti is well worth a little additional trouble.

None of the charges, however, that are brought against the seedling Brier hold good against Brier cuttings, and where the slight extra trouble of raising and working the former is considered excessive, the latter may well be employed, for there is very little difference discoverable between plants on the two forms of the native stock, and though the Brier cuttings want a little more care in the actual making, yet they are ready at the same time and are just as easy to bud as the Manettis. It is sometimes said that Brier cuttings do not root readily enough to be available as a general stock, but this is not the case when they are properly made. Taking the average for the last three years, I find that the Manetti cuttings have produced something over 90 per cent., and the Brier cuttings between 75 and 80 per cent. of workable stocks, a quite sufficient proportion for practical purposes.

Brier cuttings cannot be made with a secateur, but must be knife-made, and they are preferably made with a heel, though this is not essential. Well-ripened shoots having been cut into 9-inch lengths, all the eyes except the top two or three are removed with the knife; a long nick is made in the ground with a spade and filled with white sand, and in this the cuttings are firmly inserted about 2 inches apart, and with not more than 2 inches of their length remaining above ground. In this way the rooting of a large percentage may be ensured. The time of year at which the operation may best be performed depends somewhat upon the season and the time at which ripe shoots can be obtained for cuttings; as a rule, the sooner after the middle of September that the requisite materials can be found the better, but any time till the end of November will serve. Still there is no doubt that the earlier planted cuttings yield most stocks.

All dwarf stocks should be transplanted and root-pruned in the November following (that is, twelve or fourteen months after) their insertion as cuttings, and then be heeled in during the winter, and not be planted out in lines where they are to be budded until the following spring, for it is desirable that the stocks should be not deeply planted, in order that the buds may be inserted close on to the roots; if, however, shallow planting in autumn be resorted to, the stocks will be drawn out of the ground by the frost and before long will be falling about in all directions; and if, to avoid this, the stocks be planted deeper, the buds are liable to be inserted too far above the roots and the plants will subsequently appear upon stems. This may be avoided by drawing the earth away from the stocks when budding them, but that hinders the budder, wasting his time and prolonging his work, and even if it is done, a sudden thunder-shower just after the stocks have been budded may wash all the earth back and bury and choke the buds. The exigencies of nursery arrangements may involve the necessity of planting stocks during the autumn in great nurseries; but amateurs with their comparatively small number of stocks are not bound by routine to the same extent, and by deferring the planting until a showery day in March, or even April if March continues dry, all trouble and danger are avoided, and the stocks may safely be planted quite shallow and will be growing freely in plenty of time to receive the buds, which can then without further trouble be inserted close down to the roots any time from June onwards.

Some of the advantages of the Brier as a dwarf stock are, that the Brier being less precocious than Manetti, plants worked on the former are less liable to start into growth too early and get cut back by spring frosts; and that the great hardness of Brier roots enables them to endure on cold, wet soils without rotting, while in case of drought they are able to travel to great depth and distance in search of moisture. The roots of seedling Briers generally go straight down into the soil, but those of Brier cuttings extend more laterally and are even more fibrous, so that Brier cuttings especially make stocks admirably adapted to soils of any consistency, whether light or heavy.

Of the various other stocks that have at times been employed, there are three that are still not unfrequently used for Roses, namely, a variety of R. multiflora called De la Grifferaie, R. polyantha, and a China, Madame Plantier. The last is of no special value as a stock, and the first-named is too lusty for many varieties, though it answers well for some of the climbing Teas of Gloire de Dijon race, but it is so liable to mildew, that it is not a desirable sort to have among young plants in the propagating ground, and for this reason I have discarded it in favour of R. polyantha. My experience of this Japanese species is not yet sufficiently extended (having only employed it during three years) to enable me to say how far it is available as a stock for all varieties, and it also may prove too vigorous for the weaker-growing kinds; but very vigorous sorts, especially the stronger Teas, do well upon it, and if it should prove generally useful, there will be no complaint of difficulty in propagating it for stocks, as it is the most freely-rooting Rose I know. I have put in cuttings in the open ground in September and had them so well rooted before Christmas, that in the following March some were planted in permanent situations where they were to flower, and the rest were planted in nursery rows and budded in the ensuing July ten and a half months after the insertion of the cuttings. Of course Manetti may occasionally be treated in the same way, though not to any great extent; but if R. polyantha should prove, as a great French grower has declared it to be, a first-rate stock for all sorts of Roses, it will be no mean advantage to be able thereby to save a year in case of emergency.

As at present advised, however, the answer to the question which is just now being asked on all sides, "What is the best stock on which to grow Roses?" is undoubtedly: The best stock for Roses in this country is the native Brier, of which the most valuable species are R. canina and R. cæsia, and as for the respective merits of seedling and cutting, it seems to be about six of one to half-a-dozen of the other.

T. W. G.

Souvenir de la Malmaison.—This favourite Rose furnished us with numbers of valuable blooms all through last month, which is later in the year than blooms are usually produced in large numbers. As a September Rose I do not think it has an equal, its half-open buds being then very charming. Early in the season it produced some perfect flowers, a circumstance I do not remember to have happened before.—J. C. C.

Tea Rose Sunset.—In the Salisbury Nurseries I recently saw a good breadth of this comparatively new variety in the form of half standards on Brier stocks. It has bloomed very freely and would do so till damaged by frosts. The blooms are fine and double, and may be briefly described as a marked improvement on Madame Falcot. In pots the foliage and habit are very distinct, but in the open the young shoots in the autumn are really beautiful, and used in bouquets or vases would be remarkably effective. The colour of the young leaves are, as nearly as I can describe them from memory, of a deep metallic red and most attractive.—W. I.

FRUIT GARDEN.

ROOT-PRUNING.

SEVERAL features of growth and of climate combine to give the practice of root-pruning special importance this season. The Indian-like summer weather and heavy rains have fostered strong growths, while the scanty Apple crops in some localities, under the average yield in most, and the abnormal freedom of the trees from insect pests, have all helped to develop a crop of wood of exceptional size and vigour. Growth is likewise late as well as vigorous. Seldom or never have the leaves of fruit trees been so fresh and green as in these opening days of November; hence the unripe state of not a little of the young wood this autumn-tide. Rightly interpreted, this furnishes a powerful appeal for root-pruning. Already it is almost too late to check the roots so as to heighten and hasten maturity. But something may yet be done to check or stop further supplies of sap, and thus render the wood less succulent, and consequently in less danger of becoming food for frost in the spring. As it is the spring frosts that blight and blast promising crops, and cripple and destroy our fruit trees, this simple method of making them more hard at that season, by curtailing their sap in the autumn, is one of the greatest practical importance. And this root-pruning doubtless accomplishes; for whatever theory of root structure or function may be adopted, no one can deny that the disturbance of a part or the whole of the roots, the detachment of a part or the whole of them from the soil, and the pruning off of some of them necessarily limits the supply of fluids and hastens and heightens maturity. So close is the correlation of perfect ripeness of wood to annual fertility, and so necessary is the latter to profit, that but little more need be added to enforce the practical importance of root-pruning. It is so far also one of our most potent means of protection, insomuch as it enables the tree to protect itself in two ways. It makes it hardier and it forces it to be later, and it would be difficult to say which of these is the more valuable in securing per-

petual fertility. Root-pruning is also the most powerful means at our command for limiting the size of fruit trees and moulding them into shape. Hardly had fruit trees left the open forest or field when the necessity of curtailing their size and altering their natural forms arose. Doubtless both these legitimate objects have been pushed to most absurd and unprofitable extremes. In parks, orchards, or woods fruit trees may safely have the fair run of their heads, and also of their roots, so soon as fertile habits have been established. But in gardens, and especially small ones, space is often very limited, and hence restrictions, more or less severe, must be laid upon growth. Fruit trees and bushes must either be starved, cramped, pruned, worked, or fruited into small dimensions.

Leaving the starving, cramping, dwarfing stock methods of limiting the area of fruit trees or bushes, let us note the effects of root-pruning. In nothing were the older cultivators more hopelessly beaten than in their persistent attempts to limit the size and improve the form of their fruit trees by pruning. The fact is they began at the wrong end. By their severe prunings of the tops and leaving the roots intact, the former necessarily became the more vigorous, and also the more difficult to force into or keep in any desired form. But the trees that resist and defy the powers of the knife on their tops are immediately amenable to its smallest cuts on their roots, and thus root-pruning has solved the problem of the size and form of fruit trees, and enables us with ease to regulate both at will. It has done more and better than this, and has enabled us to adjust the proper balance between growth and fertility, so that the current year's wood shall provide for the wants of the current year's crops of fruit, and also for the preparation and fulfilling of the succeeding year's fruit beds. When this perfect consummation, so devoutly to be wished by every rational root-pruner, is reached, then should the root-pruner gratefully rest from his labours. But, unfortunately, like not a few knights of the pen, the root-pruner does not always know when to stop. He not seldom goes on pruning long after all need of it has ceased, and it is this excess or abuse of root-pruning that has so often caused it to be disparaged or evil spoken of. So soon as it has succeeded in reducing the size of the trees to the desired extent, moulding them into form, and establishing their fertility, root-pruning should cease. To continue it afterwards is like swallowing medicine after the cure is perfect, or probing a wound after it is soundly healed. Neither would be more foolish nor dangerous than the knife on the roots after fertility is so often repeated as to become an established habit; for, like other habits, fertility once firmly established repeats itself with something like automatic certainty. But fruit trees may once more relapse into sterility.

One of the most powerful disturbers of a fertile habit is the loss of a crop of fruit. Thus relieved from its annual load through frost-bite, blight, or other accident, the fertile tree may again relapse into barrenness and rush wildly into wood-making. Unless this is promptly arrested by root-pruning, not one only, but many crops may be lost, for the tree, having reverted to the habit of growing gross shoots, is likely to repeat it unless once more checked by root-pruning. It is not, however, always needful to root-prune trees that cast off or lose a crop of fruit. Occasionally trees slip a crop through exhaustion; either root-pruning may have been indulged in to excess, or over-cropping been repeated so often that the vital forces of the plants have been crippled or exhausted. What such trees need is not more pruning, but lighter crops and more food. In this connection, it should be borne in mind that miscalculations in the manner or amount of root-pruning are almost sure to result in excessive fertility. The dangers of the latter may be met in various ways, as, for example, by early and severe thinning of the fruit and liberal feeding with liquid and solid manures, the latter applied in the form of surface mulches, &c. This is absolutely necessary to sustain the stamina of the trees under the abnormally heavy burdens that root-pruning imposes on them, and also to develop the bulk of the fruit to the largest possible average size and quality. Growers of fruit for sale (and who is not in these hard times?) find that none but the finest samples pay a handsome profit in the crowded markets. I have lately noticed some Pitmaston Duchess and Marie Louise Pears equal to those of Channel Islands fruit, their unusual size and excellency arising solely from prompt and severe thinning.

To leave the root-pruned tree to struggle with its whole load of fruit thus artificially augmented is just as unreasonable as to go on root-pruning it after its fertility has been hardened into a habit. The trees themselves teach us useful lessons in fruit-thinning by shooting off a portion, or a whole, of their crops when these are too heavy for their vital powers to bring to perfection. Nature, however, in this, as in many other things, is apt to run to extremes. In her attempts to strike a fair balance between the tree's back and its burden it not seldom drops its entire crop, while the observant cultivator will so skilfully balance his dual prunings, and nicely adjust the supply and exhaustive forces of the trees, so as to land a good crop alike of fruit and of wood annually, and thus preserve their health and extend their longevity. The most likely modes of securing these ends through root-pruning will be pointed out in my next and concluding paper.

RADIX.

A VALUABLE LATE PURPLE PLUM.

WILL "A. D.," or some other correspondent well acquainted with the great fruit fields about London, kindly say if it is really the fact that Mitchelson's Plum is fit for use early in September? Compilers of books and some catalogues say it is then ripe, and I am not in a position to say they are wrong; but I may assert that with me the variety grown under this name is not ripe before the end of October. Possibly, from a grower's point of view, it may be fit for market, but if it is ripe, our Herefordshire climate is sadly at fault, or otherwise I have got a later, consequently a more valuable, variety. Just now we are gathering fresh, sound fruit, the which, in the absence of frost, would keep good certainly until the middle of November. It is described in several good catalogues as of medium size, oval, dark purple; flavour very similar to that of a Damson, a great bearer, and ripe early in September. A great writer on fruit says, "the flesh is yellow, tender, juicy, sweet, and of good flavour, separating freely from the stone. In general appearance similar to the Diamond, but smaller, and does not possess the brisk acidity which characterises that variety." The above descriptions faithfully pourtray the character and quality of my fruit, fair samples of which measure 1½ in. in length and 1¼ in. in width, but I cannot get over the season of ripening, and this difference, as may readily happen when nurserymen's descriptions are taken from books, induces me to ventilate the question. A really good cooking or preserving Plum, the size of a small Diamond or a large Damson, which comes in almost with the glut, is comparatively of little value, but if it is the fact that it will keep in good condition until the middle of November, why then it is quite as valuable in the kitchen as Golden Drop, now a sweetmeat, is upon the table. Soil, season, and climate, even in this small island, have a wonderful influence over all kinds of fruit, and it is probable this Plum, which was raised near London, may ripen earlier there than it does with me; but if it is shown that the tree is very hardy and prolific on the coldest soils, and fruit fit for the dessert can be had in November, scant justice will be done until the nurserymen's lists are corrected.

Eastnor Castle, Ledbury. W. COLEMAN.

Peach Madame Pynaert.—The coloured plate of this new Peach in a recent number of the *Bulletin d'Arboriculture Belge* depicts a fruit which as regards appearance is all that can be desired. If possessed of other needful qualities it is likely to become in time a popular kind for market, as owing to its high colour it has a very taking appearance. It is stated to be of vigorous growth and so fertile that severe thinning is necessary. M. Gaujard, the raiser, observes that "the great feature of this variety is that it is so suitable for the open air, the fruit ripening about the 15th of August. As the flowers are extremely numerous, and to a certain extent succeed each other, it is very rare that a portion of them do not escape spring frosts." This is a quality which should recommend this new variety to growers in England. We want hardiness in the Peach almost as much as in any outdoor fruit, and many of our best kinds are wanting in this respect. In quality this Peach is said to be first rate. It comes very large if well thinned, and the flesh comes away easily from the stone. It was raised in 1881. M. Pynaert says that it is as remarkable for fertility as for vigour; the seedling tree is in a pot about 18 inches across, and this year bore sixty large fruits equal in appearance to that illustrated in the *Bulletin*.—BYFLEET.

RENOVATING OLD ORCHARDS.

THE thorough overhauling and renovating of old orchards is work sadly needed in many places, and now is a good time to do it. Even in orchards in fair average condition one cannot fail to observe that many of the trees are not paying for the space which they occupy, owing to the produce being specked and unsaleable. Such trees should be grubbed up to make room for varieties that produce good clean fruit. Trees growing too strongly, too, should be headed down ready for regrafting in spring. Do not cut them down so low as where it is intended to graft them, as if frost is severe it may split the bark; and, moreover, it is always best to have fresh cuts on which to graft, or, if the trees are not very large, root-pruning may be tried; but this is more adapted to garden than to orchard trees. One of the varieties that is specially suited for grafting on free-growing stocks is Loddington Seedling, or Stone's Apple. I have seen grand fruitful trees of this kind formed by grafting it on shoots about the size of one's wrist, putting fifty or sixty grafts in this way on a tree. In about three years such trees become more profitable than they ever were before, and they continue to get more so as the head of branches extend in size. I have never seen these double-grafted trees grow too strongly or fail to be fruitful if really good varieties were put on them. The plan of regrafting fruit trees on the small wood at some distance from the trunk is a decided improvement on the plan of cutting back to the large limbs. Although the grafts grow on the latter, they never heal over as they do on the small branches: consequently, at the point of junction, a portion of dead wood is left that in time decays, and the loss of limbs sooner or later is the result. The small spray-like shoots not large enough to graft on should be left to grow for a year, in order to keep up root action. During the following winter they can be cut clean away. Filling up gaps where old trees stood with young ones is an important matter, although in the case of many orchards held on leases there is no room for consideration, as it is distinctly stated that when an Apple or Pear tree is cut down a young one of the same kind must be planted. Now this is just what ought not to be done, as there can be no doubt that if changes of crops give such good results in the kitchen garden, they are far more necessary in the orchard. Though the soil may be worn out for Apples and Pears it may yet grow fine crops of stone fruits, Nuts, or bush fruits, and I have no hesitation in saying that if our orchards are to produce anything like the best results of which they are capable, they must be treated more as our vineries are; *i.e.*, as soon as they begin to fail the old trees should be rooted out and a fresh start made; it is folly to expect that a young tree planted in the shade of other trees in soil already exhausted will make

much headway. Since, however, it is compulsory to plant young trees of the same kind where others previously stood, the best course would be to cart the exhausted soil right away and substitute new soil. Large holes sufficient to hold three or four cartloads of soil should be dug, and filled in with any fresh turfy mixture; then plant the trees, stake them securely, and mulch the roots with manure. I believe, indeed, that mulching would of itself obviate many of the ills from which orchard trees suffer. If the roots can be kept at work near the surface, the growth made will ripen well and the trees will in consequence become fruitful. Trees even in good bearing condition should all be gone over with a small handsaw in order to clear away the small spray-like growth from their centres, as it is only on the outside that good fruit can be perfected. Then dust with lime and surface-dress with manure, and a marked improvement will soon be observable in the produce. J. G.

Hants.

KITCHEN GARDEN.

RIPE AND GREEN TOMATOES.

In the third recipe for utilising these given in THE GARDEN (p. 417) an important omission occurs, for which I am sorry, as it may be the cause of a loss of pickle, owing to its turning mouldy. Before the Tomatoes and Onions are finally placed in jars or bottles, the vinegar in which they were baked should have been carefully drained off. The juice extracted weakens the vinegar and injuriously affects the keeping properties of the pickle; hence the necessity for straining it off and adding fresh vinegar.

TOMATO SAUCE.—Since my last remarks were made I have been favoured with two excellent, though not original, recipes, one of which is for making sauce that will keep. Accompanying this were two bottles, one made last season and one this, according to the following instructions; and I may add that I found both excellent in every way. Take quite ripe Tomatoes, bake them in a slow oven till tender, rub them through a hair sieve, and to every quart of pulp add one pint of cayenne vinegar, three-quarters of an ounce of shallots, three-quarters of an ounce of Garlic, both peeled and cut into pieces, and salt to taste. Boil the whole together till the Garlic and Shallots are soft, then rub through the sieve again. Return it to a saucepan, and to every six quarts of liquor add one pint of Soy sauce and the same of anchovy sauce; boil together about twenty minutes, and bottle off for use, carefully sealing the corks. This, it was stated, will keep good for two or three years, or it can be used in a week from the time when it was made. Cayenne vinegar is made in this manner: Put half-an-ounce of cayenne pepper into a pint of vinegar, bottle, and let it steep for a month; it should then be strained of, and is then fit for use. I have, however, found the pepper and vinegar to amalgamate in a few days or about a week, but it is much stronger when allowed to stand a month, as just recommended.

TOMATO CHUTNEY.—Very good chutney may be made in which ripe Tomatoes form the principal basis. To every pound of Tomatoes—which should first be baked in a stone jar till quite soft, and then skinned and passed through a hair sieve—add one pound of Demerara sugar, one pound crushed mustard-seed, four ounces of salt, and one ounce of cayenne pepper, and place them again in the oven. Next stone one pound of raisins, quarter and core one pound of Apples, and slice up either four ounces of Garlic or 8 ounces of Onions, and after these have been stewed sufficiently to admit of their being easily broken up, all the ingredients should be well stirred together in the jar, adding vinegar at different times as it thickens during the cooking, which will take four hours in a moderately heated oven. This chutney keeps admirably, and a very little of it suffices at a time. W. I.

Stirring the surface of the soil.—When the surface is dry the hoe or the fork may be used freely among growing crops with advantage to loosen it up. Such work disturbs the young sprouting seeds of weeds and hurries the slug and the snail from their hiding-places, and lets in the air and the remains of the autumn sunshine. When the weather is favourable the stirring of the surface of the soil never comes amiss at any season of the year.—H.

Disease-proof Potatoes.—We do not agree with your conclusions respecting the Potatoes shown by us at the last exhibition at South Kensington; or, rather we may say, your conclusions do not touch the point which we have in view. In distributing such Potatoes as Village Blacksmith and Cetewaye, we have borne in mind that the great effort which every Potato cultivator is now making is to produce varieties least susceptible to disease; and we are of opinion that it is by the aid of two such prominent representatives of this class as those just referred to that new blood will reach the hands of hybridisers, and that the good resulting therefrom will probably be enjoyed in years to come. Ashtop Fluke is admitted to be one of the very best Potatoes as regards quality at present in cultivation. Sukreta, also having obtained the highest possible awards at Chiswick, requires no further eulogium. The outside appearance of some exhibition Potatoes is certainly attractive to the eye, but the merit of many of them ends there. We may mention that when Ashtop Fluke and International were exhibited together, the prize was given to the latter. Why? Simply on account of outward appearance, as all who have tasted International know that it is inferior in quality.—JAMES CARTER & Co., *High Holborn.*

Mushrooms amongst shrubs.—I will be greatly obliged if you will inform me whether the Mushrooms sent herewith are good for culinary purposes? Very large numbers of them have appeared this year in the shrubbery, but having grown under the shade of shrubs and trees doubts have been expressed as to whether they are of an edible variety. If this is the case (but they are considered unfit for eating because grown in shade) would it be advisable to remove the soil which has grown them, and place it in an open field for the production of Mushrooms another year?—R. T., *Windsor.*

*** The fungi sent are true Mushrooms (Agaricus campestris). Mushrooms at times grow in woods and (as in your instance) shrubberies, but in such positions they are sometimes inferior for the table and even unwholesome. One variety of the true Mushroom (var. silvicola) always, as its name indicates, grows in plantations and woods. A close and delicious ally, A. elvensis, grows under Oaks. The spawn could be removed to a pasture, as suggested by you, with a good chance of successful Mushroom growth another year. If you have the shrubbery Mushrooms cooked, you will probably find them all right.—W. G. S.

Improved vegetables.—Those who entertain the belief that the vegetables of the present day and methods of cultivation them are not equal to those in use twenty years ago must have had such delusions effectually dispelled on inspecting the truly wonderful exhibition of vegetables seen recently at South Kensington. Take Carrots, for instance; of these there were numerous samples, so wondrously fine, clean, and beautiful, as to justify the exclamation, perfection! It is but a year or two since the variety known as New Intermediate was put into commerce, and yet already it is the widest grown and most popular Carrot in cultivation. Cauliflowers, too, were everywhere good, fine, white, and solid, and yet Autumn Giant has not been with us for many years. The Snowball Turnips were like balls of wax, so perfect and so clear. Leeks seemed to have come out of moulds, so perfect and so beautifully blanched were they. Tomatoes equalled any fruit grown for beauty and form, whilst their colour was perfect and size all that could be desired. We see nothing of the old sutured Tomato now. It has gone the way of myriads of old things once good in their day, but no longer meeting the requirements of modern tastes, and if anyone will still object to show Potatoes, perhaps a look over the competitive classes of this valuable esculent as well as the large collections put up by the seedsmen at shows would assist to change the opinion so adversely held. The beautiful tubers, snow-white almost in hue and glossy in skin, in others rich in red or purple tints, are but samples of kinds which owe this beauty to good soils and careful cultivation, and would look as rough as any others if the ability of growers was not brought to bear upon their production. We had fairly good Potatoes years ago, but we have far better now; indeed, if there be one thing more than another of which British gardeners may be proud, it is of their Potatoes, and perhaps Onions.—A. D.

MARKET GARDEN NOTES.

In south coast market gardens the land is cropped to its utmost capacity at this time of year, as in early spring growers get better prices for their crops than growers inland do whose crops are later; consequently, they plant largely, not only for the supply of our local markets, but also for sending long distances, should the winter prove severe, as it was in many places last season. Amongst crops that now claim attention are Asparagus, the old stalks of which are now being cleared off, and a good dressing of manure is put on the beds. Sea-weed is largely used in this district for Asparagus; it is easily procured, and certainly suits this maritime plant well. Beetroots are being stored wherever the soil is dry enough to get on it, but excessive rains have lately made it difficult to forward such work. The leaves are cut off the roots at some distance from the crowns, as if cut quite close the roots lose colour. They are stacked closely together in a cool shed or cellar, a little sand being worked in amongst them. The darkest blood-red sorts are those mostly grown. A Turnip rooted or round Beet has also lately become popular. Autumn Giant Broccoli is being marketed in grand condition now, and if mild weather prevails it will be the staple kind for several weeks to come. A later variety with more leaves that fully protect the heads from frost, called Winter Protecting Broccoli, is largely grown to succeed The Giant, and these generally last until Snow's Winter White comes in, and unless exceptionally severe weather prevails, Broccoli of some kind is procurable continuously. Late kinds are now growing freely, advantage being taken of dry days to cultivate between the rows. Broccoli are a valuable crop, and kinds like The Champion that produce fine heads in May frequently realise good prices. Good soil, but not much fresh manure, is what late Broccoli need; if over-luxuriant before winter comes on it is apt to suffer from frost that is harmless to more sturdy plants.

BRUSSELS SPROUTS have grown very strongly, and are already fit for market, but are kept back until the demand for them is brisker. The largest leaves that are very much infested with caterpillars are being cleared off the stems and given to sheep or pigs, so as to let air circulate freely amongst the stems. Cauliflowers of the Early London type are being planted under hand-lights, or at the foot of walls or in cold frames, so as to have a good supply in spring. They are generally grown close to the homestead in the most sheltered places available, as, unlike the hardier Broccoli, they cannot stand the rough winds of the open fields. Endive is now fit for use, and late crops are being put out for spring. Blanching of the successional crops is being done by tying up the leaves or covering the heads with flower-pots or tiles, as when thoroughly blanched they sell readily.

COS AND CABBAGE LETTUCES of the hardiest kinds are being largely planted for spring on dry, sloping borders; the small Cabbage kinds are sown rather thinly, and allowed to stand until drawn out for use. Onions are now being dried in any covered buildings available; owing to heavy rains they have been kept in such a damp condition as not to be fit for storing in large quantities, and the kinds grown here are mostly of the latest keeping sorts. Autumn-sown ones are now growing freely; the beds of White Spanish that are sown thickly for drawing green are most luxuriant. Some are transplanting Giant Roccas already. Potatoes stored early now need overhauling, as disease has shown itself much more since the tubers have been lifted than it did while they were in the ground, and they soon rot their neighbours if not removed. Parsnips are now coming into use, and very fine they are; the short, thick

sorts are the best; many of those which I have lately seen on market carts are at least 18 inches in circumference. They keep best in the soil, as in case of frost setting in they can be covered with litter. Tomatoes grown on open walls are now being gathered and ripened under glass; those planted late under glass, if assisted with fire heat, will yet perfect useful crops. Spinach of the hardy kinds is in this district sown broadcast and hoed out like Turnips, and capital crops in this way are obtained. The ordinary summer Spinach is utilised for early winter use, and the hardier Prickly-seeded is allowed to grow unpicked until severe weather finishes the supply of the softer-leaved kind. Fruits taken collectively, the past season has been above the average as regards bulk of crop; with the exception of Apples, fruits of all kinds have been plentiful and cheap, especially Plums. The gathering of all, except a few of the latest Pears and Apples, is now completed, and the marketing of them is being pushed on so as to clear out all except a few of the latest keeping sorts before the American barrels arrive. Those, however, who have anything like a crop cannot complain of Apple culture not being remunerative, as anything that will pass muster for market at all is worth 5s per bushel, and choice sorts 8s. to 10s., many of the best known kinds for storing not being obtainable. Pears, though plentiful, sell well; large sorts like Pitmaston Duchess realise high prices, and ordinary market sorts, such as Beurré Bosc, fetch from 5s. to 7s. per sieve. Preparations for planting fruit trees and bushes are now being made, as home growers have abundant reason to believe that they will be able to compete successfully with their foreign rivals. The best kinds must, however, be grown, and in the best way. The late glut of fruit and consequent low prices were caused by too many common kinds that ripen simultaneously being thrown on the market. All seacoast towns still depend very much on foreign fruit for their supply, not because it is better, but because they do not get home-grown fruits of good quality and plentiful enough for their requirements. JAMES GROOM.

Gosport.

ORCHIDS.

AMATEUR ORCHID-GROWING.

I HAVE been growing Orchids as an amateur for rather more than two years, and I am anxious to hear from some experienced grower if I may consider that I have been fairly successful. I have two houses, one a span-roofed stove, 45 feet long by 18 feet wide and 17 feet high, in which the lowest winter night temperature is about 62°; the other, a greenhouse, 25 feet long and the same height and width as the other, the lowest temperature in which is about 45°. In both houses a mixed collection of plants is grown. When I started Orchid-growing neither I nor my gardener knew anything about it. I began with twelve small-established plants, viz.: Calanthe vestita, C. Veitchi, Cattleya Mossiæ, C. Trianæ, Cœlogyne cristata, Dendrobium Bensoniæ, D. nobile, D. Wardianum, Lælia Dayana, Odontoglossum Alexandræ, O. gloriosum, and O. Pescatorei. I next bought some imported pieces of Cattleya Mossiæ, Lælia purpurata, and Odontoglossum Alexandræ; the two first did very well, flowering last season and making strong growths; they have been kept in the stove except when in flower, when I put them in the greenhouse. The O. Alexandræ did not do so well; indeed, the less said about any of the O. Alexandræ that I have bought at any time, established or not, the better. My stove is too hot for them and the greenhouse too dry, and they seem to drag on an existence with weak growths and weaker flower-spikes. I have now put them under a small glass frame in the greenhouse, so that I may keep the air round them damper, which will, I hope, cause them to make stronger growth.

Another Orchid of which I bought imported plants is Cattleya Harrisoniana; this has done very well with me, and seems to be growing and flowering all the year round. I have not been fortunate this year with my Dendrobiums. I have kept them throughout the year in the stove, and I fear did not rest them enough last year, and, as a consequence, they have made weak growths, especially D. nobile and D. Wardianum, but a D. formosum giganteum which I purchased established (?) is, after half departing this life last year, now coming into flower from a strong growth. During the last two years I have continued to purchase Orchids, mostly established, until I have now over two hundred plants, many of which, considering the height of the houses and their being used for a mixed collection of plants, have, I think, done fairly well. I have flowered the following kinds, viz.: Calanthe Veitchi, C. vestita, Catasetum tridendatum, Cattleya Gaskelliana, C. gigas, C. Harrisoniana, C. labiata, C. Mossiæ, C. Percivaliana, C. Trianæ, Chysis aurea, Cœlogyne cristata, Coryanthes, Cypripedium insigne, C. Lawrenceanum, C. venustum, Dendrobium Bensoniæ, D. chrysanthum, D. crassinode, D. Devonianum, D. formosum giganteum, D. Jamesianum, D. nobile, D. thyrsiflorum, D. Wardianum, Epidendrum vitellinum majus, Lælia anceps, L. Dayana, L. Perrini, L. purpurata, Lycaste Skinneri, Masdevallia Harryana, M. ignea, M. tovarensis, Maxillaria grandiflora, Odontoglossum Alexandræ, O. citrosmum, O. grande, O. Pescatorei, O. Rossi majus, O. vexillarium, Oncidium ampliatum, O. flexuosum, O. luridum, O. Papilio, O. varicosum, Pilumna fragrans, Sophronitis grandiflora, Stanhopea grandiflora, and Vanda cærulea. Most of these have done well and are strong healthy plants, but my Cattleyas have done better than any others, and are now full of flower-spikes. Those that have done the worst are Dendrobium nobile and Wardianum, and Odontoglossum Alexandræ and Pescatorei. The only established plants that have died are a Phalænopsis amabilis (flowered itself to death) and a Disa grandiflora. May my results be considered satisfactory? M. P. T.

Orchids in flower at Mr. Buchan's, Wilton House, Southampton, include the following noteworthy kinds, viz.: Oncidium Lanceanum Louvrexianum, a kind in which the pure white front of the lip contrasts admirably with the rich violet hue of the basal part; O. tigrinum, with a large yellow lip; O. hæmatochilum, with rich crimson lip, margined with yellow; O. incurvum, O. unguiculatum, O. divaricatum, and O. ornithorhynchum, all good and useful kinds for winter-flowering. Associated with these were also the chaste O. Phalænopsis, with beautiful violet tinged sepals and petals; two species of Indian Crocuses (Pleione), viz., P. lagenaria and P. maculata, both very beautiful; Cattleya maxima, Lælia Perrini and L. Dayana, the latter a gem, suitable either for a block or small hanging basket. Here may also be seen many good forms of Odontoglossum Alexandræ and O. Pescatorei, both of which promise to produce a grand show of flowers in a few weeks' time. Amongst others might be noticed the drooping spikes of bloom of Odontoglossum Krameri, with its violet-rose-coloured sepals and petals, and yellow and purple dottings on the lip; two bold, showy kinds are O. grande and O. Ure Skinneri, both of which are now in great beauty, as are also numerous forms of the smaller O. Rossi majus, the blooms of which are very elegant and last long in perfection. The flowers of constrictum, although not large, are very gay, and are produced on large branching panicles, the sepals and petals being bright yellow, variously blotched with orange-red and brown, whilst the lip is white and irregularly spotted about the centre with rose. The showy O. Roezli, and the less conspicuous O. Wallisi, tripudians, and madrense close the list as far as Odontoglossums are concerned; the last named species is usually considered to be more a summer than a winter bloomer. The different forms of Lycaste Skinneri may be depended upon to maintain a certain amount of gaiety up to the end of the year. Dendrobiums are represented by the beautiful white-flowered D. formosum giganteum and D. Dearei; the last named species appears to thrive here remarkably well, whilst the flowers of both kinds last a long time when cut and placed in water. Other Dendrobes here are D. superbiens and D. bigibbum, both richly coloured sorts. Amongst Lady's Slippers are good forms of C. Maulei, C. Harrisianum, C. Sedeni, C. Spicerianum, and the beautiful C. Schlimi. The long spikes of bloom belonging to the Calanthes protrude from amongst the green foliage of other Orchids in quite a charming way; the sorts are the red-eyed C. vestita and a fine form of C. Veitchi called superba, whilst the evergreen, erect-flowering C. veratrifolia supplies ample foliage to set off its pure white flowers. Masdevallias also contribute largely to the general effect. M. Davisi, with yellow flowers, the gay-coloured M. Veitchi and M. amabilis, and the snowy-white M. tovarensis are all most attractive. Mesospinidium vulcanicum, the counterpart of Odontoglossum roseum, blooms freely here, as does also Cymbidium Mastersi, which, although smaller than its near ally, C. eburneum, is specially welcome at this season of the year, its flowers being pure white with a faint stain of yellow on the lip, and they yield a delicate odour resembling that of Almonds. C. giganteum is less handsome, but yet a fine species. Its flowers are yellowish green streaked with dull purple, and the lip is yellow and spotted round the edge with crimson. The Paphinias are singular plants; they delight in strong heat, and should be grown in baskets. Two kinds are in bloom here. The first is P. cristata, with flowers some 3 inches across, and sepals and petals white, streaked and transversely banded with rich brown, while the lip, which is somewhat small, thick, and fleshy, is chocolate coloured, with a white downy tip; the column, which is large, is yellowish white. The second is P. rugosa, which is similar in size and shape to P. cristata. It differs, however, in colour and markings, the sepals and petals being creamy white spotted and blotched with brownish purple; lip purplish red fringed with white. Amongst the Moth Orchids (Phalænopsis), P. Sanderiana, which somewhat resembles a rose-coloured form of P. amabilis, is now very fine, as is also a very good form of P. violacea. Vandas are represented by good examples of V. cærulea, V. tricolor, and the apparently ever-blooming V. Sanderiana; whilst the colours of the old-fashioned Zygopetalum maxillare and Z. Mackayi render them indispensable in a collection of winter-blooming Orchids.—W. H. G.

Masdevallia Crossi.—This extraordinary species is named after its discoverer and first introducer, Cross, who was associated with Dr. Spruce in his search for Cinchonas. It is a remarkable plant of slender creeping habit, and still rare in this country. In its native haunts the atmosphere is said to be miserably cold, and under cultivation it probably has hitherto been kept too warm. The flowers are produced in long, sub-erect racemes, of from ten to twenty, about two-thirds of which are open together. The individual flowers are about the size of those of an ordinary M. ignea, but much deeper in colour, those of M. Crossi being rich orange-crimson. We recently saw plants of this, bearing three flowers on a raceme, at Messrs. Shuttleworth and Carder's nursery in Clapham Park Road, where a magnificent display of cool-house Orchids may generally be found, especially Odontoglossums and Masdevallias.

SHORT NOTES.—ORCHIDS.

Oncidium varicosum.—This is just now flowering beautifully in Mr. Shuttleworth's nursery at Clapham: the very rich deep orange-yellow of its great spreading lip makes it very attractive at this dull season. Judging by the quantity of flowers yet to open, this species promises to maintain a brilliant display for some time to come.

Cypripedium Arthurianum.—In our note (p. 416) respecting this hybrid Orchid, we stated that this was raised by Mr. John Dominy. This, we learn, is inaccurate. It is the result of a cross made by the late Mr. George, then gardener at Bicton, Devon, and the seedling (for one only survived) was reared and flowered by Mr. Seden at Messrs. Veitch's nursery.

Aerides Southgatæ.—This is a provisional name given at Selborne, Streatham, to one of the largest and best of the Aerides belonging to the A. Lawrenciæ section. The plant now flowering with Mr. Southgate has two spikes some 2 feet in length, one of which bears thirty-eight huge flowers, and the other thirty-six. The sepals and petals are waxy-white, broadly tipped with magenta; the side lobes of the lip are white, the frilled mid-laciuia being also deep purplish magenta, and this rich colour extends down and all over the great spur, with the exception of the extreme point, which is green.

Orchids at Camden Wood.—Mr. Vanner's Orchid collection at Camden Wood, Chislehurst, although not one of the most extensive, is a very choice one, and exceedingly well grown. There are three houses set apart for Orchids. The flowering plants in the cool house include Masdevallia Chimæra, M. Roezli (known as the black Chimæra, which is seldom out of flower all the year round), M. Backhousiana, Chestertoni, Schlimi, bella, and macrura. Suspended under the roof is a fine display of the golden Oncidium varicosum Rogersi, several spikes of which carry over fifty blooms. The pretty O. Phalænopsis is also in bloom. The many Odontoglossums are fast pushing up their spikes, which will keep up the display during winter. In the Cattleya house the Barkerias are exceptionally well grown here, and are showing well for bloom, including the distinct and beautiful B. Vanneriana. Sobralia xantholeuca, a recently imported plant, is thriving better here than we have seen anywhere. It has six fine growths. The Phalænopsis house contains many fine plants of Schilleriana, Sanderiana, and Stuartiana, all throwing up their spikes. A fine specimen of amabilis was in bloom with over fifty flowers upon it, and a superb form of P. violacea, a large flower with rich crimson lip and lower petals. Two fine varieties of Vanda Sanderiana are flowering freely, though small plants; also Dendrobium bigibbum. Among the Cypripediums in bloom are calurum; a fine form of punctatum violaceum was in flower; also superciliare, Leeanum superbum, Dominianum, and Veitchi, all showing flower. The health of the collection throughout is all that could be desired, the pure air at Camden Wood being, no doubt, conducive to its success.

Indian Crocuses.—Of all the Orchids now in flower we find that the dainty little Pleiones attract the most attention. The sorts now in flower are P. præcox, or P. Wallichi as it is more generally called, P. lagenaria, and the lovely white blossomed P. maculata. They are easily grown in hanging pans in any warm plant stove if potted in fibrous peat and Sphagnum, and well watered or syringed when making their growth during the spring and summer seasons. A year or two ago when at Cheltenham I called at a nursery where I saw a distinct form of P. maculata very like the type, but a better grower, and it does not flower until January or February. This is a great advantage, as it enables one to extend the flowering season, since this late white and the smooth-bulbed P. humilis or its variety P. tricolor flower nearly together in early spring. Once well potted in tough fibrous compost, they may be grown on for two or three years without being again disturbed. Just as their leaves are fully grown and their roots are working freely in the pan, a little weak sheep manure-water helps them wonderfully, but care must be taken not to overdo a good thing. A pan of P. lagenaria or P. maculata with from thirty to fifty flowers is a sight well worth seeing in October or November, and these things, like Calanthes, are annual in their growth and easily cultivated.—F. W. B.

Fastening labels (*W. E. R.*).—Why not use ordinary galvanised iron tacks; they are cheaper than copper tacks and quite as efficient?

Nephrolepis rufescens tripinnatifida.—This promises to become a Fern of great merit, and to be very useful both as an exhibition and decorative variety. It is decidedly erect growing; the fronds are well displayed, and though the pinnæ are heavy, yet they are disposed in a light and graceful manner. It is one of Messrs. Veitch's novelties.—R. D.

EXETER APPLE AND PEAR EXHIBITION.

THE third annual Apple and Pear exhibition was opened in the Fore Street Market, Exeter, by the mayor and town council at 12 o'clock on Thursday, the 21st inst., and remained open until 7 p.m. on Friday, the 22nd. The weather, which has for the past few weeks been wet and boisterous, was for the two days exceptionally fine, which, with the large number of exhibits and an illuminated promenade concert from 7 to 10 on Thursday evening, attracted a good attendance and made the show a complete success. The entries, which numbered 764, consisted of 1383 dishes of Apples and 576 dishes of Pears for competition. Besides these, too, Messrs. Robert Veitch and Son exhibited 125 dishes of Apples, Pears, Filberts, Medlars, and late Plums. Messrs. Lucombe, Pince, and Co. also showed a large collection of eighty-four dishes of Apples and eighteen dishes of Pears. Messrs. Bunyard showed twenty-five dishes, and a very good collection of Apples was shown by Mr. Laing, gardener to Lord Poltimore. Fifty dishes of fine large Canadian Apples from the Colonial Exhibition were kindly lent by the executive commissioners for Canada. They were arranged on the central stage, and attracted a great deal of attention. Some Tobacco leaves in different stages of preparation were exhibited by Messrs. Lucombe, Pince, and Co., who are growing some Tobacco plants as an experiment. Among the principal exhibitors were Messrs. Bunyard, Maidstone; Mr. Watkins, Hereford; Mr. C. G. Sclater, Exeter; Mr. Powell, Powderham Castle; Mr. Scott, Yeovil; and Mr. H. Berwick, Sidmouth. In the class for twenty-four dishes Messrs. Bunyard were first. Among their best fruits were large, highly coloured dishes of Alexander, Cellini, Melon Apple, Cox's Pomona, Tower of Glamis, Lord Suffield, Lord Derby, The Queen, Gospatrick, and Lady Henniker. Mr. Watkins was second with large, well-coloured fruit of Peasgood's Round Winter Nonsuch, Blenheim Orange, Cox's Pomona, Red Costard, Mère de Ménage, Duchess of Oldenburg, Warner's King, and Waltham Abbey Seedling. Mr. C. G. Sclater, Mr. H. Berwick and Mr. Scott also staged fine collections in this class. Dishes of twelve distinct varieties were furnished by Messrs. Bunyard, Watkins, and Berwick. Good collections were also shown by Mr. D. C. Powell, Mr. H. Physick, Alphington, and others, the sorts differing but little from those already mentioned. For twelve dessert sorts Messrs. Bunyard were first; their best sorts were Lady Henniker, Ribston Pippin, Cox's Orange Pippin, King of Pippins, Worcester Pearmain, Melon Apple, Washington, Crimson Queening, Wealthy, and Cellini. Mr. C. G. Sclater, who was second, had among his fruit very good dishes of Cox's Orange Pippin, King of Pippins, Beauty of Wilts, Blenheim Orange, Court Pendu Plat, Fearn's Pippin, Cornish Aromatic, and Red-ribbed Greening—the last-named sort being highly esteemed in this neighbourhood, although described as "worthless" in the "Report of the Committee of the National Apple Congress" (see p. 218), much to the surprise of some of our local growers. Mr. Scott, Mr. Watkins, Mr. Powell, Mr. Berwick, and others also competed in this class. Amongst exhibitors of twelve sorts of culinary Apples were Messrs. Bunyard, Watkins, Powell, Sclater, and Berwick. Of cider Apples, collections came from Mr. Uglow, Sir T. D. Acland, and Mr. B. Salter, and consisted of highly-coloured and good fruit of well-known local sorts, viz., Tremlett's Bitter, Ellis's Bitter, Tom Putt, Slack-my-Girdle, Sweet Albert, Cluster, Sweet Buckland, and Sweet Bosberry. Amongst dessert sorts were Ribston Pippin, Cornish Gilliflower, Cox's Orange Pippin, and Loan's Pearmain. Sir T. D. Acland had good examples of Pine-apple Russet, Cox's Orange Pippin, American Mother, White and Braddick's Nonpareil, Cornish Gilliflower, and Ribston. The heaviest five Apples of any one sort (Warner's King) weighed 6 lb. 1 oz., and the best flavoured sort was Cox's Orange Pippin. Special prizes were awarded to fruit of Alfriston, Blenheim Orange, Golden Noble, Lord Suffield, Old Hawthornden, Warner's King, and Dumelow's Seedling; and amongst dessert fruit, to Cornish Gilliflower, Court Pendu Plat, Cox's Orange Pippin, Gravenstein, King of the Pippins, Margil, Mère de Ménage, and Ribston Pippin.

In Pears the competition was very great, and the fruit very good. Messrs. Bunyard staged fine fruit of Louise Bonne of Jersey, Marie Louise d'Uccle, Beurré Clairgeau, Beurré Diel, Doyenné du Comice, Beurré Superfin, Pitmaston Duchess, Durondeau, Beurré Bachelier, Belle d'Ecully, Grosse Calebasse, and Catillac. Sir T. D. Acland had very good fruit of Pitmaston Duchess, Louise Bonne, Madame Treyve, Glou Morceau, Beurré Diel, Beurré Bosc, Doyenné du Comice, Gansel's Bergamot, Vicar of Winkfield, Duchesse d'Angoulême, Van Mons Leon Leclerc, and Winter Nelis, some of the last-named weighing more than half a pound each. Mr. D. C. Powell showed nicely ripened and well-coloured fruit of Marie Louise, Beurré Clairgeau, and Moorfowl Egg. Mr. F. Bradshaw had good fruit of Marie Louise, Louise Bonne, and Pitmaston Duchess. Culinary sorts consisted of Uvedale's St. Germain, Catillac, Bellissime d'Hiver, and Gilogil. Special prizes were awarded to Beurré Diel, Doyenné du Comice, Easter Beurré, Glou Morceau, Josephine de Malines, Knight's Monarch, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, and Winter Nelis. Quinces were shown by Mr. C. G. Sclater and Sir G. Clay, and Medlars by Rev. B. W. T. Wrey and Mr. F. Bradshaw.

CHRYSANTHEMUM SHOWS.

THE following are the dates of the principal Chrysanthemum shows to be held during the month:—

8, 9, and 10, Lambeth	16 and 17, Winchester
9, Royal Horticultural Society, South Kensington	,, Brighton
	,, Putney
9 and 10, Kingston-on-Thames	,, Southend
,, Southampton	,, Teddington
10 and 11, National Chrysanthemum Society, Royal Aquarium, Westminster	,, Twickenham
	17 and 18, Bristol
	17, 18, and 19, Newport
10 and 11, Bath	,, ,, York
,, Croydon	18, Hitchin
11, Hammersmith	18 and 19, Hull
11 and 12, Richmond	18, Chiswick; Taunton
,, Tunbridge Wells	19 and 20, Sheffield
,, Bury	20, Kettering
,, Portsmouth	22 and 23, Leeds
12 and 13, Huddersfield	23 and 24, Liverpool
,, Lewisham	,, Manchester
,, Canterbury	24 and 25, Birmingham
12, Reading	

OBITUARY.

THE death is announced of Mr. G. W. JOHNSON, well known as a writer on gardening, and an author. He was the founder of the *Cottage Gardener* (now the *Journal of Horticulture*) in 1848, but so long ago as 1826 he contributed to Loudon's *Gardener's Magazine*, then the only horticultural journal published. Among Mr. Johnson's most useful books is the "Cottage Gardener's Dictionary." He has for some years retired from active work. He had nearly completed his 84th year at the time of his death, which took place at Waldronhurst, Croydon, on Oct. 29.

Names of plants.—*A. B.*—Spindle tree (Euonymus europæus).—*W. E. R.*—Cestrum aurantiacum.—*C. Gregory.*—Hedychium coronarium.—*C. R. S.*—1, Cassia corymbosa (not Acacia); 2, Sparmannia africana; 3, Casuarina equisetifolia (no flowers); 4, Australian Beefwood, Abies Hookeriana; 5, Escallonia macrantha; 6, Phillyrea media.—*G. G.*—Next week.—*R. L.*—Oncidium unguiculatum.—*J. L. B.*—Diplopappus linariæfolius.—*N. B. Stanford.*—Cotoneaster affinis.—*Rev. J. W.*—Catasetum tabulare.—*J. M., Penzance.*—1, Lastrea serra; 2, Oncidium flexuosum; 3, Maxillaria picta grandiflora; 4, Odontoglossum Alexandræ; 5, Laelia Perrini.—*G. G.*—Lonicera flexuosa.—*E. F. C.*—Rhamnus catharticus.—*A. E. M. J.*—1, Marjoram (Origanum vulgare); 3, Hyssop; 5, Lavender; other species insufficient for naming.

Names of fruits.—*H. E. G.*—1, Winter Strawberry; 2, Ribston Pippin; 3, Mother; 4, Claygate Pearmain.—*E. H. (Subscriber).*—Apples, 1, Mère de Ménage; 2, Yorkshire beauty; Pears, 3, Marie Louise; 4, not recognised.—*W. K.*—1, not known; 2, Belle de Bruxelles; 3, Swan's Egg; 4, Duchesse d'Angoulême.—*M. J. T.*—1, rubbed beyond recognition; 2, Roundway's Magnum Bonum; 3, Beachamwell.—*C. J. B.*—1, Uvedale's St. Germain; 2, Marie Louise d'Uccle; 3, Nouveau Poiteau; 4, not recognised.—*No Name (parcel addressed on stiff parchment label)*—Five Pears: 1, Beurre d'Anjou; 2, Beurre Rance; 3, Charlotte de Brouwer; 4, Easter Beurre; 5, Beurre Rance.—*Salcanus.*—1, Rosemary Russet; 2, Yorkshire Greening; 3, not recognised; 4, large fruit, Tower of Glamis—small, Braddick's Nonpareil.—*G. H. M.*—3, Beurre Bosc; 4, Doyenne Boussoch; others not known.—*J. P.*—1, Beurre Capiaumont; 2, Duchesse d'Angouleme.—*Mrs. Maples.*—Pitmaston Duchess.—*C. W., Stratham.*—Calebasse.—*C. C.*—8, Souvenir du Congres; 11, Hacon's Incomparable; 12, Marie Louise d'Uccle; 13, Marie Louise. Other fruits sent will be named next week.

WOODS & FORESTS.

MEASURING TIMBER.

THE process of measuring timber when felled is very simple, yet the results produced may be different according to the article used in measuring the girth of the tree, viz., whether a thin piece of whipcord, a thick cord resembling a garden line, or a properly graduated tape or leather strap. The thin whipcord draws close into the bark or body of the tree, and does not lose much from the actual girth when doubled up into four lengths for the quarter girth, but the thicker cord loses a perceptible quantity in bending, while the tape line or the leather strap do not require bending, but show the quarter girth at once in their graduations, and give greater dimensions than either of the cords. Timber buyers sometimes object to the latter, because they do not fit into the irregularities of the bark so readily as a small cord, and, by not being doubled up, do not allow the advantage given in that way by the cord; but this objection can be met by not meeting the tape or strap quite close when girthing the tree, leaving about from a quarter of an inch to half an inch between the meeting of the fingers, which would be ample compensation. I have used Chesterman's patent graduated timber-measuring tapes extensively without making any allowance whatever, or ever having it asked for by the buyers. These tapes can be had in various sizes, either in cases or loose, to hang over the arm. For small-sized trees I prefer the short, loose tape, but for large timber I use a longer tape in a compact leather case. The case will last out a great many tapes, which do not cost much loose, and are easily inserted into the case by unscrewing and taking out the roller upon which the tape is wound. You can see how the first one has been attached; remove it and attach the new one in the same manner, push in the roller, screw up, and the thing is done. Another tape, by the same maker, may be had coiled upon a spring in a brass box, which economises much time and trouble in winding. These are made in 12-feet lengths, and may be had either of linen or steel.

In taking the dimensions when the trees regularly taper, the girth is taken in the middle of the length of the tree, but those trees that are irregular in form may require to be measured in sections, as if each section was distinct from its fellow, and each must have a separate entry in dimension book. The following is an example of a simple form of book, and one that I generally use:—

Lot.	Kind of timber.	No. on tree.	Length feet.	¼ girth inches.	Contents feet.	Total feet.	Rate per foot.	Value. £ s. d.	Remarks.
1	Oak.	1	13	26	61				
,,	,,	,,	12	19	30				
,,	,,	,,	8	13½	10				
,,	,,	,,	12	11½	11				
						112	1s. 6d.	8 8 0	
,,	,,	,,			Tops	50	9d.	1 17 6	
,,	Elm.	2	20	17	40				
,,	,,	,,	17	14	23				
						63	8d.	2 2 0	
,,	,,	,,			Tops			3 0	
,,	Ash.	3	20	16	35½	35½	1s. 6d.	2 18 3	
,,	,,	,,	9	9	5	5	1s.		

When measuring standing timber, the contents of each tree should be computed and marked in the book in going along, price per foot noted, and any necessary remarks made in the outer margin. The computation can be quickly made with the aid of the slide-rule, carried in the hand along with the book; and mistakes, if any, are more easily detected and rectified at the time by this system than by going on taking dimensions without working out the results on the spot.

In computing the contents of trees—customary measure—by the common slide-rule, the line C on the slide and the line D on the rule are the only lines used. Set the figures on the line C, which represent the length of the piece, opposite to 12 on the line D; then opposite the figures denoting the side of the square—or quarter girth—on line D you will find the cubic contents in feet on C.

EXAMPLE.—What are the contents of a piece of timber 12 feet long and 19 inches the quarter girth?

C	12	30 cubic feet.
Set		
D	12	19 quarter girth.

Customary measure does not give the real contents of the tree, but this can be easily ascertained from the slide-rule by selecting another gauge point on the line D. I have not seen any rule with this gauge point marked upon it by the maker, but I discovered it for myself, and mark it upon the rules I use by driving the point of a pin into the wood of the rule at 10·625 on the line D. To work out the problem, set the length of the tree, in feet on C, to 10·625 on D, and opposite the quarter girth on D; find the true contents in cubic feet on C.

EXAMPLE.—What are the true contents of a piece of round timber, 12 feet long and 19 inches the quarter girth?

C	12	38¼ real contents.
Set		
D	10·625	19 quarter girth.

Showing a difference of 8¼ cubic feet between the true measure and the customary measure of "the trade." The most convenient size of rule for carrying comfortably and using with facility in making computations is the 3-feet four-fold rule. The space on the D line between 10 and 11 is graduated into four divisions. To mark the gauge point 10·625 on that line, place a mark half-way between 10½ and 10¾, and the thing is done. A. P.

Planting trees.—In tree planting attention should be paid to soil and climate. The Oak prefers a clay soil; the Scotch Pine a northern aspect with a sandy loam. As a rule Conifers are most suitable for elevated grounds and poor soils; soft-wooded trees for low-lying, swampy lands; hard-wood trees only grow well in good soil and moderate elevation. Plantations require a great deal of attention and care, and should not be formed by direct planting, but by transplanting young trees from the nursery. Judicious pruning greatly enhances the value of the timber, and it is most important that when branches are removed care should be taken not to split the branch from the body of the tree, and should in all cases of larger timber trees be cut about 12 inches from the trunk of the tree. If the branches are cut off close to the trunk of the tree, the wet gets in, discolours the heart and often causes the whole of the trunk to decay, and the timber is then of no value. In young trees the branches may be cut close, as in this case the sap soon forms into a kind of bark and saves the tree from decay. When planting young trees 4 feet to 6 feet apart is a fair distance. Trees that are planted with a view to their early removal by thinning are called nurses in the eastern counties, and for this purpose Firs are generally preferred. These are planted for the assistance of the growth of timber, which is a great help in keeping them free from branches.—FORESTER.

The Black Walnut.—In his address before the recent American Forestry Congress, Dr. Loring, in speaking of the Black Walnut, said: "This tree, culled from western forests to meet a limited though important demand is really becoming scarce on the northern side of the Ohio Valley; but on the southern, along the foot hills and in the valleys of the Appalachian range, it is abundant and almost untouched. It grows rapidly in the Western States, even beyond the Missouri, and is destined to be the source of wealth to the future tree grower."

FORESTERS AND GARDENERS.

I TRUST that "Yorkshireman" has read the article (p. 399) on "Measuring standing timber"; if so, he will see that the writer does not agree with him that valuing standing timber is an easy matter; but, on the contrary, anything like facility in estimating accurately in this way is only acquired by extensive and careful practice. One would almost think that "Yorkshireman" has been a gardener himself, from the way he extols the gardener's intelligence at the expense of foresters. I do not contend that it requires the possession of genius for a man to be a capable forester, but I do say that years of experience are needed to enable a man to discharge economically and satisfactorily the duties connected with the management of large areas of woodlands. Foresters, unlike poets, are made—not born. I do not wish to imitate the boastful language with which "Yorkshireman" concludes his article, but I may say, in all humility, that I have had the management of several thousand acres of woods for some years, and have sold annually some thousands of pounds worth of timber, and have employed all the various workmen whom he so pithily enumerates, and that, in my opinion, any intelligent gardener may not *soon* understand all the "many details," or *soon* learn them.

Who is to pay the "intelligent gardener" while he is learning these details of wood-management? And if the foreman in the woods can carry on the work during the gardener's probation, why appoint a gardener at all? Any woodland owner if in want of a forester advertises invariably for a man possessing some years of experience. He does not think that the requisite knowledge can be gained in a few weeks. I have no doubt that there are many gardeners who would gladly become foresters if they had the opportunity, for not only are foresters on large estates better paid, but they are free to a great extent from the daily worries and harrassing anxieties of the gardener, and have only one master to please, and not two or three.

I have had largely to do with the valuing of standing timber in the three counties of Northumberland, Durham, and Yorkshire, and my deliberate opinion is, that no man can do it well and quickly without a great deal of practice and close and continuous observation. When a youth, assisting my father in large valuations, I have had frequently to climb trees or cut them down to settle a disputed point as to the girth of a tree in the middle. The only way for a novice to learn what trees lose in girth between the butt end and the middle is to estimate a tree standing, and then fell and test his measure; and not one or two trees only, but some scores in various places. I pity a forester or any other man who has had no practical training in the work he has to superintend, for workmen are quick to find out and take advantage of the ignorance of a master, and cause him to have many a humiliating moment.

The question is purely one of opinion, and it is with much diffidence that I put forward mine in opposition to that of an experienced and capable man, as "Yorkshireman" undoubtedly is, but I feel strongly that our woodlands will not be better managed by adopting such a plan as "Yorkshireman" advocates.

W. B. H.

Pruning Oak woods.—Not only is pruning unnecessary—for, if thinning is done gradually, allowing the Oak trees to draw each other up to such height as may be required, the lower branches will of themselves drop off—but it is actually injurious, as every timber merchant or village carpenter knows. And the boughing of Oak trees materially affects the value of the timber when felled, though the tree, when pruned, may be only twenty or thirty years, and, when cut, 150 years old. When the boughs are thrown off by Nature, as they are most perfectly under careful management, the bark gradually closes over the part from which the bough dropped, and it becomes impossible to define the former position of the bough, nor would any sign of it be found when

the tree is cut; but, should the tree be pruned, an unsound knot, or a sore in the tree, is at once formed, allowing the water to penetrate the trunk where the branch was cut off. This will rot, and a black dead piece of wood will be found in the centre of the tree when it is cut. The bark will, no doubt, usually close over the wound made; but this will take some years, and, before it is closed, the mischief will be done, and, in old trees, it not unfrequently happens that the perfect closing over the wound by young wood causes a species of dry rot.—R.

WOODLAND MANAGEMENT.

Anyone observing timber trees in woods and in hedgerows as he passes by rail through any fifty miles of England can hardly fail to be struck with the absence of anything like method in the timber management. He may find some exceptions to this general rule in some few woods which are of sufficient magnitude to return a regular yearly income. But, even in these cases, the knowledge of the subject is almost invariably inferior to that displayed in the culture of land for ordinary purposes. Two distinct systems are followed, both equally injurious to the general good—in one district everything is cut down; in another, everything is left to stand. Here the trees are injured by indiscriminate crowding—good, bad, and indifferent, in which case the good are the sufferers. On the other hand, whole districts are dismantled of their fairest ornaments, and neighbouring crops are left to starve from the destruction of their natural shelter. In both instances the largest profit which can be derived from land by the judicious admixture of agricultural and timber crops is lost to the individual proprietor, and, of course, through him lost also to the country.

Farming and timber growing are considered by some to be antagonistic interests; but, if common sense were allowed to arbitrate between them, the two would be closely and firmly allied friends. This injurious war of interests is clearly apparent in the two systems to which we have already alluded. In one district, some large landed proprietor, devoted to farming only, cuts down every stick on his estate. The tree that is venerable from age, but useless as property, and the straight-growing sapling, which is yearly bringing the highest value the land is capable of, share the same fate. A clean sweep is made—a cultivated desert created. Angry indeed is the neighbouring lord, who expresses himself not in words, but in trees. In this case, the noblest specimens stand inconspicuous in a crowd of the mean and the worthless. And thus the systems act and react on each other, converting our pleasant England into a starved waste or a badly regulated wilderness. "We want more light." A new system must be commenced, by which the annual value accruing from timber may be secured to individual proprietors as income, and through them to the country.

The value of an estate well covered with timber is worth more by many thousands of pounds than one destitute, or nearly so, of trees; yet trees, for the most part, are allowed to grow haphazard. Though loved for their beauty, they are treated with supreme neglect. I venture to assert—and I could furnish half a dozen examples of what I say in any one of the midland counties—that the mismanagement, or rather non-management, of timber on the lands of many large and rich landed proprietors is such, that they would not dare to have their cereals or other crops cultivated in the same style. Such neglect would excite public attention.

The cause of this state of things is not far to seek. I have alluded to the high farming crotchet which sacrifices everything to agricultural produce. This is, however, not the only cause. Timber is nobody's business. Sometimes it is looked after by the proprietor himself, or it is left to a land agent, a bailiff, or a tenant. Of these, the first has too much on his hands to do the work; the second considers agriculture to be the real interest concerned; the third at present is a foe avowed and deadly. All three are generally indifferent foresters. What care they for the eulogiums of Evelyn, Loudon, or Brown?

Another fruitful source of evil is, that timber is generally regarded as so much ready money, not as a regular income. It is felled on emergencies, not at stated periods or on a systematic plan. No regular succession of trees is kept up. Some landed proprietor gets into difficulties—there is a big cutting down. His successor is well-to do, and loves trees—there is a big planting. How often do we find trees submitted to the axe at their most growing age, whilst on a neighbouring estate the proprietor will preserve Elms, that, being past their prime, are yearly shattered by the winds?

Another result of the want of a recognised system is, that in all other businesses there is capital to fall back upon. No sort of property can be managed well unless the requisite amount of labour is expended upon it at the right time. There must be something beyond the profit of the business itself, or profit itself will be the loser. The principle is, however, not applied to trees.

We must not omit the evil that results from a want of uniformity in the views which govern this kind of property. There are certain rotations of crops both in horticulture and in agriculture, and tenants who succeed each other go on recognised principles, and seldom entertain theories widely different from each other. Their profession is land management, which is an understood thing; but with timber the work is done all manner of ways, and the least profit which can be produced from the timber-growing soil may fairly be expected. W. J. W.

THE CANADIAN POPLARS.

The Poplars and Willows are amongst our most common native trees and shrubs, says Mrs. Trail, in her "Plant Life of Canada." We have a great variety of species of both, from the lofty Cottonwood of the Western peninsula on the shores of Lakes Michigan and Huron, to the dwarf Willows that form the chief portion of the vegetation of the far northern boundaries of Hudson's Bay.

Little valued as timber in the thickly-wooded lands of Eastern and Western Canada, where hardwood trees abound, such as the Walnut, Maple, Beech, and others, yet in the more distant divisions of the Dominion, where timber trees are less abundant and in the prairie bottoms where the Poplar and Birch form the only trees, the Poplar rises in value and is used not only for firewood, but for building purposes where better timber is not easily obtained, unless at a very great cost. In remote places far from the means of transport, and where, for the present, saw-mills are not in existence, the Poplar supplies the place of a more durable wood. The Romans called the Poplar "The Tree of the People," and it was used to decorate the public walks.

The Cottonwood—Necklace Poplar—(Populus monilifera) is the finest of all the Poplar family. It is a noble-growing forest tree, confined in Canada, chiefly to the more westerly portion of the Dominion. Between the great lakes seems to be its particular locality. It loves the margin of lakes and rivers and moist ground, indicating a rich vegetable soil, well repaying the cost of clearing the land of the trees, which are of great height and girth; though the wood is very light when dried, yet it is difficult to burn on account of the abundance of sap while green. On this account the settlers do not attempt to fire the felled trees until a year's seasoning has rendered them easier to burn—so I have been told by an intelligent old Scotch settler who moved westward some years ago into that part of Canada where the Pine is scarcely seen, and the gigantic Cottonwood and other hardwood trees abound. The wood of the Poplar is used for turning and carving, and is made into shavings for thin boxes for millinery goods, and for druggists' purposes, and any work that requires very light, easily worked wood.

The foliage of the Cottonwood is smooth, heart-shaped, with prominent nerves, serrate, slightly hairy teeth; the fertile catkins are long, with fringed scales; the seeds are clothed with white cottony down, from which the familiar name given to the tree is taken. This is the largest and most important of the Poplars. The specific name, monilifera, or Necklace-bearing, is applied on account of the appearance of the fertile catkins, which are very long, and have the large fruit-pods scattered irregularly along them, giving somewhat the appearance of a necklace.

*** This is the common Black Italian Poplar so much planted in this country.—Ed.

Tacamahac—Balsam Poplar—(Populus balsamifera).—In favourable situations, in low ground near the shores of lakes and rivers, on gravelly banks and low bottoms, the Tacamahac is found all over the eastern and north-easterly portions of Canada, filling the air with its balsamic fragrance. It is not one of the largest of our native trees, but where growing in free space it forms a fine bushy leafy head. The foliage in shape resembles that of the Pear tree—large, smooth, ovate, pointed, and serrate, whitish and abundantly net-veined beneath.

It is not advisable to plant the odorous Balsam Poplar in the vicinity of gardens on account of its tendency to throw out suckers from the roots, or increase by seeds, which thus become untidy and troublesome to clear away. The catkins of the Balsam Poplar are from 2 inches to 4 inches long, curving, tail-like, and covered abundantly with the white silky down attached to the seeds.

After showers, the leaves emit a fine aromatic odour. The great peculiarity of the Tacamahac is seen in the resinous leaf buds which are formed early in autumn and are covered with a fragrant yellow gum which is of a most healing nature. It is used as a styptic for fresh-cut wounds by the natives, also as an ingredient in a healing, stimulating ointment for bruises and sores. The crushed leaves are also applied to strains and bruises. The buds gathered in spring and steeped in spirits form a liniment in quality closely resembling the old well-known "Friar's Balsam," and it is equally excellent as an application for fresh wounds, being styptic and very healing.

American Aspen (Populus tremuloides).—The Aspen may be seen in all low wet flats, forming thick groves of slender growth with greyish smooth bark, which whitens in more open situations. The wood is of little value; it is white, watery, and brittle.

On entering one of these Poplar flats, or swales as the country people call them, a sensible change in the air is perceived; the dew seems more heavily condensed, and a chilliness is felt even in warm summer days, while the slightest breath of wind sets every leaf in motion, fanning the air to coolness.

The Aspen is a short-lived tree, subject to a black canker caused by an insect which destroys the bark, and gives an unsightly aspect to the larger trees which are usually found growing on waste lands by roadsides, where they spring up spontaneously.

Large-toothed Aspen (Populus grandidentata).—The leaves of this species are large and coarsely toothed at the margins, especially when young; very pointed and downy underneath, of a greyish tinge of green above. Like the common Aspen, it springs up in old neglected clearings and waste places. The long, drooping, silky catkins appear before the leaves expand. The growth of the tree is rapid, but becomes unsightly in age with black rifts and scars; the juices of the tree attract the small black ants, and the wood-peckers help the work of decay either for the juices contained in the tree, or for the insects that take refuge in the bark. The wood is considered of little worth. The buds of the Poplars begin to form early in the autumn and slowly advance, till in March and April they may be seen swelling the gummy varnished cases which protect the immature leaves and catkins, the bluish silken down peeping out as if to try the temperature of the early spring before unfolding. Among the low dwarf Willows, the leaf buds often appear so green, that at Christmas one might expect to see the bushes clothed with verdure. One is apt to think these premature efforts of the trees are put forth, while the sap is yet active, preparatory to the rest that takes place during the winter months, and yet it is a question if indeed the vegetable life is not always active, though the effects are not apparent.

Oak fence posts—Will any kind reader who has experience of these say if they last longer when the top is inserted in the ground? I am told this is the practice in the midland and eastern counties. In Sussex the woodmen do not seem to know of it, and say the lower end in the ground is the best way.—J. H. G.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GARDENING ON THE GRASS.

SMALL lawns look best when their centres are open; the beds (if any are required) should be near the margins. Gardening on the Grass is a phrase adopted by horticultural writers to describe a phase of lawn decoration, which, though not new, is distinct from the practice of laying down geometrical figures on the Grass. It associates well with the picturesque grouping of trees and shrubs, and does away with that formal division line of border, which prevents the Grass from growing up to the stems of the shrubs. There is also a good deal of economy in it, and, on the whole, I think not very much, if any, sacrifice of effectiveness. If more attention was given to trees and shrubs, and less to short-lived exotic flowers, better and more tasteful ways of grouping and arranging them would be adopted. Instead of long straight lines of borders filled with mixed plants often lacking in effectiveness, either from unskilful grouping or from occupying the same position too long, enclosing meaningless masses of shrubs, there would be a choice selection of suitable foreground shrubs, each in itself a picture from having room in which to show its true character. The Grass would grow up to their stems, and fill in the interstices between so that not a foot of bare soil would be visible anywhere. Gardening on the Grass simply means adding an irregular fringe of flowers to soften the line between shrubs and Grass, altogether different in scope and extent from the old-fashioned mixed border. To give a better illustration of what the idea means, let us assume that we have a lawn of moderate extent to deal with. On all sides there is a more or less irregular margin, breaking up here and there into glades and recesses, which partly enclose snug nooks and corners which may be made available for Ferns or other plants requiring shade and shelter. Early-flowering bulbs, such as Snowdrops, Crocuses, Daffodils, &c., may nestle amid the outer fringe of shrubs, the line wavering occasionally to avoid all appearance of formality, patches of Snowdrops and groups of Daffodils sometimes advancing into the open in front of the shrubs (skirmishers, a military friend calls them). In some of the openings among the shrubs patches of the taller Lilies might start up, such as auratum and the old white, but beautiful, Lilium candidum or Madonna Lily. After the bulbs had blossomed and disappeared other flowers would come on, and in this kind of lawn decoration everybody might plant the flowers they love best, but as each species will appear alone, as it were, none but those possessing considerable merit should be employed.

The Pæonies, both the herbaceous and the tree or Moutan section, are well adapted for this work, and there is now very pleasing novelty in colour among the flowers of the newer varieties. The Rose, the Fuchsia, the German Iris in considerable variety may be had. The Fuchsia is specially attractive when it gets well established, growing into single wide-spreading bushes out of the turf; and there are many other things that will occur to everybody who gives any thought to the matter that will well reward us for bringing them out into the open. But overcrowding must be avoided. We may of course, if we wish to get up a good-sized clump quickly, put several plants into one hole to form one group, and though by so doing we originate a struggle for life, no great harm will be done, as outwardly on all sides they will find breathing room. This plan of lawn decoration will be interesting as furnishing scope for the display of taste, and affording opportunities for studying the effective grouping of movable objects, as mistakes can easily be rectified without incurring much expense, and this is the season for doing such work. The margins of shrubberies can be opened up. Choice shrubs distinct in character can be fitted in, such as the Lawson Cypress, the Golden Yew, variegated Holly, Spiræa ariæfolia, Thujopsis borealis, T. dolabrata, Biota semperaurescens, Thuja Vervæneana, Taxus adpressa, Cryptomeria elegans, Venetian Sumach, Magnolia Lenné, Tamarix, &c. The bulbs and other things can be planted after the border has been turfed over. E. HOBDAY.

INDOOR GARDEN.

WINTER-FLOWERING PLANTS.

PERPETUAL-FLOWERING CARNATIONS.—Where buttonhole flowers are required daily and in considerable quantities, no more suitable or more serviceable flowers could be named than perpetual Carnations, especially if the more sweetly-scented varieties are cultivated. As a rule, much the most sturdy and floriferous plants are grown by those who supply the markets and the trade generally. It is not because, as many at first imagine, they possess the most dwarf varieties, but simply owing to their having command of the most suitable structures in which to grow them. They must have good light positions not far from the glass, and this trade growers are enabled to give them. We have to winter ours in a high span-roofed house running from north to south, and although we are usually successful in preparing a good batch of dwarf plants, these, when housed, soon commence to grow spindly, the bloom being correspondingly weak. They have a stage to themselves and are not crowded, otherwise they would soon become useless. If the central or front stages of a lean-to house facing the south could be devoted to Carnations, there they would succeed best during winter, and well repay any trouble taken with them. In every case strong young plants are much superior to old ones. Ours are usually struck early in spring but if we had to rely on our own plants for providing cuttings, propagation would be done in the autumn. Why so many fail to effect a good strike in spring is owing to the cuttings being too soft and weakly. Not only do such cuttings refuse to strike well, but even those rooted and grown on rarely attain such strength as do those obtained from plants that have been wintered in a position where they get the full benefit of sunshine and light. Those, therefore, who cannot favour the whole of their plants with the best positions ought at least to grow a few for affording cuttings. It is not tops, but good side shoots slipped off when about 4 inches long that are the best. The former may be the stouter, but they do not branch so well. Cuttings, such as I have tried to describe, will root as freely in a close propagating frame or in propagating boxes as do Verbenas, though not quite so quickly, but the weakly ones damp off wholesale. Where spring propagation fails it is advisable to strike the requisite number of cuttings in August or September, or a few old plants may be planted in a shallow frame placed over or containing a bed of good sandy soil; any number of side shoots can thus be layered. This is undoubtedly the best method of keeping up a good stock of the invaluable Souvenir de la Malmaison. We have layered this in the open ground, in fruit houses, and in frames, and in every instance with good results. Well matured side shoots also strike in gentle heat at any time during spring or autumn, and the first flowering stems of these young plants produce several fine blooms. A gritty loamy soil suits all Carnations, and they should have clean, well-drained pots. Our youngest Malmaisons are flowered in 6-inch pots, and the large old plants in 9-inch pots. The strongest of the commoner perpetuals are flowered in 9-inch pots, and the remainder in 8-inch pots, and these being well filled with roots are none too large. All should be kept carefully staked up, or they soon become unsightly, the strength of the plant being diverted to the production of side shoots instead of being expended upon strong upright-flowering stems. Very bushy plants we have sometimes supported with sprays of Birchwood, much as Kidney Beans are usually treated, but, on the whole, we prefer the more laborious system of staking. Crowded weakly plants are especially liable to become infested with greenfly, and for this the best remedy is frequent fumigations with Tobacco paper. In hot and dry positions red spider also makes an appearance, the broad-leaved Malmaison being a frequent sufferer in this respect. A syringing of sulphur water checks and destroys this little pest, and does not disfigure the foliage. Nothing in the shape of forcing ought to be attempted, as this would soon end disastrously. Nor should there be any need to hurry on the blooming. Strong only once stopped plants are, when housed in September, commencing to bloom, and a genial greenhouse temperature, say ranging from 45° to 55° by day and rather less by night, will, other treatment being favourable, encourage them to bloom perpetually. They should be watered carefully, never being allowed to become dust-dry nor saturated, and when the pots are well filled with roots occasional supplies of weak liquid manure greatly assist them. Miss Joliffe, blush pink, is the dwarfest and most floriferous, and by many this and Malmaison is preferred to all others; the former is sweet-scented, and not much liable to burst its calyx. A. Alegatière, scarlet, is fairly dwarf and free-flowering, but there is little scent. Belle Rose is still a favourite; it blooms continuously, and no fault can be found with its size, shape, or scent. Purity is the best white, and is very sweetly scented. La Belle produces handsome white blooms, but it is of weedy habit. A good continuous blooming yellow variety is not yet forthcoming. Pride of Penshurst and Mrs. G. Hawtrey are both very beautiful, but they more nearly approach the border varieties than the perpetuals. They are not winter, but spring bloomers. The old Clove Caroation being a great favourite here, we cultivate a lot of it in pots, and in spring are rewarded with a good supply of this spicily scented variety. A good batch of potted-up plants of the hybrid Pink Mrs. Sinkins also affords an early supply of much-appreciated white flowers. W. I. M.

Arum Lilies in autumn.—In the summer of 1885 we had a large Arum growing in the bed of a conservatory, but it became too large for its place and it was dug up, divided into thirty pieces, and planted in the open. Immediately after this all the large leaves died down, but fresh ones soon sprang up from the roots. By last autumn they were nice dwarf plants, and they were lifted in October and put into boxes 1 foot square and 10 inches deep. Some of them flowered this spring, and in May they were all placed in the open air in the boxes. They were well supplied with water and soon became good plants. In October many of them began to show flowers, and just now they are developing many massive blooms. Fresh buds are also being produced, and they promise to flower well in the shortest days. They are greatly valued now, as the spathes are so very ornamental either on the plants or when cut and placed in vases, and of all the flowers we possess I think they are the most striking at the present time.—J. MUIR, *Margam.*

Pelargonium Guillion Mangilli.—"W.I.M." has not exaggerated the merits of this semi-double zonal Pelargonium: it is one of the most useful kinds we have, and its value is not nearly so fully recognised as it should be. Of the semi-doubles, I know of none that flower so freely and continuously; in this respect it nearly equals the much-valued Vesuvius. If well fed and liberally watered there seems to be no limit to its blooming powers. To see this Pelargonium at its best, however, it should be grown along into good-sized specimens, as, like all the doubles, it blooms most profusely when on a basis of old wood. Good-sized plants of it under the influence of a spring sun are grand, and these are allowed a rest in summer: shaked out partially and repotted in July, they will come in again well in winter. What we much need is a semi-double white, identical in all other respects with Guillion Mangilli. There has been considerable improvement lately among these double whites, but not one of them can be said to perfectly fulfil the requisite requirements of a

winter-blooming Pelargonium. In any case, Guillion Mangilli should be included in every collection of winter-blooming Pelargoniums.—J. C., *Byfleet.*

NOTES OF THE WEEK.

Iris stylosa in the open air opened its first flower on Oct. 30th, the earliest date of blooming that I have observed as yet, after thirteen years of cultivation.—G. J., *West Surrey.*

Oncidium Jonesianum.—We have received two fine spikes of this beautiful new Oncidium from the garden of Mr. Ybarrondo, Aigburth, Liverpool. The spikes are grand examples of good culture, and must have been cut from very fine plants to have produced such strong racemes of flowers. We are informed that they flowered from a specimen bought from the first importations. One spike bears twenty-one flowers, which are more than we have hitherto seen on one spike; the other spike carries twelve flowers. The variety, too, is superb, the white lip being richly spotted with rich crimson.

Heliconia aurea striata.—The very handsome Musa-like plant, H. aurea striata, is much less grown than it deserves; the bold, bright green leaves being striped with orange, render it very effective. We recently saw a distinct and handsome sport from this in the Pine-apple Nursery, called lineata, in which the leaves in addition are striped and splashed with creamy white and rose. We believe that both forms require strong heat and a moist atmosphere to develop their beauties.

Cymbidium giganteum.—Although this fine bold-growing plant has been an inmate of our Orchid houses for nearly half a century, the preponderance of green in its flowers has prevented its becoming a favourite. A variety which we recently saw in bloom at Selborne, Streatham, cannot fail, however, to commend itself to all lovers of the rich, rare, and beautiful. The scape is from 2 feet to 3 feet long, bearing numerous large flowers, the sepals and petals of which (instead of being nearly green) are chocolate streaked with lines of purple, whilst the large yellow lip is profusely spotted and blotched with rich crimson. In addition, the flowers are delicately fragrant, and last a very long time in perfection.

Chrysanthemums.—Not more welcome is the Rose to our gardens in June than is the Chrysanthemum to them in November. Lovely as Chrysanthemum flowers look at exhibitions, they are infinitely more interesting at home. Take, for example, the large conservatory at Selborne, now containing some 500 plants. What can be more striking? They are tastefully arranged, both as to position and colour, which is well diversified, amongst Japanese kinds. The following are a few of the best, viz.: Le Chinois, purplish violet, florets twisted; Mons. Astorg, silvery white, with soft violet centre, florets drooping; Mdme. Lacroix, sulphur-white, passing to pure white, florets drooping; Rosa Bonheur, deep rosy purple, a superb variety with large drooping florets; Criterion, rich clear amber, florets drooping; Mdme. de Sevin, rosy purple; Comte de Germiny, nankeen, heavily streaked with brownish yellow, florets long, broad, and curled; R. Ballantine (sometimes named Source Japonaise), beautiful light violet, with incurved florets; Mdme. Bertier Rendatler, orange shading with yellow, florets twisted; Cullingfordi, crimson-scarlet. These, besides such favourites as Elaine, Lady Selborne, Baronne de Prailly, The Cossack, and James Salter, seemed to be the most attractive. Amongst incurved flowers the following were very fine, viz., Lord Alcester (sometimes called Princess Imperial), pale primrose; Mrs. Bunn, medium-sized, bright golden yellow; Lord Wolseley, bronzy red, very fine; Golden Empress, pale yellow; Jeanne d'Arc, blush white, tipped with rose; Mrs. Heale, white, tinged with rose; Alfred Salter, lilac-pink; Nil Desperandum, dark orange-red flower; Prince Alfred, rosy carmine, large and fine; Mr. J. Laing, a medium-sized flower, but very handsome, yellow tinged with orange; Baron Beust, chestnut-red, tipped with yellow; Hero of Stoke Newington, rosy pink; Princess of Teck, white, tinged with pink—all good, as are also some fine Queens and Beverleys. At Croydon Lodge, the residence of Mr. Stephenson-Clarke, where a large orchard house is filled with these and other good sorts, amongst which we noticed many of those previously named, and likewise some others, distinct and handsome, the best of which were Album striatum, white, striped with purplish crimson; Album plenum, creamy white, very fine; Apollo, buff, with drooping florets; Bouquet Fait, rosy pink; Jeanne Délaux, same as F. A. Davis; Mastic, yellow, tinted with red; Purple Prince, rich purplish violet; Maiden's Blush, creamy white, tinged with flesh; and Meg Merrilies, very large and quaint. Amongst Anemone-flowered kinds the best were Mrs. Pethers, lilac, with a rosy centre; Empress, very large blush with lilac centre; Emperor, blush, with pale yellow centre; King of Anémones, dull crimson; Gluck, golden yellow; and Georges Sand, bronzy red. Amongst incurved varieties the most striking were Duke of Edinburgh, rosy lilac; Prince Alfred, rosy carmine; Gorgeous, a golden yellow American kind; Lady Talfourd, silvery purple; Prince of Wales, large purple; Refulgens, bright maroon-purple; and Gloriosum, another bright yellow of American origin. To these may be added such kinds as Golden Eagle, Guernsey Nugget, and Queens and Beverleys, which are in most collections exceptionally good.

At The Woodlands, Tooting Common, the residence of Mr. H. Doulton, Chrysanthemums are all treated upon the cutting-back principle, and very effective they are as decorative objects, being dwarf, well supplied with foliage, and the flowers excellent. Amongst the best were the following: Fanny Boucharlat, creamy white, tinged with pink, petals flat and drooping; Agréments de la Nature, florets narrow, twisted golden yellow, tinged with reddish brown; Soleil Levant, flower large, florets quilled, pale yellow; Source d'Or, flowers drooping, orange and gold; and John Laing, reddish brown, tinged with rose and yellow. The following incurved varieties were extra good, viz.: Jeanne d'Arc, blush white, with rosy purple tips; Jardin des Plantes, deep golden yellow; Princess of Wales, purple; Nil Desperandum, deep orange-red; Lord Wolseley, bronzy red.

In Mr. Bonner's garden at Bridge House, Tooting, Chrysanthemums are not so largely grown as at any of the places just named, but they are nevertheless exceedingly well managed; on some which are allowed to become large the buds are partially thinned; these yield an abundant supply of flowers of just the size suitable for placing in vases for room decoration, a purpose for which the large flowers, however well they may look in a conservatory, are quite unsuited. Elaine, Lady Selborne, James Salter, George Gordon, Curiosity, and Fair Maid of Guernsey are useful varieties for this purpose. Amongst Japanese kinds with large flowers the best were Soleil Levant, pale yellow, florets quilled; J. Délaux, dark velvety brown with long spreading florets; M. Plauchenau, bright rosy pink; Criterion, bright amber; Golden Dragon, bright yellow, with long curled and twisted florets; Margot, rosy violet, with creamy centre; Val d'Andorre, rich chestnut, shaded with orange; Duchess of Albany (Jackson) orange-buff; Japonais, bronzy yellow, florets very large and incurved; and Dr. Audiguier, crimson-amaranth. The best incurved flowers were Barbara, bright orange-amber; Empress of India, pure white; Mr. Brunlees, Indian red, tipped with gold; Princess of Wales, rich purple; White and Pink Venus, and Baron Beust, chestnut-red tipped with yellow.

Masdevallia racemosa Crossi.—This little gem is so seldom heard of in flower, that I am glad to note that three plants may be seen in bloom in Messrs. Shuttleworth and Carder's nursery at Park Road, Clapham. It is not only distinct from all other Masdevallias, but is extremely beautiful. The flowers are of the brightest orange-red, flushed and lined with scarlet. They are about the size of those of M. amabilis, and borne in racemes, as many as twenty flowers being shown on the dried specimens collected in the plant's native habitat. There is no other known Masdevallia at all like it, and it is not surprising that it is so highly prized.—G.

Crystal Palace Chrysanthemum Show.—The termination to a brilliant flower and fruit show season held at the Crystal Palace was appropriately a large Chrysanthemum exhibition, which was held on the 5th and 6th, being the first show of Chrysanthemums this season about London. There was a large assemblage of exhibitors representing the best growers in the country, and the valuable prizes offered enticed competitors from all parts, headed by Mr. Gibson, of Morden Park, who seems to be invincible this year. He won the £10 prize for forty-eight blooms, besides various other prizes; and among other successful exhibitors were Messrs. Drover, Fareham; Mr. Edwards, Balham; Mr. Munro, Twickenham; Mr. Neville, Twyford. The pot plants made a great display, particularly the groups, occupying 100 square feet. Messrs. Cannell, Swanley, had a large display, including several new varieties, among which the following were awarded first-class certificates: Elsie, William Holmes, Cincinnati, Jane and Miss Cannell. Certificates were also awarded to Mr. Flight for Mrs. J. Wright (Japanese); and to Messrs. Laing for La Marguerite and Mdlle. Elise Dordan. It has been a busy and excitable week among growers and exhibitors of Chrysanthemums. About London there has been several shows held on almost each day, and very excellent were those at Kingston, Lambeth, Richmond, Stoke Newington, and Croydon, but our limited space precludes reports of them. A prize list of the Crystal Palace Show is given in our advertising columns.

Oncidium andigenum.—I herewith send a flower of a very rare Oncidium. I flowered it this year, and, not knowing the plant, sent it to Professor Reichenbach, who replies, "It is O. andigenum, and is very rare; in fact, yours is the only plant in Europe." The growth and bulbs are very similar to those of O. concolor, for which it was bought.—J. M. Bannerman, *Wyastone Leys, Monmouth.*

*** The flower sent is very beautiful, somewhat similar to a large flower of O. Phalænopsis; the lip, however, is different in shape. The sepals and petals are creamy white, irregularly blotched, and dotted with dull crimson; lip large, three-lobed, the side lobes very large, creamy white suffused with pink, and blotched at the base with deep velvety crimson, and dotted and freckled with the same colour; front lobe spotted with rich crimson, and bearing at its base a rich orange crest; column purple.—Ed.

NEW MOUNTAIN ARALIA.

(OREOPANAX EPREMESNILIANUM.)

A series of beautiful photographs was lately sent to us by M. Comte d'Epremesnil, representing various views in his garden at Thibermont, near Dieppe, and among them was one from which the opposite illustration was engraved. This is a new shrub recently introduced from South America, but as it there inhabits the mountainous regions, it is hardy enough to withstand full exposure on the north-west coast of France, and the Comte d'Epremesnil presumes that it would be perfectly hardy in the milder parts of these islands. It is probably quite as hardy as the common Aralia Sieboldi, which even in and about London grows to tree-like dimensions, and is rarely if ever winter-killed.

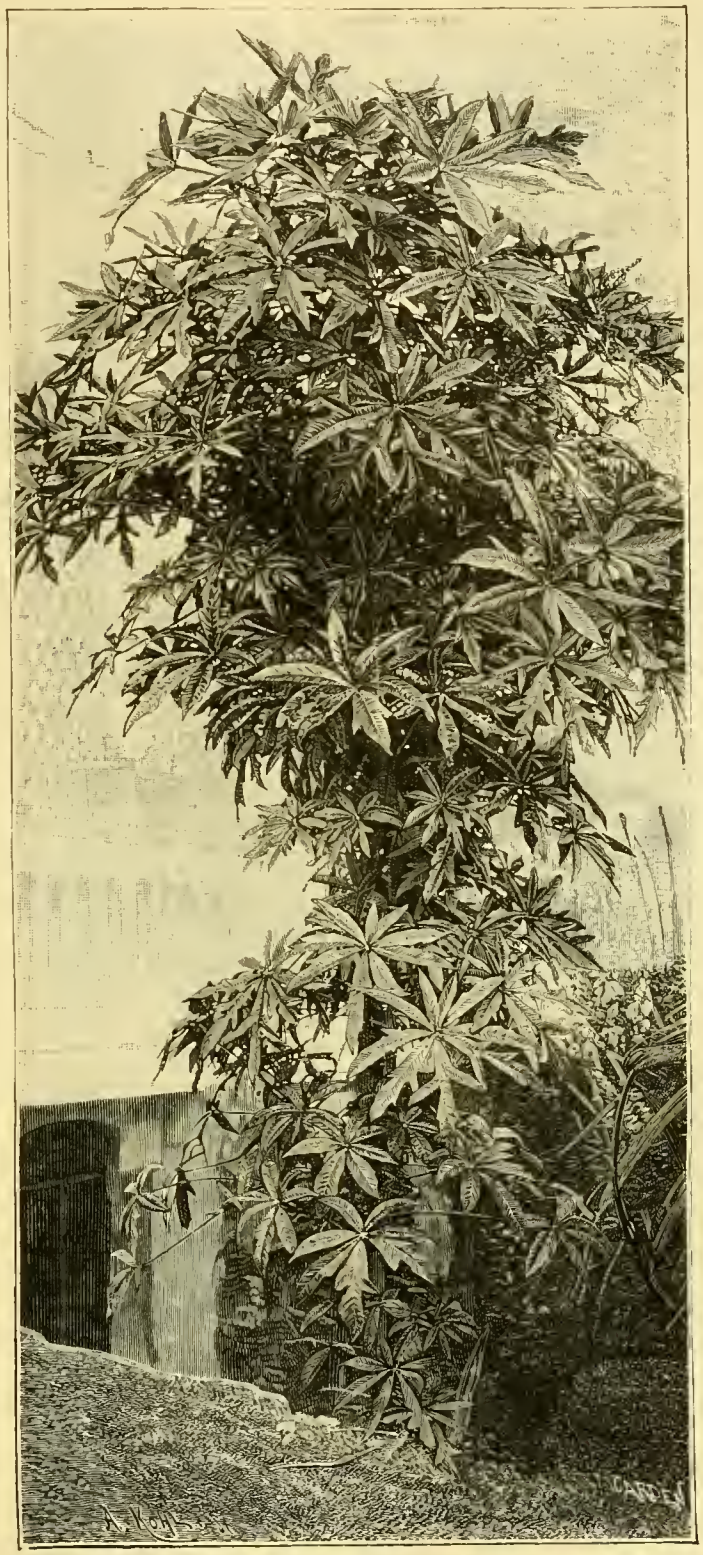
None of the true species of Oreopanax have found their way into English gardens as ornamental plants, although in the countries bordering the Mediterranean, and especially Cannes, Nice, &c., several kinds are commonly seen in cultivation, being in favour because of their handsome bright green foliage. O. Epremesnilianum, as the illustration well shows, is a noble shrub, somewhat resembling in growth the well-known Aralia Sieboldi, but grows taller. The leaves are large, digitate, the divisions lobed, and they thickly clothe the branches down to the ground. Another handsome Oreopanax is O. Andreanum, which has undivided oval leaves, sometimes lobed, thick in texture, and covered with a thick reddish felt; its flowers are in an erect terminal spike. O. peltatum is very Aralia-like; so also is O. Thibauti, which was first distributed as an Aralia.

NOTES ON RECENT NUMBERS.

Pernettyas.—The very beautiful and distinct varieties of P. mucronata raised by Mr. Davis, of Oglesgrove, ought to be extensively cultivated wherever Rhododendrons will grow. Considering that several of them were certificated at South Kensington in 1882, they certainly do not seem to be as generally known as they deserve; yet the various colouring of their berries, white, pale rose, deeper rose, rich crimson, and almost black, adds greatly to the attractiveness of this always desirable species. They seem to fruit even more freely than the type, and are just now literally smothered with berries, growing in light and slightly peaty soil. The plants appear to thrive better when allowed to run together into a mass than when kept apart as single specimens, and in this way they make very attractive clumps at a season of the year when anything bright is welcome in the garden. They are also effective if potted up, to make a foreground to a group of Chrysanthemums where the stems of the latter may have become rather overlong, and either indoors or out the clustered berries never fail to attract attention.

Tropæolum tuberosum.—There is no doubt that this plant will survive an ordinary winter on a light soil without being lifted and kept dry till spring, but as a number of tubers are found round the original tuber, something after the fashion of Potatoes, the mass of growths that push through in the spring make such a tangle as to prevent the flowering from being very satisfactory when the bulbs are not taken up and separated. As to the soil for this plant, it certainly succeeds with us in shallow soil exposed to the full sun. Our best plants are always those grown on the iron pillars of a verandah surrounded by gravel walks; a spadeful of gravel is removed from the base of each pillar and replaced by a spadeful of light rich compost in which the bulb is planted. The pillars are about 10 feet high and are soon covered, the plants being about a yard through near the base and tapering to the top, while they continue a mass of bloom throughout the summer, and their bright yellow and scarlet flowers are gay yet, not having been injured by 5° of frost on the 3rd inst. Possibly, however, "Greenwood's" plant was not in so different a situation as would appear at first sight, for in an exceptionally hot and dry season like the past, a soft-rooted plant in heavy clay may quite conceivably have as restricted a root-run as a plant grown in a few inches of soil upon gravel; and we are told that the plant in rich soil bloomed badly. The general tendency of planting Tropæolums of all sorts in very rich soil seems to be not so much to reduce their flowering as to induce an excessive luxuriance of foliage under which the flowers are hidden from view.

Wild Roses in America.—The excellent article from the "Arnold Arboretum," on p. 414, is of special interest in drawing further attention to some of the most attractive of the single Roses as garden plants. The Rose first mentioned, however, must either be a different variety from that grown in England as R. kamtschatica, or else is another striking instance of the effect of locality upon the appearance and habit of a Rose, for our R. kamtschatica, though of much stronger and coarser growth, so far from having flowers larger and paler than those of R. rugosa, produces them only about half the size and of a considerably deeper colour; while the succeeding fruit is also smaller, less brilliant, and less freely produced. A form of R. arvensis, too, with pale rose-coloured flowers, sounds like a local variety, as in England this species is the purest white, and is also the most constant of the native Roses in habit, form, and colour, being the only one of which, I believe, there is not recorded any appreciable variation. The Rose described under the name of R. multiflora is evidently the charming R. polyantha, formerly called R. luciæ, a sub-species of multiflora, and beyond all question one of the most delightful of climbing Roses. The suggestion that it might become the parent of some fresh climbing Roses is already partly carried out, for Lacharme this year distributed a red-flowered variety, which is certainly a climber (the result of a cross with General Jacqueminot), and is highly spoken of as a garden Rose. Oddly enough, none of the former hybrids, commonly known as the Polyantha Roses, between this species and the Tea-scented varieties have displayed the slightest tendency to a climbing habit. It is also interesting to note that in America, as it is said to have done in France, this Rose has proved itself a valuable stock upon which to work other varieties; and it is not impossible that R. carolina, which is almost a bog plant, might be useful as a stock to grow Roses on in very wet places. One of the chief attractions of R. setigera (or rubifolia) is not mentioned, for its leaves are like those of the Blackberry, not only in form, but also in the brilliant autumn tints which they assume, a desirable characteristic which is maintained happily in its varieties, Baltimore Belle and Queen of the Prairies.



Oreopanax Epremesnilianum in the open air in the garden of the Comte d'Eprémesnil, Thibermont, Dieppe.

Cypripedium spectabile.—The objection that is brought on p. 415 against the showy Orchis, namely, that it seldom survives a second season in the garden, is sometimes urged against this showy Lady's Slipper, although quite inexcusably. If it is planted in a dry situation exposed to east winds it will certainly very soon succumb; but if it is given a cool place where it is sheltered from cold winds and frost in spring, after the plant has once started into growth, it soon becomes permanently established. For instance, planted among Rhododendrons in deep, cool peat, and planted rather deeply as a precaution against both severe frost and drought, this Cypripedium produces its lovely rosy and white flowers year after year, and with annually increasing strength. Other plants that succeed in similar situations are those mentioned in connection with the life-like portrait of Pyrola rotundifolia on p. 429, and either among Rhododendrons or under the shade of Fir trees, the Linnæa borealis, with its delicately pencilled and deliciously fragrant little bells, the dainty Trientalis europæa, as well as Epigæa repens with its white flowers and subsequent berries, may be easily established and naturalised.

Anemones as annuals.—The plan recommended by "Veronica" of raising Anemones from seed is undoubtedly invaluable as a means of obtaining a supply of cut flowers, and the amount of flowers that may be got from a seed-bed would appear incredible to some people who had never tried growing Anemones in this way. Perhaps the

superiority, or otherwise, of the transplanted seedlings, according to the severity of the winter, may be explained by the fact that they, owing to the disturbance of their roots, have their growth checked—that is to say, have their water supply greatly reduced—and are thus rendered less liable to injury by frost; while the plants left standing, continuing to grow freely and being full of water, are badly damaged in the event of hard weather, but should the winter prove mild, make naturally stronger plants than those which have been checked by removal. The same thing is observable in many other plants, notably among Rose trees, for the preservation of which, transplantation is frequently recommended. Some gardeners annually dig up their Tea Roses to prevent their injury by frost; but, of course, the blooms the following season are not so fine as on established plants, and most people now wisely prefer to risk their trees being slightly damaged for the sake of obtaining the most beautiful blooms.

Cyclamen europæum is still bright on the rockery in spite of the gales and floods, and one cannot but wonder that it is not more generally grown. The delightful plate of hardy Cyclamens in The Garden last week ought to make everyone want to grow these fascinating flowers, which come so early and stay so late. They may be easily established in Grass under trees, or anywhere where Primroses will grow; but if such places are not available, they grow admirably on the rockery or among old stumps in rooteries. Of course, they are largely grown in some gardens, but many people do not seem to be aware of the hardiness and adaptability to wild-gardening of the charming, but atrociously miscalled Sowbreads.

T. W. G.

NOTES.

The ever-blowing Rose.—In the *Botanical Magazine* of Curtis (t. 284) is a very characteristic portrait of this old and once popular Rose. Why is it now so seldom seen? I remember looking at this plant—quite a good sized bush of it in a pot—which used to flower in the window of a shoemaker of the village wherein I was born. It was the only one in the place until one after another begged slips and suckers, until many other windows could boast of nice little plants of this crimson China Rose, or Rosa semperflorens of the botanists. It is curious to note how almost imperceptibly changes take place in gardening language. The popular name, as applied to this dwarf and floriferous species by Curtis, brings to my mind that the verb "to blow," as synonymous with "to bloom," is fast disappearing. "Blow-house" was also another and earlier name for the more modern greenhouse; but the word is now rarely used in any form, since even the humble itinerant costermonger's "all a-growin' and a-blowin'" has well-nigh disappeared. Rosa sempervirens was first introduced from China by Mr. Gilbert Slater, of Knot's Green, near Leytonstone, in the year 1791. Quite a small plant, in a 5-inch pot, forms a sweetly pretty Rose for a sunny window, which will be rarely without a flower or two throughout the year. As indicated above, its culture and multiplication are of the most simple kind. I consider it as one of the most interesting of all the old Roses for pot culture.

Flowers of November.—Open-air Chrysanthemums in plenty, and Veronica Andersoni, both blue and purple flowered, are fresh and beautiful. On a sunny border is a good tuft of a small creamy-white autumnal Crocus of which I do not know the name, but it somehow gives us a foretaste of spring-time as its pale stars open in the sun. Only yesterday we had two splendid half-open blossoms on the great-flowered Magnolia. The yellow stars of the winter Jasmine are opening quite rapidly, and show best where contrasted with dark-leaved Ivies, or as seen near the vermilion-fruited Pyracantha, or some of the large-berried Cotoneasters on the walls. One of our Flag Irises, I think I. atro-purpurea, has thrown up a strong spike of flowers thus late in the year, and happening to mention the fact to Mr. Walker, of Whitton, he tells me that many of his plants have done the same. I cut the spike two days ago, and placed it in water in the stove where I now see its rich satin-like petals unrolling themselves as if it were spring-time to them. Senecio pulcher, Nicotiana affinis, late-planted Gladioli, Schizostylis coccinea, Stocks, Wallflowers, Primroses and Polyanthuses are all in flower, while such shrubs as Arbutus and Escallonia macrantha are fresh and ornamental, as they usually are at this season near the sea. The old Monthly Rose is nearly always in flower, but there are good blooms not only on that finest of all late Roses, Souvenir de la Malmaison, but some buds of Baroness Rothschild, sent by a friend, are really now fresh and beautiful blooms in water indoors. So far, November has been kind and genial.

Unheated plant houses.—Every good garden might be made infinitely more interesting by the simple addition of an unheated greenhouse or conservatory. But we must start clear, so to speak, with a well-built house, and no attempt at artificial heating whatever. Then there must be discretion used in the selection of the plants to be grown. Nothing tender must be attempted, and, as far as possible, planting out must be the rule. Of course, pot plants may be grown on the side stages, but the best effect and most luxuriant growth will be gained by planting out all the large-growing things. In such a house Camellias and Indian Rhododendrons, Bamboos, Lilies, Ghent Azaleas, Japanese Aralias, and the finely cut-leaved Maples may be grown. All sorts of hardy bulbs in pots, such as Crocus, Hyacinths, Tulips, Squills, and Narcissi, may be potted and brought in from the open air to bloom inside. There is no dearth of beautiful hardy plants suitable for every month in the year. Just now a few pots of the best Chrysanthemums would afford colour among the graceful leafage of the hardier Palms (Chamærops), of Japan Bamboos, and of New Zealand Tree Ferns, all rising from a carpet of fresh green Selaginella. There are hundreds of plants not quite hardy in the open air during our most severe winters which would be healthy and luxuriant all the year in such a house as is here described, and if it were joined to the dwelling, either direct or by way of a corridor, it would form an agreeable smoking place or lounge, while not giving a tenth of the trouble or expense attending a heated conservatory.

Little things.—It has been said that genius simply resolves itself into a capacity for expending infinite trouble and thought on what to ordinary people appear the merest trifles. That it is so in the garden everyone will allow, for the best of all gardeners are not only acute observers, but nervously particular as to little things. There is a story told of a celebrated nurseryman, who on being told by a customer that his foreman had no "go" in him, replied, "You have mistaken his value, sir. I have plenty of go myself, but my foreman has the equally valuable quality of seeing when things are likely to go wrong, and is prompt in checking error or waste; he is the safety-brake of the whole concern." The art of gardening, like all other arts, depends for its success on a multitude of trifling operations being performed in the right way and at the right time. It is far easier to learn how to paint a picture, or to build a sound and beautiful house, than it is to form a good garden. Not only does a good gardener know what to do, but his observation and experience teach him what not to do, which is an equally valuable possession. I happen to know a little of the difficulty now experienced by gardeners in obtaining good situations, but employers tell me it is equally difficult to obtain well trained men. Especially difficult is it now-a-days to obtain a good all-round man. You can easily procure a good Orchid grower, a Grape and Peach grower, or a first-rate kitchen garden foreman, but it is not so easy to get a man well up in the practice of hardy flower culture. Ladies more especially have taken up hardy flowers; therefore most of our fine old country houses are gay with them for nine months out of the year. Young gardeners especially should take up this branch, as it is sure to be of use to them. Learn to grow Grapes as big as Green Gage Plums, and Peaches the size of Melons, and the tenderest and most succulent of vegetables to boot. All these things are necessary, or at least acceptable, but they will not of themselves satisfy those who are fond of hardy flowers also.

Cape bulbous plants.—Mr. McEwan, of Cape Town, South Africa, points out in the pages of a contemporary that the climate of Western South Africa is so different from that of the eastern side, that cultivators who wish to be successful with South African bulbs should clearly recognise this wide difference, and act accordingly. The western bulbs, such as the majority of Ixias and some Gladioli, naturally have to endure a cold, wet, winter season, and burst into flower during the hot days of spring. The winter on the eastern side, on the other hand, is a dry one, and the bulbs, such as Gladioli of the G. carneus section, bloom after the rains of November. Hence, the first question on the receipt of a parcel of Cape bulbs should be, from which side of the South African continent do they come? By-the-by, I wish Mr. McEwan would give us a chart of the Cape flora, showing the rainfall, and climate, and *locale* of the most ornamental native plants. Perhaps, however, some information and meteorology of the Cape will be annexed to the new "Cape Flora," now in course of preparation at Kew. Such information, if carefully prepared for easy reference, would be an incalculable advantage to lovers and cultivators of Cape plants. Ixias we can now manage fairly well in a dull and humid, although mild, climate. Our plan is to plant deep in December, so as to keep back the growth as much as possible, and so treated they bloom beautifully in April and May. As the leaves wither in June, they are taken up and stored in dry sand until planting time.

Nutrition *versus* fertility.—Mr. Meehan, an English gardener, who has made himself a name as one of the leading botanists in the United States, tells us that "to American botanists is mainly due the credit of the discovery that whether a plant be male or female, or a flower on the plant be male or female, is a mere question of nutrition." While granting to the full the principle here laid down, I should like to point out that Caleb Threkeld, M.D. (the author of "Synopsis Stirpium Hibernicarum," a small octavo relating to the plants, wild and naturalised, near Dublin), pointed out this fact so long ago as 1727. As bearing out this theory of nutrition *v.* fertility or sexual variation, Mr. Meehan quotes an experiment made by Prof. Hoffmann, who "sowed seeds of numerous kinds of dicecious plants closely together, so as to give little food to each plant, and seeds of the same plants thinly, so as to give each plant nearly all the food it could use." Where the seeds were sown thickly, Hoffmann counted 283 males to 700 females, while in the well fed or thinly sown lot there were only seventy-six males. This is

the knowledge of 1886, and so we will now hear Threkeld, who wrote his quaint observations in 1727. In the synopsis, under Cannabis mas (Male Hemp), he says: "The male Hemp has the seed, the female only flowers, yet both are procreated from the same seed. The more attentive husbandmen observe that in a fat soil you have generally plenty of male Hemp, in a lean soil more of the female, or where sown too thick and so wants nutritious juice it is female." Of course, Threkeld here transposes the sexes, but his observations are quite as much to the point as are those of Prof. Hoffmann. The question of nutrition *v.* fertility opens up some very interesting potentialities, and its effects of the most practical nature are every day evident in every garden.

Queen Chrysanthemum.—Once again we have a golden harvest of Chrysanthemums in our gardens. Elaine must have first place, although some of our visitors like the tossed fluffy appearance of some good blooms on a standard plant of Lady Selborne. James Salter is also a good pink of the last named type. What a beauty is Madame de Sevin, with a fringe of drooping florets of a bright deep lake colour, and having a contorted centre of narrow lilac florets resembling a catherine-wheel! Source d'Or, a rich orange or amber Japanese, with reflexed florets, is distinct. So also is Mons. Astorg, a fine white in the way of Elaine, but with larger flowers. Lord Beaconsfield, crimson with amber reflex, is also much admired. Bouquet Fait is large and good; so also William Robinson, which resembles the last in form, but is of a soft amber or buff tint, quite different from aught else I know. Several seedlings now on their second year's trial promise well. Mandarin, a new Japanese sent to us by Mr. Boyce, is very distinct and good; and we are expecting great things of roseum superbum, which was splendid last year, the flowers opening out into February long after even Princess of Teck had left us. For cutting, some bushes of Mdme. Desgrange, Sœur Melanie, and Elaine yield plenty of good white flowers. If the weather keeps mild, there will be a good bloom in the open air and on walls. L'Ile des Plaisirs is a good rich crimson-brown Japanese variety, which contrasts well with lighter sorts; and M. Richard Larios is also a showy variety, now in good form. It is scarcely too much to say that chill November is robbed of half its foggy terrors by the genial advent of our winter queen. Veronica.

Rose hedges and bulb protection.—While experimenting at Oakwood two notions have occurred to me which I think are worth recording. The first is a new hedge. We tried a small one in front of the cottage, and this succeeding, we have now made one about 100 yards long of Japanese Rose (Rosa rugosa); the beauty of its flowers, fruit, and foliage, the last while green and afterwards golden in autumn makes it ornamental, while the quick growth of the plant and many and close thorns make it useful. The plants of our last hedge consist of seedlings taken out of a seed bed not more than 2½ yards square. This hedge has a backing of cut Furze; I expect in three years it will be a well grown hedge. Notion No. 2 is a substitute for snow as a protection for some bulbs and plants. Snow, as is well known, owes its efficacy to the air among it. I have tried many experiments to get something that would take its place. Finding that plants sowed themselves on our gravel walk, and came up better than in the seed beds, I used a surface of fine-sifted gravel with good results, and now believe that for bulbs which it is undesirable to plant very deep, and yet which must not be frozen, a covering of from 3 inches to 4 inches of sifted gravel stones about an inch long would hold air enough to prevent frost getting down into the ground and be easily removed in spring. With some precious bulbs and deciduous plants I have put a surrounding of bricks edgewise, filling up the enclosed space with these gravel stones. Smaller stones may be better; this is a subject for experiment.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Flower Garden.

THE JAPAN WINDFLOWER.

In the last issue of The Garden (p. 429), Mr. Frank Miles inquires as to the typical species and varieties of Anemone japonica, and I should like to reply to his queries, as a very slight return to him for some very suggestive and pleasant letters which he has been good enough to write to me as a gardener from time to time. As he surmises, Anemone japonica was one of the late Robert Fortune's introductions. Before me is the first number of the first volume of "The Journal of the Horticultural Society of England," published in 1846, in place of the expensive quarto "Transactions," which, as I believe, were soon afterwards discontinued. This plant enjoys the peculiar honour of being the first on the list of a series of descriptive notices of "New Plants, &c., from the Society's Garden," and it is thus set down therein:—

The White Japan Anemone (A. japonica alba).

1. Anemone japonica, Siebold and Zuccarini (Fl. Japonica, vol. i, p. 15, t. 5; "Botanical Register," t. 66, 1845).
Received from Mr. Fortune, from Shanghai, June 20, 1844.

Its flowers are described by Lindley as being "nearly 3 inches in diameter," and as consisting of "a considerable number of bright purple leaves (*i.e.*, sepals) of a somewhat obovate form, and about half an inch wide; most of them undivided, but a few have irregular lobes at the side; those on the outside are smaller, greenish at the back, and covered with silky hairs." Lindley says further: "It is a greenhouse plant of considerable importance in consequence of its flowering in autumn;" but his prophecy as to its being "abundantly multiplied from seed" has only partially proved true in a way we shall presently describe. It may be as well to mention the fact that this original note of Lindley's is dated August 29, 1845.

In part 4 of the same volume (*l. c. supra*), under date September 2, 1845, we find a list of novelties exhibited at Regent Street from the society's gardens, including a notice of "Anemone japonica, from Mr. Fortune, from the north of China;" hence this date may be safely taken as that of its first public appearance at a London exhibition.

Now Mr. Fortune left England for China in the spring of 1843, that is, about six months after the news that peace between that country and England had been concluded. In the autumn of 1842, after exploring in Hong Kong, Canton, and elsewhere, he sailed for Shanghai, which place, as he tells us in his "Sketch of a Visit to China" (Jour. Hort. Soc., vol. i., part 3, p. 213), he reached soon after November 13, on which date he sailed. "The land," as he himself writes, "is a deep rich loam, and is, without doubt, the finest in China, if not in the world." "In a country like this," he further writes, "which is everywhere flat and cultivated, it was not expected that I could find very many wild plants. Two, however, were met with which have since attracted a considerable share of notice in England. I allude to Cryptomeria japonica and Anemone japonica. The latter was found when in full flower amongst the graves of the Chinese, which are round the ramparts of the city. It blooms in November when other flowers have gone by, and is a simple and beautiful ornament to the resting-places of the dead." He afterwards tells us he saw many cultivated plants in the flower-shops and nurseries, the former being at this season filled with Chrysanthemums.

So that our good friend Mr. Miles (p. 429) is, so far, perfectly right in his surmises, and even if Fortune afterwards met with this plant in Japan, it seems abundantly evident that he originally saw it and introduced it to the Chiswick Garden from the burying-grounds of Shanghai. So far as I know, Mr. Fortune did not meet with the white variety, nor have I ever met with evidence of there being varieties of this species in China or Japan, but it is more than possible—indeed, highly probable, for reasons hereafter to be adduced—that such varieties really do exist there. I have already mentioned Lindley's prophecy as to its "abundant multiplication from seed," so that it need not surprise us to find attempts at hybridising the plant having been made at Chiswick very soon after the actual introduction of the plant itself from China, and not from Japan, as the "dictionaries of gardening" will have it—at least, the three or four that are beside me as I write. It should be remembered that a nearly allied plant, viz., A. vitifolia, a white-flowered species, had been introduced to English gardens from the valleys of Upper Nepaul as early as 1829, and the late Mr. George Gordon made use of it in his hybridising experiments in connection with the more recently introduced A. japonica. This was previous to the year 1850, since in *The Gardeners' Magazine of Botany* for that year, p. 17, we find a coloured figure and description of one of the hybrids

which had been originally exhibited at a Regent Street meeting on September 4, 1849. The entry in the published journal of the society reads as follows: "A hybrid variety of Anemone japonica, produced between that sort and the white Indian A. vitifolia. The result was an improvement in the shape of the flowers, but they were much paler than those of the Japan Anemone."

The coloured plate in the *Magazine of Botany* is named A. japonica hybrida and it is a tolerably good figure by Holden of the plant now-a-days grown in gardens under the names of A. japonica hybrida, or rosea, or intermedia, or pallida, as the case may be, but A. japonica hybrida is undoubtedly its oldest and best name. Lindley, again, alludes to these early hybrids of Gordon's in *Gardeners' Chronicle* for 1855, p. 451, and from it we learn that the two parent species were reciprocally crossed, and that both species yielded seedlings, but while those from the A. japonica seed were strong and beautiful (as A. japonica hybrida really is), those from the seed of A. vitifolia "had the tenderness and ragged flowers of the male parent [*sic*] and were worthless." Having proved that the typical A. japonica was introduced from China, and that A. japonica hybrida is a garden hybrid between the type and A. vitifolia, we may now venture to inquire as to the origin of A. japonica alba, or A. Honorine Jobert, as it is more generally called. Now, in the *Gardeners' Chronicle*, as quoted in THE GARDEN, Vol. VI, p. 498, M. Otto Froebel distinctly affirms that the plant is not a hybrid between A. vitifolia and A. japonica, as had been stated, but that it originated from a large tuft of the old A. japonica with red flowers, from which a root-branch arose with pure white blossoms. This sport originated in the garden of a M. Jobert, at Verdun-sur-Meuse, about the year 1858, and it came into the possession of Messrs. Froebel in 1860. So we have tolerably sure grounds for saying that this white form is, so far as its European history goes, a sport or reversion from the original red or purple plant as introduced to Chiswick in 1844.

Now comes the peculiar period in the history of these two varieties of typical A. japonica. We will turn to Vol. XVIII. of THE GARDEN, p. 328, wherein the late Mr. J. C. Niven, of Hull, distinctly states that he, when at Kew, raised a seedling from the Indian A. vitifolia (A. japonica growing in close proximity) with soft rose-coloured flowers, to which, as he says, he gave the name of A. japonica hybrida. Mr. Niven does not mention the dated historical detail cited above, so that we must consider it unknown to him, and credit him with having raised by chance a hybrid at Kew which Gordon had reared at Chiswick years before. In this article Mr. Niven mentions that A. japonica Honorine Jobert is said to have been a sport from A. japonica hybrida; but his own belief is, that it was really a seedling from it—an opinion we now know to be erroneous, since it is, as above affirmed to be, a root-sport from the typical A. japonica itself. But more anon. In the same volume of THE GARDEN, p. 245, we find "J. S. W." maintains that A. japonica alba is identical with A. Honorine Jobert—a conclusion now generally believed, although on p. 298 "D. T. F." maintains that there are two white varieties, and he affirms that A. Honorine Jobert is far superior to another white which he does not name, but which possibly may have been A. vitifolia, which, while somewhat resembling A. Honorine Jobert, is assuredly inferior as a garden plant.

Then comes a note from "A. D," p. 421 (Vol. XVIII.), who, in accepting Mr. Niven's statement as to A. japonica hybrida, rosea, or intermedia, agrees with "J. S. W." that A. japonica alba and A. Honorine Jobert are identical; but he complicates the question a little by assuring us that "last autumn (1879) plants of rosea sported to alba, and are now (Oct., 1880) producing white flowers. Hence, we have evidence that both A. japonica and the variety hybrida have produced the variety called alba, or Honorine Jobert, in gardens. Again, on p. 454, "D. T. F.," in spite of what has been said by "A. D." and others, avers that A. Honorine Jobert is a superior variety to that called A. japonica alba, and also says that "he has watched the sporting of the rose-coloured variety (hybrida) with white," but that the latter is inferior.

I am afraid some readers of THE GARDEN will think this a long history, but one must sometimes be a little lengthy in order to be clear and exact. In this paper I have tried to clear up the whole question of Anemone japonica and its garden forms. We may summarise the whole matter thus:—

1. Anemone japonica, so-called type with purple-red flowers, introduced from China by Fortune to Chiswick in 1844.
2. The above plant, crossed with the Indian vitifolia by Mr. Gordon in the Chiswick garden, produced A. japonica hybrida in 1849.
3. A. japonica alba, or Honorine Jobert, was a root-sport from the above A. japonica, and was first observed in France in or about the year 1858.
4. Both Mr. A. Dean and Mr. D. T. Fish agree that they have seen A. japonica hybrida yield a white-flowered sport.
5. I am of the opinion that there are only three forms or varieties of A. japonica, viz., the type (reddish purple), A. japonica hybrida (pink or rose), and A. Honorine Jobert (pure white), but if Grant Allen's scale of colour variation be the true one, then the white form ought to be the original wild type in Japan or China, and if so, one could the more readily understand both the purple and the rosy varieties reverting to white, as they assuredly appear to have done.

No doubt Anemone japonica is really found in Japan, as stated by "D. K." (p. 172), and the original description or figure seems to be that in Siebold's "Flora Japonica," but the fact remains that Fortune originally introduced the plant from Shanghai, and infers that both it and Cryptomeria japonica were wild, although the context goes to prove that they were both cultivated on graves, and both may originally have found their way from Japan to Northern China. If it be true (and I could give much evidence to prove the fact) that flower-colour was originally green or yellow, passing to blue through all shades of pink, rose, red, and purple—then, of course, we must consider the white varieties, not as albinos, but as the more primitive or typical forms of a species. It is practical and convenient to consider the plant first seen or introduced as the typical one, but, as I imagine, no one learned in plants would for a moment uphold that it is so in Nature, although we so find it in books.

The two varieties figured in THE GARDEN at p. 172 are A. japonica alba (Honorine Jobert of the French) and A. japonica hybrida, the plant certainly raised by Mr. G. Gordon, and possibly also by Mr. Niven when in charge of the herbaceous plants at Kew. The most cursory glance at the figure shows that the white form is by far the most typical of the two, and I should not have the slightest hesitation in deciding on this white plant as being the typical, *i.e.*, oldest form of the species, and that it has originated from root-sports under cultivation only makes it the more probable that these were simply cases of reversion to an ancestral white type, which I have no doubt will some day be found to exist in China or in Japan. Mr. Miles' pertinent queries have cost me some little time and trouble, but I wish we had more amateur gardeners of his insight and calibre. These stately Japan Windflowers are so beautiful and long-enduring when well grown, that no trouble taken on their behalf, or in the interest of those who grow them, can be wasted. Some of our Kew correspondents have ample records at their disposal as to the history of these flowers, and I hope they or others interested will help us further in this matter.

VERONICA.

DAHLIAS IN NOVEMBER.

ON the 1st of November our beds of single Dahlias were almost more fresh and gay than they were at midsummer. In many respects the flowers are improved. They are larger, more brilliantly coloured, and last longer. The hot dry weather which prevailed in the summer rushed the single Dahlias out of bloom into seed pods at a speed to run them almost wholly out of bloom unless persistently picked off almost daily. Never do I remember the flowers to have been so numerous or short lived. Even after cutting, the fever in the blood seemed to pursue the blooms in vases or glasses into cool rooms, and cause them to fade almost as soon as gathered. But now, as "A. D" points out, p. 401, the flowers last much longer. Nor is the additional durability of cut blooms in the autumn or winter at all confined to Dahlias. It may also be seen in the plants so far removed from each other as the Rose and the white Brugmansia. The durability of autumnal or winter Roses must have been noted by all familiar with them. Nor does this arise from mere change of temperature, as the external surroundings of late Rose blooms in heated rooms, and their transference from the cool external air to these is all against their durability. What may, for lack of a better phrase, be called the ebb tide of life is probably the chief cause of the longer endurance of autumnal or winter blooms. The Brugmansia suaveolens is well known as one of the most fugitive, as well as fragrant of blossoms. During its heytide of growth and vigour in summer its blooms will hardly last fresh for three hours after cutting; now they will stand for twenty-four, thirty-six, or even forty-eight hours. Returning to our Dahlias, the Pompons have almost bloomed themselves out, and the few large bloomed varieties are in a similar plight, though both are producing young shoots in late summer-like profusion, while the single and the Cactus are still in their full glory. The Cactus has more blooms open on this first day of November than it has had at any time throughout the season. Has anyone grown the Cactus Dahlia in a suitable, that is something like a summer temperature under glass, and with what result? It has much the character of an evergreen ever-blooming plant, and, as a rule, shows no sign of resting from its twin labours of growing and flowering until frost cuts down its promising harvest of perpetual verdure and beauty. Permit me to thank Mr. J. T Poë (see p. 406) for his useful method of starving and pinching the Cactus Dahlia into bloom. I have also found that the older the tubers, the more severely divided, and the poorer the soil, the more bloom in proportion to the shoots. Mr. Poë's mixture with the white Japanese Anemone is as perfect, from an artistic point of view, as it is likely to be in checking or suppressing the over-hasty habit of shoot-growing that hides up the perfect blossoms of the Cactus Dahlia beneath the leafage and buds of their successors.

HORTUS.

Michaelmas Daisies.—The three best of these which have come under my notice are A. ibericus, Madame Soymier, and grandiflorus; to my mind these have better qualities than most others. A. ibericus, which comes either from the Pyrenees or the Caucasus, I am not sure which, flowers early—

about September—grows from 1 foot to 2 feet in height, and has large and well shaped bright blue flowers, in which there is just a tinge of purple; compactness, good colour, and evenness of flowering are its good qualities. Madame Soymier is, as far as I know, an accidental sport from lævigatus; it is a very dwarf plant and a most profuse bloomer; the flowers, which are small, are of a bluish purple colour. A. grandiflorus is one of the latest to flower; even here we must pot it in order to enjoy its flowers, which are large and of the brightest possible violet. It is not so coarse as A. Novæ-Angliæ or Novi-Belgii, and the foliage, too, is of a better shade of green.—MAX LEICHTLIN, *Baden-Baden.*

CLIMBERS ON TREES.

THE grace, verdure, beauty, and sentiment of the Ivy on the Oak have passed into poetry and proverb. It cannot, perhaps, be exceeded nor even matched in natural beauty and prodigality and grandeur of artistic effect, unless by the wild Clematis or Traveller's Joy. The latter, when it reaches its white fluffy state of winged seeds, hanging in downy-like masses from far-reaching boughs, reigns supreme along our hedgerows and through woodland glade, and forest. Magnificently effective as both Ivy and Clematis are universally admitted to be, it seems singular that so little has been done to artificially drape trees and shrubs in our hedgerows with a greater variety of creepers or climbers.

For example, in the two families of plants already named we have almost every conceivable size and colour of foliage, flower, seed, or berry; and yet how seldom one finds the variegated-leaved Ivies, or the smaller bloomed species of Clematis, such as the Virgin's Bower or C. Flammula, with its varieties, and such species as Viticella, azurea, to say nothing of the finer garden hybrids, draping trees and shrubs in pleasure grounds or home woods. And yet the Virgin's Bower, with its marvellous sprays of white star-like blossom drooping from tree to tree or branch to branch, with its delicious Hawthorn-like perfume, is simply perfection. The larger-flowered Clematis might be objected to as being on the whole, too tender or too large-bloomed for the draping of trees and shrubs. Not a few of the latter, however, are worthy of a trial tentatively, a few sprays of C. Jackmanni escaping from the shoots of the silver-leaved Maple being an example in point worthy of repetition to any extent. But no objection can be urged against the smaller-blooming species, nor the rich varieties and species of Ivy we possess, with leaves of all sizes and of every hue of colour from the deepest golden to the purest silvern. What could afford a more welcome surprise than a few branches of either escaping from the verdant branches of a Pinus insignis or a dense mass of Yew boughs? But some will exclaim that the Ivy would check the growth or undermine the health of such plants. It might, were it left in undisputed possession; but the object is not to smother the trees nor shrubs of value either with Clematises, Ivies, or other climbing plants, but simply to use the latter as drapery for the former; and thus used, little or no harm need be done to the trees by the draping plants. And there are many other classes of climbing plants that could hardly injure the plants they were grown upon. Among the latter, perhaps the most valuable and brilliantly effective are the different species and varieties of Virginian Creeper and Grape Vine. The old Virginian Creeper (Ampelopsis hederacea) rambles freely among shrubs or climbs up trees, and the new species, Veitchi (A. tricuspidata), is yet more chaste and beautiful. The latter is a true climber, grasping hold of stems or branches like Ivy, while the other holds on or climbs by its tendrils. The foliage is also widely different, though the leaves of the latter vary so widely in size as to constitute a marvellous variety in itself. Either of these plants form the richest drapery to shrubs and trees, and I have frequently directed attention to the brilliant combinations which they form with Hollies, Yews, and other plants. And then we have for perfume as well as colour the different climbing Honeysuckles; Caprifolium, in several species and variety, and Lonicera fragrantissima and others, as well as Wistarias, Jasmines, &c., all in their many species and varieties more or less adapted for the draping of trees and shrubs. Nor must other and more fragile plants be omitted. Perhaps the richest draperies ever seen by the writer—and they were both exhibited on a deep dense background of Yew—were formed of the old Canary Creeper in the one case, and in that of the other by the more brilliant-coloured Tropæolum speciosum. Even the old Convolvulus major and the all too seldom seen Eccremocarpus scaber can make a brave display of colour and drapery on low trees and shrubs. But these are mere samples, as it were, of the rich stores of suitable materials that lie ready to our hand. With Roses, Brambles, Deadly Nightshade, Bryony, Pyracantha, the more delicate type of Barberry, such as the common, Darwini, Wistaria, &c., there is no doubt but that our home woods, hedgerows, and shrubberies might easily be lightened up with some features of interest and beauty at a trifling cost without permanent injury to either trees or shrubs. D. T. F.

BLUETS.

(HOUSTONIA CERULEA.)

MANY are the good plants from the Northern States of America that have enriched our gardens of late years. The little Bluets, shown nearly

Bluets (Houstonia cærulea). Engraved from a photograph for THE GARDEN.

full size in the engraving, is a gem for a cool spot in the rock garden in sandy peat, where it thrives and grows apace, and goes on flowering nearly all the summer. The typical form has flowers of a pale blue colour, but the white variety is most frequent in cultivation in England, and is rather the prettier plant.

Dahlia Anne Harvey.—It may be interesting to some of your readers to know that Dahlia Anne Harvey, which lately received a first-class certificate from the Royal Horticultural Society, is probably one of the oldest of the section to which it belongs. I found it in Cornwall some years ago in the cottage garden belonging to an old lady who took great pride in her plants, and who grew them very well indeed. After growing it for two years I sent blooms of it to you, and you spoke favourably of them at the time. In 1883, I think, I sent the stock of it to Mr. Ware, of Tottenham, and he catalogued it the following year. As far as I could learn, it had been in the same garden for over twenty years, and I have no doubt it would never have gone any farther had not the present healthy taste for good things, which do not commend themselves to the eye of the florist, but which are nevertheless acquisitions to the garden, set in. It is a robust grower, though not tall, and the dark crimson colour and velvety look of the blooms make it a very striking variety.—JOHN C. TALLACK, *Ascot.*

Tricyrtis hirta.—You gave this plant such a bad character a year or two ago in THE GARDEN, that I am tempted to send you a spray of its flowers which I have just picked from an open border, and I think you must admit that as a hardy plant in flower on November 1 that you hardly did it justice when you said it was useless in English gardens. I think, too, that you will acknowledge that there are many Orchids grown in a costly manner not half so beautiful as this Tricyrtis. I find this plant to thrive best in a rather dry and poor soil. In a rich soil it grows so strong, that the flowers are late in opening, and then early autumn frost spoils them.—J. C. C.

*** The spray sent bore twelve large and handsome flowers, but, as we remarked in our last week's issue, it should be grown in pots, and placed in a cold house in the autumn in order to preserve its flowers from such weather as we are now experiencing.—ED.

Tree Carnation La Neige.—I have pleasure in forwarding a bloom of the above for your opinion. It is somewhat past its best, as you can see the stamens have begun to decay, but I think it is bound to rank as one of the very best pure white Tree Carnations. The habit is remarkably dwarf, the plant being only about 16 inches high and extremely free flowering, considering the size of its blooms. You will observe how nicely the calyx retains its normal condition.—JOHN KNIGHT, *The Oaks, Epsom.*

*** The flower sent is certainly of very high quality, being pure white, and measuring about 8 inches in circumference, whilst the calyx is stout without any sign of splitting.—ED.

TREES AND SHRUBS.

PRUNING SHRUBS.

ALL fast-growing common things, such as Laurels, should be pruned back annually to keep them within bounds. Too often they are left to encroach upon other and better things near, until both are injured. Laurels are often planted as nurses, and they are, by reason of their rapid growth and dense, warm habit, well adapted for this work, But their growth must be watched and a check applied when necessary, or they will monopolise the whole space. In all cases where the work is done regularly and no large limbs have to be removed, the work may be done either in autumn or winter; but if the saw has to be used it will be better to delay the pruning till March, doing it just as the sap is rising. The reason for this is, if large branches are cut off in winter and a severe frost comes the stumps may die. I have more than once seen old shrubs killed through being headed down in winter, but this does not apply to any knife-pruning which may be necessary, as merely shortening back the young shoots does not expose the vital principle of the plant to injury like the drastic measure of cutting off its head. All evergreen shrubs, including the dwarf Coniferæ, such as Arbor-vitæs, Yews, Cypresses, &c., which require putting into shape with the knife, may be seen to now, and special attention should be paid to the regulation of the leaders, and to the pruning back of any common plant that is encroaching upon a choice specimen. By keeping in check the common things and encouraging the Hollies, Conifers, and other trees and shrubs of slow growth and ornamental character to develop, a marked improvement might be effected in many places. Deciduous flowering shrubs should as a rule be pruned as soon as they have done flowering; if pruned now, some of the best blossoms will be cut off. I am referring more especially to such fast-growing things as Lilacs, flowering Currants, and Syringas. In pruning the dwarf Conifers, and in fact all Evergreens, always prune back to the base of a young shoot, which

will ferm the leader and still leave a good surface of foliage, and avoid that ragged stumpy effect which an unskilfully pruned shrub presents. If the pruning is done properly no cuts or wounds ought to be obtrusively visible.—E. H.

—— From the beginning of November until the end of March is the season when this operation is most generally practised, and although no hard and fast lines can be laid down as guides to cutters, there are some points which should be strictly avoided. The shears should never be used in cutting any tree or shrub unless they form a hedge. To save time in cutting and make the specimens appear neat, many fine, free-growing subjects which would assume naturally growth of the most graceful and pleasing description are clipped round and round until they become so artificial in appearance that one would never think they had grown at all, but were made to a design by some mechanic. It is this style which should be avoided above everything, and in the place of the shears let the knife only be used. With this, a tree or the outer branches of it can soon be reduced in size, and by cutting the branches which protrude, the inner ones will still be left with their points entire, and it is these which will sustain the natural-like aspect of the tree. In many cases bushes grow so near the edge of walks that they soon become an obstruction, and a common way of dealing with these is to clip them back annually until they form a thick and high hedge-like erection on the very edge of the walk. Now, these "little hedges" here and there never formed part of the original design of the garden. They are modern innovations of a most objectionable form, and they should never be allowed to exist. It may be they are valuable kinds of trees, and the fear of cutting them hard in has led to their assuming perpendicular faces on one side, while the other may be growing naturally and in curious contrast to it; but all owners of such may rest assured that if the knife was used judiciously, the upright face cut away, and the overhanging part made to recede, the tree would quickly assume a pleasing natural form, and the whole aspect of the garden would be much less stiff and formal than when disfigured with dots of hedges.—J. Muir.

Cotoneaster Simonsi.—In reply to the inquiry (5529), I may say that it is useless growing this plant against a wall, pruning it back close, and expecting it to bear berries. The plant is unfitted for a wall; it is not evergreen. Cotoneaster microphylla had better be used. This is evergreen, berries well, and if a plant of Jasminum nudiflorum be planted to grow with it, the contrast of the yellow flowers of the one with the crimson berries of the other will in about a month, or before, be a perfect sight of plant beauty. Simonsi is a beautiful plant planted where it can have room to grow, without being spoiled by pruning. I have a large number of Simonsi planted in this way. A knife has never touched any. They are now covered with scarlet berries, and when frost comes the foliage changes to the most beautiful tints of scarlet, yellow, brown, black, and green of all tints; but there must be full exposure, no shading by trees, and a south or south-west aspect.—K. K., *Tuddyforde, Devon.*

The Acers, or Maples.—These are all highly ornamental; natives either of Europe, North America, or the temperate parts of Asia, including China and Japan, and, with the exception of a pinetum, nothing could be more interesting than an aceretum, for among broad-leaved trees, few families display greater variety or grow more rapidly under ordinary treatment than the Maples. Some of them, such as Acer macrophyllum, eriocarpum, neapolitanum, and the common Sycamore, form rapid-growing, large, and lofty trees, while others, such as A. monspessulanum, opulifolium, and Opulus, are only round-headed low trees. The beautiful Acer Lobeli assumes a pyramidal form, somewhat resembling that of the Lombardy Poplar, while Acer cretieum and heterophyllum are nearly evergreen or quite so in mild seasons; again, others have fine variegated foliage, or leaves of as deep a hue as that of the purple Beech, or so dissected as to resemble some of the smaller Ferns. The leaves of many of them, too, just before they fall in the autumn either change to a bright crimson, golden yellow, or chestnut-brown, clothing the trees in brilliant colours, which only the American Oaks can rival.

PINUS INSIGNIS.

I GIVE here the dimensions of a young Pinus insignis which was blown down by the severe gale on the 14th of last month. It was one of a batch of seedlings raised in the spring of 1877, and finally planted out in a good situation in November, 1879. The height of the tree is 30 feet, and the circumference of the stock at the base 28 inches. We have several hundred trees of the same age, which, although in very exposed situations, stand remarkably well, many being on our Devonshire hedges, which are banks of soil 5 feet or 6 feet high, and 3 feet to 4 feet wide; but, in order to ensure their withstanding wind in a young state about October, a man goes through the whole of them with the secateur and thins them considerably, reducing the small inner branches so as to make them appear similar to a well-grown plant of Pinus Laricio. If this were not done they would become so dense, owing to their rapid and luxuriant growth, that they would not be able to stand our south-westerly gales, which have a twenty-five miles clean sweep from Dartmoor. Our young stock is transplanted every year, and yet they grow rapidly. This ensures first-rate balls of roots, and incurs no danger at planting time. Last March I planted several 10 feet high in very sunny and exposed situations, which stood the hot summer weather with impunity, and had no attention as regards watering, yet they are as good a colour as those planted several years before. John Garland.

Killerton, Exeter.

Laurustinus hedges.—One of the prettiest features belonging to gardens on the south coast at this time of year is the hedges by which they are surrounded. They frequently consist of the common white-flowered Laurustinus, that shows dense masses of white flowers just as other flowers are getting scarce. The hedges are formed with plants, put in about 1½ feet apart, and being kept trimmed into shape from the first, they soon form effective hedges. The growth made is short and stubby, and consequently the flower-heads are innumerable. There is a great difference in the dates on which such hedges flower in different seasons. Last year, owing to cold weather setting in early and continuing late, their blooms were not fully expanded until spring; this year, thanks to a more genial autumn, their flowers are already fully expanded, and they give quite a summer look to the gardens, in which there is still a good display of tender summer flowers, such as Dahlias, Heliotropes, Pelargoniums, Chrysanthemums, and even already spring-flowering Primroses and Violets. The Laurustinus is also freely used in mixed hedges that are also popular here, consisting of such plants as Escallonias, hardy Fuchsias, Euonymus, and old-fashioned Cabbage Roses, all mingled together with good effect. By cutting them with a knife instead of with shears, such plants as these answer all the purposes of a hedge or screen, and add considerably to our store of flowering plants, as, where gardens are limited, even their hedges may be made effective.—J. G., *Hants.*

Elæagnus rotundifolia.—This is a most interesting species. We have a plant of it here from 4 feet to 5 feet in height, which is annually covered with pretty scarlet and amber-coloured berries. It is perfectly hardy, having stood out in a western aspect without any protection since the autumn of 1872. The undersides of the leaves are silvery, which is more distinct on young foliage than on that which is older. The berries, which hang on long stalks like Cherries, are produced on the last year's wood; it has never produced berries here before, probably from the fact of its not being sufficiently established. It seems to be easily propagated by means of layers, and is a shrub which should certainly be in every garden.—T. T.

Spiræa bella.—This beautiful species forms an open and rather loose-growing shrub, from 3 feet to 4 feet high, which throws up strong shoots annually from the ground, that in the following season produce laterals, terminated with loose corymbs of pretty deep rose-coloured flowers in May and June. The leaves are alternate, on longish foot-talks, ovate, acutely pointed, sharply serrated, light green, and smooth on the upper surface, somewhat glaucous beneath, with the peduncles and principal veins on the under side pubescent. The stems are somewhat diffuse, flexuose, reddish, and branching; branches, loose, slender, spreading, and downy. The fruit is ripe in September. It is a native of Nepaul and Bhotan, where it is found in ravines and mountain-woods, at an elevation of from 5000 feet to 9000 feet. It is perfectly hardy, grows freely in any common garden soil, and is easily increased either by cuttings or by means of suckers, which, if separated in the autumn, soon make nice plants. It was introduced in 1820.—G.

Calophaca wolgarica.—This forms a pretty, slender, spreading, deciduous shrub, from 2 feet to 3 feet high when on its own roots, but when grafted standard high on the Laburnum, it forms a very singular and beautiful object, either when covered with its yellow blossoms in June, or with its fine reddish pods in August. It is a native of Siberia, where it grows on dry gravelly hills near the rivers Wolga and Don. It was first introduced in 1780. It grows well in any good garden soil, and is increased either by grafting it on the Laburnum, or by means of seeds, which are produced freely in most seasons. The leaves are alternate, pinnate, and terminated by a small acute spine-like point, and a pair of lanceolate stipules at the base; the leaflets are small, orbicular, and entire, with a small acute spine-like point; they are smooth on the upper surface, velvety beneath, and mostly in seven opposite pairs. The flowers are pea-shaped, bright yellow, and produced in axillary pedunculate racemes, containing from seven to ten flowers. The legumes or pods are oblong, somewhat cylindrical, with a sharp bristle-like point, and stalkless; when young they are beset with soft hairs, mixed with stiff glandular bristles, and are of a bright reddish colour; the seeds are ripe by the end of August. Its synonyms are Cytisus wolgaricus and pinnatus.

Missouri Silver Leaf (Shepherdia argentea).—This shrub forms a striking and very elegant, silvery-looking, compact shrub of slow growth, but which, under favourable circumstances, will attain a height of from 6 feet to 8 feet. It is a native of North America, particularly along the banks of the Mississippi and Missouri Rivers and their tributary streams; is easily increased by the underground suckers, and grows well in any good garden soil that is not too dry. It was first introduced into this country in 1818. The leaves are alternate or opposite, ovate or ovate-oblong, rounded at the ends, glabrous on both surfaces, greyish green above, but quite silvery and dotted all over with rusty brown scales beneath; they are from 1½ inches to 2 inches long, and from 1 inch to 1½ inches broad, and are produced early in the season. The shoots and lesser branches are of a deep rusty brown colour, and furnished at the base of each of the lower leaves with flower-buds. The flowers, which are produced in April, are small, yellow, axillary, aggregate, and unisexual, or each sex upon a distinct plant. The female flowers are bell-shaped, equal, flat, and smaller than those of the males, and produced on short peduncles in racemes at the end of the branchlets; while the male ones are lateral, aggregate, and in groups that resemble a catkin. The berries, which ripen in September, are scarlet, transparent, acid, and about the size of the Red Currant, but richer in taste. They are much relished in America, where they form one continued cluster on every branch and twig of the plant, and are called Buffalo Berries, and Rabbit Berries, and (by the American Indians) Beef Suet. The Shepherdia argentea is well adapted for small places, or for the front of the shrubbery; but as the sexes are pro-

duced on different plants, it requires to have a plant of each sex placed near each other, or, what is better, so close as to form but one bush, or no fruit will be the result.

PENDULOUS CONIFERS.

Nearly all Conifers have a semi-pendulous or drooping aspect when young, as is well exemplified in the case of the Deodar Cedar and others, but afterwards as they attain age and size they lose it, and assume their usual or natural forms. The number of really pendulous Conifers is therefore by no means so numerous as might be expected. One of the most striking of the pendulous varieties among the Larches is the Godsall Larch, which, when grafted standard high on the common Larch forms a striking and pretty object on a lawn. Lawson's pendulous Larch is another form of the common Larch which in general appearance resembles the pendulous American Larch; this kind when large forms a drooping tree with horizontal or extended branches, the lower ones of which frequently reach the ground. It is a native of the Tyrolese Alps. The pendulous American Black Larch (Larix pendula) is the Hackmatack of the American woodcutters, and is found in the coldest districts from Canada to Virginia. The wood of the Hackmatack is superior to that of the common Larch for lightness, strength, and durability. Smith's Inverted-branched common Spruce is a very singular variety, in which the leading shoot staightens itself in the old wood, after the manner of the Deodar Cedar; the lateral branches on old trees are as drooping as those of the Weeping Willow; it is superior as regards its drooping habit to all the other pendulous forms of the common Spruce. Abies canadensis gracilis is a very distinct variety of the Hemlock Spruce, with long, slender, little-divided, and drooping branchlets, furnished with very small leaves; it is a very distinct and desirable variety. A. L. S.

The Siberian Salt Tree (Halimodendron argenteum).—This is a capital sea-side shrub, but thrives equally well in any good soil, and if a little salt be given old plants of it occasionally, it greatly improves their growth. This plant is propagated by means of seeds, by cuttings of the roots, and by grafting it on the Laburnum or the arborescent Caragana. When the latter, however, is used for the stock, it is apt to throw up suckers close to the ground, and, therefore, it is not so good for the purpose as the Laburnum, which does not do so. The name is derived from "halimos," maritime, and "dendron," a tree, in reference to the plant growing naturally in salt fields and saline steppes near the river Irtysh, or Irtish, in Siberia. It was first introduced in 1779. It forms an irregular, much-branched, deciduous shrub, from 4 feet to 8 feet high, when planted in the open border on its own roots; but when grafted standard high on the common Laburnum, it forms one of the most graceful drooping plants that can adorn a lawn or shrubbery. The leaves are alternate, abruptly pinnate, with two pairs of small leaflets, clothed with a whitish silky down, deciduous, and with the petioles and stipules spinose. The flowers are of a fine rosy purple, sweet smelling, pea-shaped, tolerably large, and produced in great abundance on two and three-flowered peduncles, from the end of May to the middle of July, or even later, if the season be moist. The young plants, however, flower but sparingly at first; but when they attain size and age they bloom profusely. The pods are inflated, or bladdery, hard, ovate, brown, and contain but few seeds. Its synonyms are Robinia Halodendron, Caragana argentea, and Halodendron argenteum.

The Nepaul Beam tree.—The subject of adapting the size of trees to the extent of the grounds in which they are to be planted is one which is very generally neglected, notwithstanding its great importance; for almost everyone who plants a garden of a few rods in the neighbourhood of towns, finds in eight or ten years afterwards that a few of the coarser-growing trees have attained to such a size as to smother everything else, and to render it altogether impossible either to have smooth turf or healthy flowers. Now the Pyrus vestita is one of those small trees which are most suitable for planting in such places, not only on account of the beauty of its foliage, but also on account of its growing rapidly till it attains a height of from 15 feet to 20 feet, and becomes comparatively stationary for some years, forms a splendid small tree from 20 feet to 30 feet in height, which flowers in May and June. It is a native of Kumaon and Upper Nepaul, at elevations of from 9000 ft. to 12,000 ft., and was introduced in 1820. The leaves are very large, ovate-acute or elliptic, acutely crenated or coarsely serrated towards the points, on rather long foot-stalks; and when they first appear, which is very late in the season, they are clothed with a thick white coating of wool, but as soon as the warm weather advances they throw off their fleecy coat on the upper surface, and at length become smooth and of a glossy green. In the autumn, before they drop off, they assume a fine pale yellow colour. The branches are whitely tomentose when young, but smooth when old. The flowers, which are numerous and white, are borne in branched terminal woolly racemose corymbs. The fruit is round, tubercled, glossy, and about the size of a common marble, and greenish brown when ripe in October. The following are the synonyms under which it is often sold: Pyrus crenata, lanata, and nepalensis.—G.

Rose Garden.

ROSE STOCKS.

I am glad that "T. W. G." has spoken out so freely on the subject of the Manetti stock, and I hope many will see in his remarks the cause of their failure in Rose culture. I have observed the behaviour of the Manetti in a variety of cases. When treated in the ordinary way it has generally proved a failure. My own experience of it (and I have experimented with it in various ways) is, that it is worthless unless the plants are worked where they are to remain. Thus dealt with, they keep longer in vigorous condition than they do when treated in any other way, but I have never lifted any from nursery quarters and transferred them to another site without losing a considerable number in the third or fourth year. It appears to me that they resent removal.

With regard to seedling Briers, I think that "T. W. G." sets a higher value on them as stocks than they deserve. No one could look upon a plantation of seedling Briers in a rather poor soil at the end of July and come away impressed with them as suitable stocks for vigorous Roses, especially if the weather should have been hot and dry a fortnight previous. They are then invariably smitten with such an attack of mildew, that it is very certain the energies of the plants must be terribly crippled; and although, as "T. W. G." says, they grow out of it, plants so affected at the beginning cannot, under any circumstances, prove to be sufficiently vigorous to sustain robust growth. The germs of such a troublesome disease do undoubtedly lurk about them, and are carried with them to their new homes. It is clear to my mind that the seedling Brier is nearly as great a failure as the Manetti. I am supported in this opinion by the fact that during the past fifteen years many thousands of Roses worked on the seedling Brier have been distributed all over the country; yet there is the same outcry of Roses dying every year as there was before seedling Briers were introduced, and I do not think we want any better evidence of their unsuitableness.

It is, I think, time that rosarians generally began to acknowledge the fact that there are many Roses that are not influenced in their growth after the first two years by any stock, whatever its character may be, a remark which applies to the Tea-scented varieties as well as to Hybrid Perpetuals. Take, as an instance, that old favourite Rose Devoniensis; did ever anyone see this Rose growing better on an alien stock than on its own roots? Amongst Hybrid Perpetuals I may mention La France as a variety not influenced by any stock on which it may be worked for a longer time than I have mentioned. I therefore maintain that we gain nothing by using any kind of stock, except in the case of standards, but that is no reason why a suitable stock for Roses should not be forthcoming.

Own-root Roses hardly, perhaps, belong to the subject under discussion, yet they are closely connected therewith, and on own-root plants I claim to speak with a certain degree of authority, as I have been a raiser of them for many years. I can now point to some beds of them that I planted twenty years ago; these are as luxuriant now as at any previous time, and show plainly that we can do without stocks altogether; by doing so we get rid of the annoyance of plants dying in a year or two after they are planted. Out of 130 plants which it took to fill the four beds just alluded to, I cannot remember that I lost more than one plant, yet many of them continue to make shoots upwards of 6 feet in height, and thus the beds are a perfect thicket of shoots made during the past summer. Many lay stress on the statement that Roses do not thrive on their own roots, but my experience is that those which are weak growers as own-root plants are equally weak the second and third year when worked on stocks. As to the merits of own-root plants, the plain fact is this: People have not patience enough to allow them to get established before they condemn them. I am aware that one cannot get a large plant from the most vigorous growers under four or five years, and that there are some which never attain a large size; but then as a set-off, when they reach that stage they still increase, and one is in no trouble about a severe winter killing them, as the crown will be safe if the branches are injured; and as to plants budded on any stock, more than half the number are dead or dying by the time when own-root plants have got to a useful size. Every year's experience with own-root plants shows that, in the case of weak growers, they will grow equally well on their own roots as when worked on a stock, and that instead of dying altogether they slowly acquire more vigour, and last a lifetime if fairly well treated. Who can say as much in favour of budded or grafted plants? J. C. C.

ROSE JOTTINGS.

In many gardens the Rose is the dominant flower; in some it monopolises a good deal of the space and time at the disposal of the amateur cultivator, and to the enthusiast who can only afford one hobby, I should certainly recommend the Rose if he is in a position to do it justice. But the Rose must be treated liberally, for the large, full, globular flowers with thick fleshy petals cannot be built up on a starveling diet. The site must be well drained, as stagnant water means death in a cold winter. A good depth of loamy soil is essential to obtain the best results, and the manure-heap must not be stinted. The manure should be suited to the land, giving the cool, moist manure to the light land, and the drier, warmer stable manure to the cold, heavy soils. Night soil, if the land is light and poor, is a good application when it has been mixed with earth for a few months. Very heavy clays in their raw state are not suitable for Roses, as they hold so much water and are so cold, and we must bear in mind our cultivated Roses are, for the most part, of Eastern origin. But heavy, cold clays may be so improved by draining, burning, and manuring as to produce Roses of the very best quality, and it is easier and cheaper to do this ameliorating work before the Roses are planted than to find we have made a mistake and be compelled to do it after a failure. The Rose, with rare exceptions, does not take kindly to formal gardens, though a standard Rose may be used occasionally to form a central object in a bed; but when this is done the tree must be a healthy one and the variety a free bloomer. Gloire de Dijon fulfils this con-

dition exactly, but the number of varieties suitable is limited.

Standard Roses must have a sheltered situation. When blown about by the wind they are in a most unhappy condition. Though a few standard Roses may be admissible as centres and backgrounds, the bulk of the plants should be dwarfs, and as many as possible should be on their own roots, either rooted from cuttings or budded low down on the Brier, and the stock completely buried in planting. If this is done, the plants will in a couple of years be firmly established on their own roots. If the Manetti is the best stock for poor soils, it is not the best where the ordinary Dog Rose will grow freely, and if the wild Dog Rose is plentiful in the hedges or woods in any district, the hint supplied by Nature should be taken. The best way of improving light soil is to cover it 2 inches or 3 inches thick with clay, leave it exposed all winter, and in the spring fork it lightly in. By sheer force of gravity the clay will gradually work downwards; therefore, it would be a mistake to bury it deeply. There are many ways of arranging

Groups of Roses, and if full and free, they never come amiss anywhere. They do not associate well with formal figures, but well furnished masses on Grass are always beautiful, and in such positions we can get close up to them to cut a bud or examine and admire their beauty without treading the soil over their roots into a quagmire. An informal group, 6 feet or 8 feet or more in diameter, planted full enough to hide the soil in the Rose season, with the turf growing up to the stems, would be a much pleasanter object to look upon than many of the plantations are now. For such groups to be admissible on the lawn, dwarf Roses alone should be employed, and they should consist of the free-growing, vigorous varieties only. John Hopper, Jules Margottin, La France, Gloire de Dijon, Souvenir de la Malmaison, General Jacqueminot, Dupuy Jamain, Charles Lefebvre, Baroness Rothschild, Marquise de Castellaine, and Paul Neyron are some of these. And a full, thick bed of Tea Roses in a warm sheltered corner is a pleasanter sight than any number of Pelargoniums; but the soil must be made suitable and the plants set almost close together. The following are a few good varieties: Anna Ollivier, Catherine Mermet, Devoniensis, Etoile de Lyon, Homère, Jean Ducher, Madame Falcot, Madame Willermoz, Souvenir d'un Ami, Innocente Pirola, and Niphetos. November is the best time to plant all Roses except Teas; the latter should be kept under shelter till April. Teas on their own roots are hardy enough, as by mulching with dry litter or Moss they will be perfectly safe. It will be better to defer the planting of all Roses till March rather than plant in badly prepared beds; still, the late planted Roses do not overtake the early ones, at least during the first season.

Rose exhibitions.—I have gone through the grounds of most of the great exhibitors, and I have looked over nice collections where a green box was unknown, and where the idea of exhibiting, otherwise than as they grew or in great armfuls as they were cut, never cropped up. The exhibition list is a field of battle for which some natures have a strange love. There is a thrilling kind of joy in winning prizes at an exhibition of Roses—I should say somewhat akin to the triumph felt by the gladiator in ancient Rome when he stood ever his vanquished and prostrate foe. I have often watched the flushed face and the bright eye of the successful exhibitor as he hung over his boxes of flowers (before he had been spoilt by repeated victories) after the battle had been fought and won; and I have contrasted his joy with his nervous, restless manner on the morning of the show just before the judges went round. But when the battle had been fought and won, what then? Why, many go home to empty, flowerless beds, and must live—like the beauty who has won many conquests and yet remains single—upon the contemplation of past victories, for the present has but little to give us, and the future, though full of hope, is yet far away. Rose shows have undoubtedly done much for the Rose, but by far the most delightful gardens to visit are those where the Roses are grown for their own beauty and sweetness, and to cut for the rooms, and to give away in large bunches to friends. And in the full flush of the Rose season, the more we cut them, the more they flower; for the back buds break away and the young shoots that emerge therefrom come laden with buds, which quickly expand into globes of beauty and sweetness. Disappointment and discomfiture often await the exhibitor, and none but the strong fight the battle to the end, yet it is good for all of us to have difficulties to grapple with and overcome, for thus only can really successful progress be made. The best Roses for exhibition are not, as a rule, the best garden Roses, but still there are very few winning stands but which contain not a few of the most prized varieties for general purposes. Take, for instance, the beautiful old Gloire de Dijon; it is not often left out of the winning stands, not because it is perfect in shape, but because it is so reliable and never fails. La France, Charles Lefebvre, Glory of Waltham, and many others are good garden Roses, and also useful on the exhibition table. Some people have an idea that it requires the expenditure of a good deal of money to set up a collection of Roses, even in a small way, but this need not necessarily be so. The land certainly must be well done; it will probably cost as much to prepare the land as to buy the Roses, but even then in a small way the expenditure will not be ruinous. Of course, if a person wants to begin Rose growing in a large way at first, he may very likely be called upon to disburse largely, but anyone, if fairly intelligent, may begin with a small, useful collection of some thirty or forty varieties. Study their habits, read about them in the papers, and learn to bud and graft, and to love them, and with that love will come the necessary knowledge to enable him or her to grow good flowers, and, after a few struggling seasons, to win prizes with them. I had the pleasure of riding by rail one day last summer with a man of this class, who had struggled up from the bottom round of the ladder. I could see by the green boxes he was looking so carefully after that he had Roses in them, and was on his way to a show, and I could see that he was an amateur. My friend said he had taken prizes at the Crystal Palace and other large shows, not, of course, in the premier classes, but in the twelves and twenty-fours, and occasionally at a local show going in for thirty-six, but that was the utmost limit. And, he said in reply to my question, that he never spent after the first year more than a sovereign in any one year for new Roses, but he was very select in his purchases; he never bought a new Rose till it had been proved to be suitable for his purpose. And, as regarded his time, he never counted that anything, as he put the benefit to his health derived from his hobby against his time and work. He said his Roses often caused him to rise several hours earlier in the morning than he should otherwise have done, and he found himself the better for it. He began, like others I have known, in a small way with some four or five dozen plants, and then he procured some Brier stocks, and at the proper season amused himself with budding, and then only bought such new Roses as took his fancy. E. H.

Rose Cheshunt Hybrid.—This Rose merits all that has ever been said in its favour. It is one of the best of growers and freest of flowerers. Many treat it as a dwarf bush or as a standard, but it is as a wall plant it displays the greatest amount of merit. As a climber it possesses all the good qualities of Gloire de Dijon, and as a pair they are unique. Cheshunt Hybrid begins to bloom in early spring, and never ceases until winter sets in. It is the *alpha* and *omega* of bright-coloured Roses, and should be largely introduced and grown as a wall, pillar, or as an arbour Rose in the open. In small gardens, where varieties are limited, and good varieties only should be found, this variety should stand first on the list. Nothing could be more satisfactory than the profuse way in which it flowers; the successional blooms are as bright as those produced in the first instance, and their size, form, and fragrance are all first-rate. It is generally classed as a Tea-scented variety, the blooms of which are cherry-carmine, large, full, and, as has been stated, finely shaped. It is excellent for cutting in large quantities, and should be included in every collection of Roses.—J. Muir.

Garden Flora

PLATE 570.

ANTHURIUM SCHERZERIANUM AND ITS VARIETIES.

(WITH A PLATE OF A. S. ROTHSCHILDIANUM.*)

In the large number of varieties of A. Scherzerianum that have originated under cultivation, and in the extent of the divergence from the type or progenitor which is shown in the most prized forms of this Anthurium, we have very striking evidence of what may be done by careful cultivation and selection towards the improvement of garden plants. It is only twenty-five years since this Anthurium, now commonly known as the Flamingo plant, was introduced into Europe from its home in Costa Rica, and probably only within the last ten years has its improvement been properly worked at, and yet we have already a great many varieties, both in size, form, and colour, all differing considerably from the plant as known and figured twenty-five years ago. In the *Botanical Magazine* (t. 5319) will be found a representation of what A. Scherzerianum was then. Here the spathe is little more than I inch long, and the spadix is about the same length, whilst the stalk is only 6 inches high. Compare this with the variety known as Ward's variety, in which the stalk is sometimes 3 feet high, and the spathe 6 inches long by 4 inches broad. In colour, also, the change brought about by cultivation and cross-breeding is most marked. In the type the colour is bright scarlet, but we have now crimson, white, straw-coloured, white and pink, white and scarlet, and so on. We are unable to state whether or not all the plants of A. Scherzerianum now in gardens are descendants from those first introduced, of which that figured in the *Botanical Magazine* is one. At Kew, where Aroids of all kinds are yearly received from South America, we have never seen fresh imported specimens of this Anthurium, although other old garden plants are frequently included. It is probable that after the plant had once been established in gardens its multiplication by the usual method would render fresh importations unnecessary, and we may therefore consider it likely that all the forms of A. Scherzerianum now known in gardens have originated under cultivation in Europe.

The cause of this diversity in size and colour is no doubt due very largely to changed conditions, to high cultivation, and to seminal variation, more particularly to the latter. It is a fact of great importance in horticulture that plants with a tendency to vary under cultivation may be made to develop various and distinct characters much quicker and with greater certainty if they are propagated through several generations from seeds than if sporting through high feeding and changed conditions is relied upon. The thousands of varieties obtained from some of our most popular garden plants have, with very few exceptions, sprung from seeds produced by cultivated plants. Darwin quotes numerous instances of this in his various works, and we have every-day evidence of it in the plants which we annually raise from seeds. The whole secret of procuring new and improved sorts of garden plants

* Drawn in Messrs. Veitch's nursery, King's Road, Chelsea, May 21, 1885.

ANTHURIUM ROTHSCHILDIANUM VARIETIES

rests on this important fact in relation to seeds produced by cultivated plants, for, as Darwin shows, every variation, seminal as well as other, is directly or indirectly caused by some change in the surrounding conditions. We must also remember that the nature of the plant acted upon governs the result. No amount of change will have any apparent effect on some plants, whilst others often vary considerably with even a slight change of conditions. In its relation to the origin of the varieties of A. Scherzerianum, hereinafter to be described, the above facts are interesting as throwing some light on what we have here to relate. We have seen that this Anthurium when first introduced was small-flowered — smaller perhaps than it was after it had become established and its wants understood. In 1874, or about twelve years after the introduction of the type, we get a variety with pure white spathes, and shortly after this the famous large-spathed form, known as Ward's variety, was obtained; then the curious little variety called pygmæum, with a narrow, curled spathe, and the spadix raised on a kind of stalk nearly 1 inch long. This was followed by one with two spathes at the base of each spadix, and named semiplena. Out of these five distinct varieties all kinds of forms—some curious, others beautiful—have been obtained, till it seems probable that the Flamingo plant will be represented by as many varieties as have sprung from Gloxinia speciosa, the parent of all the Gloxinias in gardens. A curious instance of reversion to the type was afforded by an attempt to cross the varieties Rothschildianum and album—the latter being the seed parent—this having resulted in a progeny of red-spathed typical Scherzerianum. A. Rothschildianum was obtained by fertilising the type with pollen from the white-flowered form (A. Williamsi), about twenty per cent. of the offspring being white with red spots, whilst the rest were pure Scherzerianum. When the white-flowered variety was made the seed-bearer, every one of its seedlings were red-flowered.

The following list comprises all the named kinds of A. Scherzerianum about which anything is known. The differences between some of those bearing distinctive names are, in some cases, so slight, that it would be as well if their names were dropped altogether. The type is already described above. From this we go on to the larger spathed kinds till we come to—

Specimen plant of Anthurium Scherzerianum; spathes scarlet.

A. S. Wardi.—In this the spathe is 6 inches long by 4 inches wide, of a deep scarlet colour, as also is the large curved spadix; the stalk is stout, and in large, strong plants as much as 2 feet 6 inches high. There may be minor differences between this and the following, but not sufficient to justify their bearing such distinctive names as Hendersoni, maximum, Cypheri, giganteum, grandiflorum, and Woodbridgei. The last-named received a first-class certificate from the Royal Horticultural Society in 1882, but it is scarcely different from the others, except, perhaps, in being a trifle narrower spathed.

A. S. Palmeri.—This bears a spathe 6 inches in length, but narrow, with a tapering point, and somewhat curled.

A. S. pygmæum is a small form with narrow leaves about 9 inches long, and a spathe rather thin in texture, the point tapering and recurved, and of a bright red colour. Its most remarkable character is in the stipitate (stalked) spadix, the flower-bearing portion being separated from the spathe by a stalk-like expansion nearly 1 inch long. It was obtained by the Messrs. Veitch and received a first-class certificate in 1880.

A. S. semi-plenum is a form with medium-sized spathes, distinguished by the smaller supplementary spathe opposite to the larger one. It is a curiosity which might be used in crossing with a view to obtaining a variety with several large spathes to each spadix. It originated in the nurseries of Mr. B. S. Williams.

A. S. Williamsi.—This is a small plant with white spathes and a yellow spadix, the latter being sometimes stalked, curled, and pale yellow. Though not an ornamental plant, it has been useful in crossing with the red-spathed varieties. Sometimes this kind develops small, spoon-shaped bracts or spathes all along the yellow spadices, resulting in a monstrous, inelegant appearance, but interesting as showing that each of the flowers on the spadix may have a bract to themselves. A red-spathed variety showing the same peculiarity once originated in the nurseries of Mr. Patterson, of Carlisle, but this does not appear to have been perpetuated. With Williamsi we should include the white spathed Verveneanum and album, which hardly differ, except slightly in size, from Mr. Williams' plant.

A. S. Rothschildianum.—M. Bergman, gardener to Baron Rothschild at Ferrières, was the first to obtain a cross between the red and the white-spathed varieties, the former being the seed-bearer. Out of twenty-five seedlings, all except four were like their female parent, while the four had large white spathes spotted with red, the spadix being yellow, as in the white-flowered parent. Since M. Bergman's success others have raised similar mottled forms from the same cross. Mr. Heal, who has been conspicuously successful as a hybridiser of plants, has made this mottled Anthurium plentiful, and in addition to that raised by M. Bergman he has also obtained several other well-marked forms of the same character, three of these being shown in the plate. The tendency to vary has been well shown among the mottled-spathed varieties as raised by Mr. Heal. We know those who consider these spotted-faced Anthuriums ugly, but there are on the other hand many others who admire flowers of this character. The plant named Madame Emile Bertrand is nothing more than a Rothschildianum with rather small red dots.

A. S. andagavense is curious in having the back of the spathes scarlet spotted with white, and the front white with red blotches.

A. S. mutabile.—This is an interesting plant, owing to its singular habit of changing colour, hence the name. The spathes on first developing are white, but as they grow older they gradually change to a scarlet colour. In this we have a character similar to what occurs in A. Lindeni and A. Roezli, the former bearing large white spathes, which change to rosy carmine as they get older, and the latter, also white-spathed, becomes green with age.

A curiosity, with a scarlet leaf on the flower-stalk in addition to the bract, was once to be seen in the Exeter Nurseries, but this has apparently been lost or the character was not permanent. Another with a branching spadix has

been seen. There is the same tendency to variation in the size and form of the foliage of this Anthurium.

The cultivation of the Flamingo plant and its varieties is not difficult. Such examples of it as that recorded as having 165 flowers expanded at one time do not fall within the capabilities of all cultivators, but anyone who has a moist stove or an East Indian Orchid house may grow good specimens of it with ordinary care. Annual repotting is necessary, the abundance of water the plant requires soon causing the soil to decompose and become mud, so that it must be renewed every year. August is the acknowledged best time to repot this Anthurium. The soil should be carefully washed from the roots, and the plant should be repotted in a roomy pot, half filled with drainage, and in a compost of peat, Sphagnum, and charcoal, such as would be used for Odonteglossums. Loam is sometimes recommended, and we have seen loam answer well, but it was exceptionally good and free from iron. The plant should never be allowed to get dry. Good varieties are propagated by division of the tuft of growths, but seedlings are always interesting, and there is always the chance of a good variety being obtained in this way. The seeds are enveloped in orange-scarlet pulp; they take about twelve months to mature. They should be sown in Orchid soil and plunged in a hotbed of 80°. W.

WORK DONE IN WEEK ENDING NOV. 9.

NOVEMBER 3 TO 9.

FOR the week ending yesterday our rainfall register totals up 2·06 inches. On the evening of the 4th rain began to fall, and there was but little cessation till the morning of the 7th; consequently it has been next to impossible to do any work that necessitates treading on the soil, and, besides a little trenching in kitchen garden, our open-air operations have been confined to road-mending, leaf-raking, and to sweeping and rolling pleasure-ground walks. Being thickly surrounded with trees, the leaf harvest always takes up a lot of time, but in this dear fuel district they enable us to materially lessen the coal and coke bills when used as bottom heat in forcing pits, and are just as valuable for protecting from frost plants that are being wintered in turf pits, such as shrubs for forcing and Strawberry plants, also for mixing with stable litter for hotbed purposes, and, not least, for storing to rot down as vegetable mould for potting purposes, so that if all their merits were summed up, it is questionable whether there is any garden labour more profitably bestowed than that of leaf-storing, to say nothing about the neatness that is thereby assured. Put leaves in pits intended for starting our first lot of Strawberry plants. Oak is the description we prefer, as the heat is long lasting, and never intense, from the moderate bulk—about 3 feet depth when trodden down—that is required to gently excite the roots of Strawberries into growth. The plants we never plunge in the leaves, the warmth being ample if simply stood on them, as is also the heat; the leaves give off sufficient top heat without heating by hot water, unless when the weather is exceptionally severe; even then, mat coverings on the glass enable us to dispense with fire-heat. The bad weather has afforded plenty of time to examine Potato stores, to pick out bad tubers, and to sort them into using and seed sections; the latter we have laid thinly on shelves in a frost-proof cellar. Fruit rooms, too, have had a considerable amount of attention; every bad fruit has been picked out, and all of it arranged, with just a little regard to displaying it to the best advantage. Pears are, unfortunately, ripening in quantity, a common occurrence at this season. The fact is, we have far too many varieties that ripen in November, and too few good kinds for December and the first two months of the new year. Those now contemplating planting would do well to note this, and be content with fewer autumn and early winter varieties and have more late kinds, such as Doyenné du Comice, Winter Nelis, Josephine de Malines, Glou Morceau, Knight's Monarch, Ne Plus Meuris, and Bergamotte d'Esperen. Except the very early varieties, Apples keep a longer time, so that restriction of varieties is not so essentially necessary. Work in the houses has consisted in finishing potting and moving bedding plants, clearing Gardenias of soft brown scale, which with us seems almost as difficult to exterminate as did the mealy bug a few years ago, but persistence with weak paraffin oil washings is gradually working a cure. Put in the forcing pit a few Roman Hyacinths, early Tulips, Kalmias, Andromedas, and Arum Lilies; potted up crowns of Lily of the Valley and Harrison's Musk; tied up the flower-stems of Carnations, and to Cyclamen flowers that have got drawn from overcrowding and a little too much heat, we found it necessary to put a stick, and with a loose tie of matting secure them to it, to induce an upright growth of flowers. Chrysanthemums are now at their best, and we have arranged them in the coolest houses we have to prolong their flowering season. A few plants of late flowering varieties are still in the open air, as we are wishful to have them in full flower at Christmas. Preparatory to commencing forcing, the earliest vinery is being thoroughly cleansed—walls, glass and woodwork—inside and out, and the Vines painted over with a strong lather of Gishurst and soft soap. The border (an outside one) has been top-dressed, and is now being covered with leaves and litter in bulk sufficient to keep out frost, but not with the intent to artificially add heat to the soil, this being really unnecessary, even if not positively injurious, to which latter view my experience of the last few years certainly tends. Pruned trees in second Peach house; loosened Figs from trellis and cleared away all the dead foliage, and till more room can be had in vineries that are now full of Grapes this house will be filled with the hardier kinds of bedding plants. I say hardier, because on no account will heat be applied to the house till it is time to commence forcing. Filled up Grape room with remainder of Hamburgh Grapes from an intermediate house. Vineries full of ripe fruit have required much attention to cut out bad berries; a little fire-heat we keep on constantly, and this enables us to ventilate freely in all weathers, and dry, warm air is the first essential to the preservation of fully ripened Grapes.

HANTS.

Work in the Hardy Fruit Garden.

Our principal work during the past week has been the completion of root-pruning and the rearrangement of fruit trees against walls. Peaches, Apricots, and Cherries are now disposed of, and although they received very heavy waterings through the summer and we have had an abundance of rain, the lower stratum of soil resting beneath the 4-foot pathway was not a whit too wet for the roots of these moisture-loving trees. The soil in this garden being very old and full of humus, our principal care is the removal of all surface dressing and old mulching, quite down to the solid staple, at the outset. This is wheeled away to the vegetable quarters and Strawberry beds, to which strong stimulants are at all times acceptable. The trenches round the trees are then thrown out down to the drainage, every root is shortened back to within a length of one's fingers of the past year's pruning, and the trench is firmly rammed with new compost, to which a portion of the best of the old is added as the work proceeds. As nothing more will be needed until the Peach trees are unnailed and washed early in January, all the wall paths are surfaced with an inch or two of old lime rubble. A poor mulch, some may say; but calcareous matter is just what they require; the winter rains wash it down to the roots, and we secure a clean path throughout the winter. Apricots are treated precisely the same; but Cherries, which have developed gumming proclivities since the seasons became so wet and cold, on north borders especially, I now raise bodily, and after adding more drainage replant on the surface. This treatment, although the past spring was very trying, seems to have produced the desired effect, for the growths this season are clean and bright, and old sores in the forks of the branches, bound up in stiff loam and cow manure, are healing. The soil for these trees is less rich even than that given to the Peaches and Apricots; it is also lighter, and contains a much greater percentage of old mortar. While treating of Cherries, I may state that I have given up the summer training and in a great measure the pruning of the intermediate shoots, which are now allowed to grow out from the walls. All leaders, to save them from injury, are nailed in full length on the extension principle as they grow, and the best of the breastwood is laid in where space admits at the winter dressing. Old trees which have been spurred in from year to year are a little troublesome at first, but by keeping the main branches thin and removing a few of the worst, space can always be found for a quantity of full-length growths, where formerly they were cut away and not unfrequently the spurs gummed and perished. The above remarks, I ought to say, refer to sweet Cherries, of which thousands, I believe, are hastened to death by a too free use of the knife annually. The knife is a useful and indispensable implement, but, like another invaluable article—rich manure—it is often found in the wrong place, doing more harm than good amongst our already sufficiently tortured trained fruit trees. In this neighbourhood, as in Kent, we have large Cherry orchards containing trees the age of the oldest inhabitant. Sound slightly elevated ground, open to the elements, suits them best. Eltons, May Dukes, and Bigarreaus bear good fruit from year to year, but they do not gum. And why? Simply because root and branch keep pace with each other, and they are not poisoned with manure. A more simple lesson than this it is difficult to imagine; and yet we cling to the hard-beaten path of routine; we manure when every cell in a tree is gorged; we prune when the knife should be kept in the sheath.

BUSH FRUITS.

Once more these humble, but invaluable, trees require attention. Currants and Gooseberries may still be planted on fresh well-worked ground, staked and mulched, but not pruned. In old gardens we sometimes see veterans doing feeble duty, and inquire why they are not gathered to the bonfire. The reply is, "Oh! that is a favourite quarter or margin, and we cannot afford to destroy them." Gooseberries and Currants of home manufacture, as it happens, superior to anything I have yet been able to purchase, can be propagated by any labourer, and all one has to attend to is annual lifting until they are old enough to bear fruit. Then if the favourite margin is cleared in October and all the bush-sick soil from a broad deep trench is wheeled away to take the place of good ordinary stuff from the centre of a vegetable quarter, an exchange is made at little expense, and successors to the veterans go ahead without feeling the moving. Bush fruits like generous treatment, but strong manure does not lead to such satisfactory results as many imagine. Give a good depth of soil, and if it is thought too poor, place a layer of garden refuse in the bottom of the trench, raise the level to allow for settling, and mulch the surface. A few cuttings of the most approved varieties should be put in annually to keep up the stocks. If not wanted they cost nothing, and there are few parishes in which cottagers might not be helped from the squire's garden. Gooseberries, also Red and White Currants, should be divested of all their lower buds before they are put into the ground, otherwise they will throw up suckers, which rob and delay the formation of bushes on clean single stems. Black Currants, on the other hand, are not at home on single stems, but produce the greatest quantity and the best quality when allowed to stool freely from beneath the surface of the soil.

RASPBERRIES.

Now is a good time to make new plantations of these, also to thin out the canes, replace faulty stakes, and make old ones ready for the winter mulching. The formation of new beds should precede the dressing of established plantations, and for this reason: The young canes which have been left for stock should not be taken up until the fresh ground has been deeply trenched and heavily manured ready for their reception. Then, having firmed and levelled the ground, set out the rows, and driven short stakes, on a dry day lift without disturbing the old stools, and plant immediately. Unlike the Gooseberry and Currant, the soil for these moisture-loving plants cannot be made too light and rich; therefore good spit manure, leaf mould, peat, road scrapings, and burnt refuse, one or all, may be freely incorporated. Cold, heavy loams do not suit it, but deep draining, burning with wood the clayey subsoil, and the addition of plenty of the above-named materials will ameliorate almost any soil provided it is not brick clay pure and simple. These preparations may appear superfluous, but when it is borne in mind that a well-prepared bed under proper annual management will last a quarter of a century, it will at once be seen that the light is well worth the candle.

Planting.—There are several modes of planting and training, all of them good in their way, but not equally well adapted to all gardens. At this place where we are literally devoured by birds, we contrive to make our plantations in squares or double rows for the convenience of netting, and while not overlooking the wants of the roots in positions where the framework for carrying the wire and nets will not stand out too prominent. When Raspberries are planted in single rows, the canes, with all their root buds carefully preserved, may be placed 2 feet apart, or even closer, and the young wood thrown up during the following summer may be trained upright to wires, or, better still, to a double or V shaped trellis, formed by driving stakes in pairs nearly touching each other at the bottom, and 3 feet apart at the top. To these pairs of stakes 6 feet apart in the rows, two stout wires on each side tightly strained longitudinally are secured with small staples; the lowest are 18 inches from the top of the planting ridge; the highest are secured near the tops of the stakes. The canes the first season, about the end of March, unless very strong, are cut down nearly to the ground, a few buds being left to assist those beneath the surface at the outset. If well mulched and watered, strong fruiting wood rises up through the centre of the trellis, but no attempt is made to tie to the wires until endangered by high winds in the autumn. When ripe all the strongest are tied out right and left; the weakest are cut away, and a heavy mulch completes the winter dressing. By adopting this plan the fruit-bearing canes drawn out each way get plenty of light and air, the greater part of the fruit hangs down in the shade, and the rising generation of young ones occupy the centre. When planting in squares consisting of a number of rows, I allow from 5 feet to 6 feet one way, 4 feet the other, and plant in triangular triples. Three clean, straight Larch stakes receive about two canes each, and here also the young wood rises through the centre of the triangle formed by the stakes, which are 1 foot apart at the base, 18 inches at the top, and 4 feet in height. Raspberries, be it bornes in mind, should never be disturbed by spade or fork after they are once planted, but liberal supplies of dressing they will take annually.

Varieties.—Few people, even in large gardens, care to grow more than one or two varieties. Carter's Prolific stands first in Kent. The old Fastolf is excellent, so is Cutbush's Prince of Wales. Baumforth's Seedling produces fine large fruit of a deep red colour, but I have not yet discovered where it differs from our old friend Fastolf. If a yellow is wanted, the old Antwerp may be selected.

STRAWBERRIES.

Our early plants of Vicomtesse Héricart de Thury and La Grosse Sucrée still keep throwing up strong trusses of flower, which set and swell well, and, aided with a little protection, might have ripened a quantity of fruit in October. A frost on Wednesday—4°, the first of the season, and just sufficient to cut the Dahlias—may perhaps put an end to this desultory bursting of crowns, otherwise our precocious friends will be found wanting when their tribute is expected. To the same cause, extreme mildness and dry warmth in the ground, we may attribute the persistent growth of runners and weeds, not only in August-planted beds, but also in old ones. These we are again clearing out, and giving the surface roots about 2 inches of rich mulching recently removed from the Peach trees. Young plants from which a little fruit is expected next year will require firming with the foot as a preliminary to the application of the top dressing, which should be rich and carefully applied without burying or breaking the foliage. On light, warm soils I have found old cows' manure and marl laid in ridges between the rows in the autumn, and levelled down after a sharp frost, a most excellent fertiliser. On the cold calcareous land with which I now have to deal, old Mushroom manure, containing one-third of turfy loam, suits the plants best. Having a liberal supply, it is cast freely over the beds, and the rougher and looser it lies the better they like it.

Composts.—Where root-pruning and planting receive proper attention it generally happens that stocks run low by the end of the season. Vines, Peaches, fruits of all kinds under glass must have their annual quantum of the best, and when it has done duty in this department, being highly charged with stimulating matter, it forms an invaluable store heap for use amongst hardy subjects. Light and heavy loam from old pastures should now be cut, not too thick, and stacked in long narrow ridges ready for use in the spring. If heavily clothed with herbage it should be closely mown, as too much Grass induces fermentation and sourness in the stack. When newly-cut turf is to be used at once in the renovation of Vine borders, fermentation is often an advantage; not so when slow decomposition of the fibre should be the first consideration. The better to secure this a dry harvest time must not be overlooked; a few drain pipes running horizontally through the body of the stack and a cap of thatch will complete the most careful precautions. Peat, in many places an expensive article, not unfrequently receives more care than it requires. Where small quantities are required at short intervals, a few sods may be kept on hand under cover, but the bulk keeps best and retains its virtue longest when stacked and thatched in the open air. Sand, charred materials of all kinds, crocks, and pots cannot be kept too dry. Road scrapings and parings from the sides, well charged with grit and manure, make a most excellent fertiliser, safe, sound, and equal to half the specialities cultivators have the privilege of buying at a high figure, but coming easy, it is too much neglected. Like turf, this should be well stacked up in solid ridges to drain and dry, and time should be allowed for it to pulverise and put off its caustic character before it is used. Successful growers of bronze and zonal Pelargoniums know its value. Manures, in the same way, cannot be too firmly stacked and beaten up with the back of the spade, not only so economise space and maintain neatness, but also to seal up ammonia and keep in their fatness. Manure from the nearest spent hotbed or lining does very well for ordinary purposes, but when one wants a small quantity of superior quality for potting and top-dressing, a good stock from the feeding stalls should always be on hand. Green or raw manure is quite as injurious as over-doses of strong liquid, but when thoroughly ripe and used in moderation it forms one of the most valuable articles in the horticulturist's laboratory. W. COLEMAN.

Eastnor Castle, Ledbury.

King of the Pippins.—What Apple have we in November, December, and January equal to this? It bears year after year with the greatest certainty; the fruits are of good size, handsome, firm in the flesh, and rich in flavour. It is ready for use now, and will remain good during the next three months. It is suitable either for kitchen or dessert.—J. MUIR.

FRUIT GARDEN.

ROOT-PRUNING.

As in most garden operations, there are, of course, many degrees and modes of root-pruning. For example, total uplifting and replanting is the most radical method of all, but this is so different and so much more severe than any of the other methods, that it is shunted off the line of root-pruning by practical men. There remain, however, several methods of performing this most vitally important operation, and these differ more in degree and method than in their principles or results. There is the original mode still practised by some which may be described as both a leap and a series of cuts in the dark. To give the authors of this method justice, however, they were really less in the dark than many of their critics supposed. Admitting the correlation of top and root in regard to vigour, distance, and also direction of growth, they made a series of cuts with sharp mattocks or spades where the roots were supposed to be, and doubtless not seldom succeeded in severing the strong ones; but, of course, they also often missed these and played havoc with the best. Such leaps in the dark in root-pruning are now abolished, and the first step and condition towards root-pruning consists in baring and more or less freely exposing the main roots of the trees. Hence the practice of root-pruning is now based on the safe principle that seeing is believing; but there is another and yet more important result arising from the practice of seeing rather than guessing our way in root-pruning. The mere baring of the chief roots and the detachment of the surface ones from the earth is of and in itself one of the most important and powerful methods of root-pruning. This is a feature of the practice that has been but little thought of or taken into account by many. But it cannot be too emphatically stated that the preliminary steps towards what is mostly considered root-pruning constitute a pruning process of more or less severity, for it is impossible not to destroy a good many of the smaller, more fibry, and, in consequence of these qualities, most powerful feeding roots in the process of baring the main ones, however cautiously or skilfully spade or fork may be handled, and, besides, the effects of root-disturbance can hardly be distinguished from those of root-pruning. Detached roots, or those merely mixed with or pressed against the soil, possess no feeding power. It is not till the vital force takes the initiative and grips hold, as practical men express it, of the earth that the roots become endowed with the power of absorbing, manufacturing, or conveying the food of plants to any useful purpose. They may absorb and convey water, but that is a widely different thing; hence all separation of roots from the earth cuts off for a time, or greatly reduces, the supply of food, and is therefore equivalent to a certain amount of root-pruning.

Much experience and a good many experiments also go a long way to prove that roots merely detached and not pruned are often longer in re-establishing their working connection with the earth than those that are pruned and immediately replanted. The practice of inlaying plants by the heels is fruitful in examples of the above curious, and to many unexpected, phenomena; and yet it may probably be accounted for on the simple principle that the concentration of force not only augments its energy, but quickens its speed. Be that as it may, it may be laid down as an axiom in root-pruning that the root-disturbance involved in baring the roots is equivalent to a considerable amount of pruning.

From the stage of exposing the roots there are at least two modes of procedure. The most common is that of searching for and pruning back the thickest and strongest roots—that is, in the

language of practical men, those with fewest fibres and strongest fangs. These vigorous roots are mostly found running in two directions and at every possible angle between the two. They may, however, be roughly described as vertical and horizontal. The former may be pruned back to within a yard of the tree with perfect safety as a rule, and it is to these chiefly or only that the most experienced root-pruners turn their attention. It is these vertical fang, fibreless roots that favour the production of much wood, and render yearly fertility a vital and physical impossibility. But more caution is needed in regard to the horizontal roots, and it may not seldom prove inexpedient and even dangerous to sever all of these within a yard, or, in case of larger trees, two or even more yards, of the bole. In exposed situations the whole of the horizontal roots may be needed to brace up the tree against prevailing winds in the absence of the powerful vertical holdfasts already removed. In all cases it is safer to root-prune too little than in excess, for it is easy to repeat the process, but difficult, if not impossible, to restore the vigour of a fruit tree crippled through excessive root-pruning. Unfortunately, the trees in such condition are mostly twice punished—first, by over-pruning, which is bad enough; and secondly, by over-cropping, which may prove even more disastrous and destructive in its results.

One of the simplest and easiest methods of avoiding the risks of either is the adoption of the tentative mode of root-pruning, by which the process is completed in two or even three operations instead of one. If the results of the tentative method are less rapid, they are assuredly equally or more permanent, and the risk of serious accident or loss is reduced to nil. And should any tendency manifest itself in the tree to grow out of fertile ways, nothing can be easier than to correct it by resuming root-pruning. In fact, in some climates and on some soils the safest practice is to continue tentative root-pruning annually, as skilfully managed it must cause little loss or any serious diminution of the crop.

The most common and simple method of carrying out root-pruning tentatively is to prune one-half the roots at a time. In bleak and exposed positions, one-third might be safer, and after the entire area of the roots has once been operated upon, the three-year's system would prove almost equally effective in perpetuating fertility. But under average conditions half the roots may be pruned at one operation with safety, for it must be borne in mind that though the operation should be thorough, as far as it goes, only a half of the roots or a little more, in the first instance, are operated upon at one time. Now, in all the other modern methods of root-pruning the trees suffer a compound loss. The surface roots are twice pruned, or subjected to its equivalent as far as their arrestment of function is concerned, through their detachment from the soil. During the process of removal, however carefully performed, not a few of the feeding roots are broken off, that is pruned or bruised in the process. By tentative root-pruning, a half, two-thirds, or, if thought desirable, three-fourths of these are left intact, for it is almost as easy to divide a root run into four quarters as two halves. Returning, however, to what is on the whole the best plan, that of root-pruning a fruit tree by two little goes instead of one great one. The first question is, how shall we divide the area of the roots? Here we have two certain guides—the points of the compass and the direction of the roots. Experience has almost established it into an axiom that wherever there is most sun-heat thither will the larger and stronger roots be most thickly gathered together. This discovery, like not a few others, tended for a time to lead root-pruners into a wrong practice, though not on a wrong scent. The roots were there, but it was a mistake to cut or disturb them all at once, as there were frequently very few more to be found. Hence, by far the best method is to divide the roots' area into two semi-circles, east and west, and operate on either of them first as is most convenient.

The diameter of the half-circle must be regulated by the size of the tree to be operated upon. A clear yard from the bole in the case of the usual run of pyramidal or bush trees is a useful rule, but this may be extended to two in the case of larger ones. Within these ranges most trees may be dealt with. Beyond this space a deep trench from 2 feet to a yard is dug out a spit or more wide, according to its depth; and, as a rule, the whole of the roots found in the trench here are cut off. Some root-pruners, however, make a point of following the best ones out and preserving their fibres and doubling them back to be replanted. The trench reveals the character of the roots and affords space for dealing with them. It requires to be wider at the side opposite the bole of the tree, as the whole of the root mass should be tunnelled underneath up to and right beyond the bole. From beneath the bole every vertical root is cut through to within 2 feet or a yard of the surface. On some soils and by some practitioners the severing of the side and base roots is held to be sufficient root-pruning. But the majority of practitioners are not satisfied with such rough and ready methods. Vertical roots cut off under a ball are apt to push strong root-buds and start afresh on the same tack and once more find their counterparts in sterile shoots on the tops of the trees.

To prevent this and other evils the more careful root-pruner clears the soil away from the roots under operation, uncovers, prunes, and rearranges them at pleasure; the vertical roots are cut out almost entirely back to the bole, or, if not too stubborn and there is a scarcity of roots, as is often the case with Pears, they are bent upwards in a horizontal direction. All the best roots are either displayed horizontally or slightly pointed upwards in the fresh filling up. The roots are also pruned back in such manner that their vital extremities, in and through which the most important functions of nutrition are performed, may be almost equally distributed all through the root runs, instead of crowded together on their outer extremities, where the root rivalry is often the strongest and the competition for food the keenest. The redistribution of the roots, the mode and matter of filling up are of almost equal or more importance than the mere root-pruning. It must suffice now to say that the distribution of roots should be regular and equal, as near as may be, the soil under and among them laid firm and made as solid as practicable, without applying sufficient weight or violence of any sort to rupture or bruise the roots, and that in all cases where the soil appears worn out or exhausted more or less fresh soil—the more the better—should be added to the old. If these matters are properly attended to, each plane of earth from base to summit will have its healthy root with one special and separate feeding ground free, for a time at least, from the intrusion of any and all others.

Closeness to the surface of the main roots.—Like most other novelties, this has been carried to extremes, and, unless in cases in which it is intended to have a permanent mulch over the soil, nothing will be gained by bringing the roots nearer the surface than 3 inches.

Best means of consolidating the roots after root-pruning and replanting.—There is no consolidator equal in gentleness, force, and closeness to water. All these are supreme merits in the case of newly-removed, freshly-pruned roots. A liberal supply of water, heavily applied, runs the earth home into every nook and cranny, and only those who have tested it by experience can have any idea how firmly and solidly such mixtures of earth and water settle home over and among the roots. After this deluge comes a top-dressing of a few inches of dry soil or a mulch of litter, and the operator's work is completed and that of the roots begins forthwith. What, no stakes! No, none, as a rule, for not the least indirect benefit of tentative root-pruning is that half, or even more, of the roots being mostly intact, these suffice to support the trees without stakes, unless in localities where special winds prevail from any given quarter. But even these may mostly be baulked if duly noted beforehand.

For though some broad rules have been laid to guide root pruners as to whether they shall make their first essays on the roots on the north, south, east, or west side, yet may they safely box the compass in search of any mixture of points, cardinal or otherwise, that shall best fortify trees to stand upright without bending or flinching through their interim of weakness that succeeds to their root-pruning. All this, however, has but a scant bearing on wall trees. The stability of these being ensured, they may be the more freely root-pruned and even wholly transplanted with safety. With stone fruits, however, considerable caution is needed, as gumming not seldom closely follows the cut of the knife on their roots; and for Peaches and Nectarines especially careful lifting and replanting are often preferable to root-pruning, as generally understood by the phrase that is more or less cutting.

Fortunately, a simple mode may often be found to limit by almost one-half the root-pruning of such trees whose extraordinary vigour renders it indispensable. As their roots necessarily run to the north and south of the boles, if the roots on the south side are lifted or lightly pruned, this will mostly suffice to moderate their growth on the lines of fertility.

Doubtless this seems somewhat contrary to the old notion that every root had its branch, every fibre its twiglet to support. Though modern scientists would be the last to deny the close correlation that links together root-work and top-growth and produce, yet wider knowledge of the functions and freedom of vegetable life as a whole seems to prove that the bark, wood, and vessels of plants are so permeable to fluids in all directions, that wherever a demand arises for fluid or force, fluids enough and to spare shall be forthcoming sooner or later. Much of the distance and the difference between sterility and fertility may be covered or made up in the time of waiting for supplies. All root-disturbances, whether of lifting or pruning, call a halt in the speed or a lightening of the loads in the vital delivery company that rest not from their labours throughout the season in their distribution of supplies from lowliest rootlet and fibre to the loftiest twiglet and bough. The cultivator, however, may so control these through root-pruning and otherwise as that the products shall be in accordance with his wants and wishes. Radix.

LIFTING LARGE PEAR TREES.

Having tried an experiment in reference to the above subject, I am desirous of recording the result for the benefit of any perplexed amateur. Now, there are six large Pear trees against a wall in my employer's garden full grown, well trained, and facing the west. The girth of the largest is 3 feet, thus giving your readers an idea as to the size of them. They have scarcely ever borne any fruit, saving occasionally a few on each, and each year they have thrown out strong, vigorous shoots; so, last November, I dug a trench about 4 feet from the trunks of four of them. I then cut the large roots (with needed help) and lifted them close to the surface, forking the soil round and among the roots, and mulching them with plenty of horse manure to protect them mainly during winter. They were allowed some time to settle down, and then were nailed close to the wall, as they were before. Some time after the operation a manager of one of the best nurseries in England came to look at the gardens, and, of course, said the trees would die. However, I am pleased to say that all four are living; two of them have thrown out their foliage beautifully during the past summer, and one has had a very nice Pear on it. Two of them are not doing quite so well, because they were served very bad in the lifting, having three or four large tap roots directly under the trunk and possessing but few fibres.

Thus far the experiment is a success. I need scarcely add that they have had a large quantity of water during spring and summer. The

fact is, the trees were too deep. No doubt there are many of your readers who have trees of the nature I have described, but do not know the cause of failure. Now, if they will pursue the course as above stated, I see no reason why they cannot share a like success.

I must again emphasise the fact that trees so lifted must have abundance of water during spring and summer. T. H. Heath.

The Mansion, Totnes, Devon.

HARDY FRUITS.

The most important work at the present time amongst hardy fruits is root-pruning, renovating, and planting. Judging from the fine samples of Apples and Pears which have this year been produced, it is quite evident that considerable progress has been made by growers in many parts of the country. Kent, it is generally admitted, stands first, but why the fruit from that county takes the lead, at first sight it may be difficult to imagine, as there cannot be so very much difference between the climate of that and some other counties. The cause, then, must be sought in some other direction, as there are thousands of spots in different parts of the country equally well adapted to the culture of the Apple, which may be considered indigenous to our soil. From Devonshire wonderfully fine Apples are obtained, and more than one spirited grower is proving on the exhibition table that Hereford is capable of producing fruit worthy of her name. But what are the trees which produce these fine bright examples like, and how are they managed? Surely they cannot be the wretched Moss-covered, Lichen-clad, Mistletoe bushes which gave more than one great writer the horrors some short months ago. Certainly not, although these are capable of and in many places are undergoing a course of renovation which will yet pay for the thinning, grafting, and scrubbing; the draining, top-dressing, and cultivation bestowed upon them. Cultivation is the word. The men of Kent first in the field. The Devon and Hereford men, while not despising old friends of the past century, plant trees of every conceivable form by thousands and cultivate. They drain, they subsoil, and trench deeply. They disdain the old wilding stocks, and kernels raised haphazard, in their own districts, and select the most approved sorts for market or private use. These may be on the free stocks for standards; or on the English Paradise or the French Paradise for pyramids and bushes. Mr. Watkins, of Withington, near Hereford, I believe, grows his fine fruit on young standards, but the majority of cultivators now give preference to low-growing trees on the dwarfing stocks, root-prune, mulch, and feed well during the time they are swelling up their fruit. To a great number of fruit growers of the present day these dwarfing stocks, to which we are indebted for such fine fruit, are comparatively new, but this is a delusion, for the editor of the "Parks and Gardens of Paris" tells us they were used in France nearly 200 years ago, and the writer of an old book published in 1706, teaching his patron how to plant his four acres of garden, speaks of the Paradise as the generally acknowledged stock of that country. If the churchmen of those days, for the writer was a Carthusian monk, then, as now, went in for the best, and recommended the Paradise stock, which has held its own for centuries, there must be something good in it; but how it happens that it has made such slow headway in this country the wonderful crops it is now producing deeply involve in mystery. At last, thanks to observant writers, and competitors, who were driving us out of the orchard, if not out of the garden, the two dwarfing stocks are now propagated and worked by the million, and find a place in every garden, be it large, or a tiny bit at the back of the cottage, throughout Britain. So far so good; but lest the owners of these miniature gardens should think planting puts an end to their labours, and that they only have to admire and reluctantly gather the produce, I beg most earnestly to warn them of their danger, and to say they must cultivate.

Apples on the French stock never grow strong, but form a mass of roots, which do not go down very deep, and the crops they carry are enormous. If left alone they very soon become stunted and weak, and having such a small root run the soil becomes exhausted, when the fruit speedily falls away in quantity and quality. Mulching with good rotten manure and an occasional soaking with diluted liquid, or pure water, are two very important points in good culture, and will keep the trees progressing for years; but something more is wanted; they must have a taste of fresh compost. The quantity need not exceed a few spadefuls, neither must it be largely composed of animal manure, as this will be wanted for mulching. The best material I have met with is good turfy loam, fresh and free from the pasture, or, lacking this, the wayside. Scrapings from a limestone road laid up to become dry make an excellent corrective; burnt earth or clay, charred prunings, and garden refuse make the best of all fertilisers. When trees on this pompon stock have been well planted in good friable soil that has been trenched 2 feet in depth, they should be worked round with a spade or fork at the end of the second or third year, not perhaps so much to check growth as to shorten the points of the roots and make them ramify in the new soil. After this it is possible the roots will take care of themselves until the fruit by its size intimates that fresh food will be acceptable. Some leading nurserymen who disapprove of this stock for orchard planting must, I think, admit that it is well suited to the formation of miniature cordons for training on low walls, against trellises, or horizontally in large or small gardens where space is limited. It is also the stock for choice or tender sorts like Calville Blanche, and some American varieties, when potted for orchard house culture.

The English Paradise is a much stronger grower, but still a dwarfing stock, and, not excluding the Crab, is more extensively used than any other. Like the first, it has a wonderful effect on the scion, which in a year or two becomes very fertile and bears fruit of fine calibre. Some fruits of Peasgood's Nonsuch from this stock now before me, as handsome as a Lord Palmerston Peach, weigh from sixteen to nineteen ounces each, and other varieties are proportionately heavy. It also makes much stronger roots, takes a deeper grip of the soil, generally throwing out one or two rather strong anchor roots, and for this reason the trees should be worked round and well root-pruned at the end of the second year. Once root-pruned, bushes or pyramids make steady and profitable progress up to a good size; but no matter how large the orchardist may wish them to grow, size of tree should not be the outcome of neglected root-pruning. If any amateur cultivators there be who within the past few years have taken up, to them, the new dwarfing stocks, but have not examined the roots since the trees were first planted, now, this month of November, is the time to overhaul them. If strong, two or three-year old trees may be worked round until the balls are not more than 18 inches through; each strong root must then be shortened with a clean cut, when the new compost previously prepared must be made very firm about them. Next to planting, root-pruning, and training in a skilful manner stands the important operation of

Mulching.—On naturally rich, but heavy soils, especially in cold districts, the material used should be light and warm, of moderate thickness, mild or stimulating, according to the condition of the roots and the prospect of fruit in the coming season. Warmth being such an important factor, the winter mulch should be sufficiently heavy to keep out frost, and to prevent the escape of moisture early in the spring. The summer dressing, on the other hand, whilst preventing evaporation should be light, or loose enough to favour the absorption of sun-heat when the sap is in motion. The names of the materials used are numerous—one might say endless—and may consist of almost anything through all the grades of manure to long stable litter, from rough lime rubble—a capital non-conductor—to Cocoa-nut fibre. On warm or thin soils, manure from cow-sheds and piggeries is often used by experienced cultivators, but it is possible to have too much of a good thing; therefore, to prevent the book gardener burning the roots of his trees, it may be well to remind him that these powerful stimulants should never be used—and then sparingly—until they have been piled up at least a twelvemonth. Then, a stimulant being needed, it is a good plan to chop the manure down, spread it thinly round the trees, and cover with short litter, or, this being objectionable to the eye, a covering of charred garden refuse will answer equally well. To those who require a milder mulch and wish to steer clear of danger, let me commend the partly exhausted Cucumber or Mushroom bed—at all times free from the seeds of weeds, good retainers of moisture, and, at the same time, sufficiently pervious to sun-heat, which will draw the roots to the surface—the best of all feeding grounds.

My object, when I commenced this paper, was to direct the attention of the owners of small or villa gardens to the importance of lifting, root-pruning, and planting; but, having already exhausted my space, my remarks upon the last subject must be limited. Root-pruning and planting being kindred operations, almost invariably confined to the autumn months, it generally happens that the two are carried on or closely dovetailed together. In order to plant and grow successfully, the first thing to be considered is the preparation of the soil. This, as I have before stated, should be well drained to free it from stagnant water, and trenched at least 2 feet deep. If old pasture or cultivated garden ground, stirring the soil will give the trees a good start without the aid of manure, which should be kept in reserve for mulching. Light soils can be worked in all weathers when rain is not falling, but deep, heavy loams, which are most suitable for Apples, should be trenched and levelled before they become cold, wet, and plastic. Assuming, then, that these operations were performed last month, and the newly broken ground has had time to settle, it will be necessary to set it out by drawing drills running from north to south, 5 feet apart for the French Paradise and 6 feet to 8 feet for the English. Lines in the opposite direction 4 feet apart may run either at right angles or diagonally, according to taste, the main point being the disposal of the trees in rows running from north to south. At each intersecting angle a stout stake should be driven quite down to the solid subsoil and sawn off 2 feet to 3 feet above the ground-line. If the ground is high and likely to be affected by drought, holes may be taken out for the reception of the roots; if, on the other hand, it is low, cold, and damp, planting on the level and mounding with soil from between the rows will answer best.

Planting.—A sufficient quantity of fresh compost similar to that recommended for use at the root-pruning having been prepared, no time should be lost in getting the trees into position on their arrival from the nursery—that is to say, if the plantation is to be formed with newly-bought trees. Many prefer securing them a year in advance, and a very good plan it is, as a great number of them take up very little space, and a summer's acquaintance enables one to decide how they shall be arranged. Moreover, trees of home manipulation from the maiden are made to assume forms best adapted to the grower's requirements, and, being on the spot, they can be transferred from the little nursery to their permanent home early in October. All, however, have not the time, the convenience, or the experience; consequently the nursery is the only resort; and, with the exception of a saving of time by buying a year or two beforehand, the nurseryman's quality will be found all that the most fastidious can require. I have said no time should be lost in getting nursery trees into the ground, but this will depend entirely

upon the weather, as it is better to lay them in and wait even till spring than ruin some soils by treading in the wet. When unpacked, each tree should be examined to see that the union is satisfactory. All straggling or mutilated roots at the same time must be cut well back to sound wood, and if, as sometimes happens in November, they look dry, insertion in puddle will arrest injury if they have not been too long out of the ground. But what is "puddle?" many an amateur's help-meet will inquire. Well, puddle for very small trees can be made by filling a large bucket half full of adhesive soil and reducing it to the consistency of thick paint by the addition of water. Into this the roots of each tree should be dipped if not particularly dry when planting is performed in dry, ungenial weather. It is a brief operation and often does away with the necessity for watering when the roots are dormant and the season late. From this remark it must not be inferred that I ignore water; quite the reverse. I approve of it for every purpose where pure liquid is required, and look upon good pond or river water as the finest consolidator of soil about the roots of newly planted trees, when and wherever they are disturbed before the leaves fall. After that period good friable compost placed about the tender roots of small trees will keep them moist enough through the winter. When placing the trees against the stakes it is always wise to keep them well up as opposed to deep planting, and to give them an occasional shake to work the fine particles of new soil in amongst the roots. Moderate firming with the foot, followed by frost-proof mulching and a loose tie or two to keep them upright, will settle the work for the winter. W. Coleman.

Eastnor Castle, Ledbury.

SIZE *v.* QUALITY IN FRUITS.

One of the reasons why size has great weight with planters is the fact that even in private gardens now-a-days fruits must have what may be termed marketable value, as surplus produce is sold from nearly all gardens in the kingdom, and those responsible for such sales soon find that small fruits, no matter how good they may be in flavour, are in little request; while large ones, even if the flavour is only second-rate, realise good prices. No gardener would for a moment compare Gros Colmar Grapes with Grizzly Frontignans, or Lady Downes and Alicante with Muscat of Alexandria, but they have to consider what will best sell, and what will make a good display on the table. The eatable value is kept in the background; consequently it is only where flavour is made a speciality of that we find it valued as it ought to be. Let us take Pears as an illustration as to what effect mere size has on some people. In this locality the Pear crop has been good this year, and really fine-looking Pears sell readily, but small ones are of little value. Pitmaston Duchess is probably the most popular market Pear grown, and at a rough guess I should say that our crop of it from one tree realised as much as that from any four trees of the Seckel or any of the other high flavoured, but small Pears. People will hardly look at such fruit, and although for my own eating I always select a small russetty-skinned Pear, yet I must plant large kinds for market, simply because they pay. It is the same with Apples; little ones that used to be popular are now out of date, and even for dessert people want a good-sized, high coloured Apple. One of the most popular of dessert Apples is the Red Quarrenden, the merit of which lies in its high colour; as an edible fruit it is surpassed by many that are not worth half as much in the market. In the case of Strawberries, Sir J. Paxton is more largely grown than any other kind, not because it is the best, but because it is a fine-looking fruit, bears carriage well, and proves at the end of a journey to be in good condition; it therefore sells well. Similar cases might be cited, but these, which are of everyday occurrence, show that growers are not blind to the defects of the system which compels them to sacrifice quality to good appearance. It is demand that creates the supply, and those who have to cater for it must endeavour to meet it, or find their occupation gone.

Hants. J. Groom.

RASPBERRY CULTURE.

When in the west of England during the past summer I called upon an old gardener, and found that he had wonderful crops of Raspberries; the fruit was not only numerous, but also very fine. The sort grown is a favourite one among the Kentish fruit growers, viz., Carter's Prolific, a red variety. The soil in which the plants were growing is composed of about three parts of a light loam, and to this is added annually a good dressing of decayed horse manure. The loam—a fertile one—is fully 2 feet deep, and in such a soil the roots go down deeply, and it is not to be wondered at the plants grow strongly and produce heavy crops of fine fruit. A plantation is allowed to stand for about six years—not longer; after that the fruit becomes small. The best and finest crops are when the plants are about three or four years old. When a new plantation is to be made the ground is deeply trenched and freely manured; then the strongest suckers are selected from the old stools, which are lifted about the end of September, and they are planted out in rows 6 feet apart from plant to plant, with a space of 5 feet between the rows The second year numerous shoots spring up from the base of the plant, all of which, with the exception of the four most promising, are cut down close to the ground. Two of these are trained to stakes placed in a slanting direction on one side of the bush, and the other two in like manner on the opposite side, so that an open space is left in the middle for the young suckers that follow to grow up in. The plants are kept clear of weeds during the summer, and if a numerous company of suckers spring up they are thinned out, and about twelve of the strongest left to each root. This greatly accelerates the growth of those that are allowed to remain, and also improves the size of the fruit. If any more shoots are put up after the bushes are so regulated, they are at once removed. About the end of November the dead stems are cut away, the growths of the current year examined and all cut away, excepting eight or ten of the strongest. They are then pruned, about 8 inches of the top of each being cut away, and they are then tied out as above described. New plantations are made when the plants are about four years old, and by the time the old one is spent the new one has come into bearing. A good dressing of manure is put on in the early part of the winter, after the prunings are cleared away and the soil forked over, taking care not to do it too deeply to injure the roots. The Kentish Raspberry growers long since found out the advantage of thinning out the suckers. They cut away all the weakly ones, leaving a few of the strongest only. The result is, that the fruiting canes go on bearing longer than they otherwise would. But, good as the sorts already grown are, there is yet ample room for improvement in our Raspberries, more especially in the direction of continuous bearing. A new variety named Lord Beaconsfield is highly spoken of. It is a red variety, particularly fine, and its robust habit withstands the drought better than any other; the fruit is very large, and borne in the greatest profusion. Baumforth's Seedling is a new large red variety of fine flavour and very productive; but in ordinary kitchen gardens Raspberries are far too much crowded. R. D.

FRUIT EXHIBITIONS.

There have of late been several large exhibitions of fruit, notably of Apples and Pears, and doubtless many useful lessons have been learned, not only as to what kinds it is desirable to grow, but what is of equal, or perhaps of more, importance, what sorts to avoid. Fruit catalogues are so overstocked with sorts, that I am sure those who have not had a good many years' experience must feel considerable difficulty in selecting any given number of trees which they may require. At exhibitions many take down the names of fruits in the winning lots, or any dishes in other classes that especially take the eye, and as the show is called a hardy fruit show, visitors are under the delusion that all the fruits which they see set up are grown in the open air, whereas in many cases they have been grown in orchard houses. Many of our most successful exhibitors know that a dish of Calville Blanche, or of any other kind, though useless for ordinary culture, often turns the balance in their favour where the competition is closely contested, and many a *bona-fide* open-air grown lot thus gets put second or third, instead of first, solely through exhibiting a dish or two grown under glass. I have no wish to depreciate the culture of Apples or Pears in orchard houses, but I think it ought to be distinctly understood that a dish of orchard house grown fruit would disqualify a collection in which it was put, for it does a good deal of harm and no real good, as there is abundance of sorts that can be grown to perfection in the open air. No amount of cultural skill will make tender sorts that even in sunny France require a wall come to perfection in many parts of England; in fact, even in the case of the hardiest kinds it takes considerable time and experience to find out the sorts that really succeed best in certain localities. The fact that young trees in nursery lines bear good fruit is a sign of progress; indeed, in good fruit years one may see fine crops on trees barely large enough to be sent out as bushes, pyramids, or cordons. One point exhibitions have clearly demonstrated, and that is, that in the southern parts of the kingdom the highest coloured fruit is to be found, and my impression is that although Kent has so long enjoyed a monopoly of fruit culture, Sussex could beat Kent on many points, especially if dwarf trees were the rule. Of course the strong soil of Kent and its large forest-like trees yield quantity, but quality must henceforth be considered, and the warmer soil and maximum of sun heat that the more southern counties enjoy ought to mark them as especially suited for hardy fruit culture. James Groom.

Gosport.

KITCHEN GARDEN.

ROOTS FOR WINTER.

During summer and autumn, when gardens are full of everything required, a scarcity in the way of roots may be tided over by substituting something else. But in winter, when all kinds of vegetables are valuable and many sorts scarce, a good supply of sound roots is most useful. In fact, with plenty of roots, the absence of many kinds of green vegetables will hardly cause any serious comment, as cooks use roots very largely in many ways, and in less pretentious hands they also supply all in the way of vegetables that is necessary for days together. Perhaps, however, the full value of roots is never more appreciated than during a long spell of frost or snow, when greens cannot be readily got at, or are destroyed by the severity of the weather. Stored roots are then safe and at all times accessible. As soon as they are under cover, one may rest assured that, come what may, the root supply is right. Many, however, lose some of the best of their roots from being too long in storing them, and others fail from storing them badly. In storing timely and properly lies the secret of successful keeping. No root which requires protection and storing should be left in the open air after the beginning of November.

Potatoes head the list of important winter roots. I know of many cases in which late crops have not been taken under cover yet; the wet weather experienced in some districts made it impossible to lift them; but the moment they were movable they should have been lifted, and where quantities were housed during fine weather, those still out should not be put along with them, as a good deal more decay will take place amongst the latter than the former. We know some growers who store many tons in their outhouses at this season, and they keep remarkably well there until new Potatoes come again, and I would never desire a better place in which to keep them than a cool shed.

They are emptied down in a light position first; then they are turned over with the hands a few times at intervals of two or three days; the bad ones are picked out each time turning takes place; then they are put into a heap and covered over with straw to exclude light. If well picked over before being covered up, disease will give but little or no trouble, and one turn over about mid-winter will be all they will require until spring, when they have to be turned over now and then in order to break the growths off the tubers. There are few growers who have Potatoes to store who do not possess a shed or some kind of outhouse that will keep out wet, and this and the straw covering are all they require in order to keep them in prime condition. The great advantage of storing in sheds is that they can be so conveniently got at for use, and any signs of disease or premature growth can always be observed and checked in time.

Leeks.—These do not generally come under roots for winter use, but it is more the root portion of stem below ground than the tops that are used; and where have we got a more useful winter vegetable? Leeks are extremely hardy and will bear almost any amount of severe weather, but those which are full grown now may decay before the winter is over, and they will keep better if lifted and placed with their stems amongst ashes in some odd corner than left in the soil. They should be put in moderately close, but not so much so as to rest on each other, as that would cause some of them to decay. When long periods of severe weather are likely to occur, a quantity of them should be taken under cover. Those who only know Leeks as subjects for the stock-pot should try them as a substitute for Asparagus, or for any other vegetable.

Onions.—Here we have another winter root, or rather bulb, of the greatest importance. It is in daily demand, and to keep up the supply from now until May the bulbs must be stored with care. In many cases bulbs which are to be kept for a long time are tied on to ropes, and they keep very well in this way suspended from the ceiling of some dry room, and under this treatment any decay in them can readily be detected. A thin band of hay or straw about 2 feet or so in length does very well as a basis on which to tie them, and from three to four dozen bulbs may be put on each. It is useless, however, to tie up bulbs that will be used immediately; all such may be placed in a heap in any cool room. A damp place will cause them to become mildewed, and a too warm one will make them sprout, but a dry shed or loft will generally suit them well. Large Onions never keep so well as small, firm ones; therefore, the whole of the latter should be kept for use in spring.

Carrots.—Although these do not take the place of greens, they are nevertheless indispensable, and a daily supply of them must be kept up. They are more difficult to grow than store, as the Carrot maggot often plays sad havoc with large roots; therefore, small sound roots are to be preferred to large wormy ones. They should all be lifted on a fine day; the tops should be cut off them, and then they should be stacked in a heap in a cool, dry shed in moderately dry sand or leaf-soil. They may be sorted before storing, putting the best by themselves to keep until spring, and the worst for immediate use.

Turnips.—These are very hardy, and need not be taken in until December. The stems should be cut off, and then the bulbs may be placed in a heap in any shed, with a quantity of hay, straw, or Bracken thrown over them to exclude frost and drying winds, as the latter cause them to shrivel. The white Turnips should be taken in first, as the Swedish variety and the yellow ones are hardier, and will bear a little frost.

Beetroot.—This may be treated like Carrots, only the leaves must not be cut in closely or the small side roots cut off, the main object being to preserve them intact and avoid allowing any of the juice to escape. If well and carefully stored the roots will remain good until next May.

Parsnips.—These are very hardy, and are better in the ground during winter than out of it, as when dug up they are liable to shrivel and lose their flavour. During severe weather a quantity of them may be taken up for convenience sake, as it is sometimes a difficult matter to dig them out of the frost-bound ground.

Salsafy and Scorzonera.—These are much alike as regards keeping qualities. Neither of them is quite hardy, but both will bear a few degrees of frost. We generally make two liftings of them—one now and the other in March. Those lifted now are stored with the Carrots, and the March ones are put past to prevent them from starting into growth again in spring. During frost they are mulched over with litter, and we generally find that these turn out fresher in spring than those stored in November.

Cambrian.

MILDNESS OF THE SEASON.

A few months ago tillers of the soil complained, and not without reason, of a cold, sunless, tardy spring. A spasmodic, but on the whole fairly good, summer followed, and many are now inquiring what is to be the outcome of this mild, unseasonable autumn. Fruit growers have no reason to complain, for trees of all kinds are splendidly furnished with fruit buds; the wood appears ripe, but not too forward, and the prospect for another year is all that men who do not go out of their way to quarrel with the future can desire. Vegetable gardeners, on the other hand, find many of their cut-and-dry arrangements slightly upset, but with them even the balance is not all on the wrong side, for while lamenting the bolting and bursting of the Brassica tribe, and the persistent growth of Lettuce and Endive, they are still able to pick dishes of delicious Peas for daily use. French Beans and Scarlet Runners slightly tinged with frost on low ground are still in bearing, and that grand Broccoli, Veitch's Autumn Protecting is turning in splendidly. Forewarned, forearmed. Steps should now be taken for protecting the heads, not only by tying the ample leaves with matting to keep out frost and wet, but also by preparing deep cold pits or open sheds for their reception as they are lifted from the borders. Cabbage and Cos Lettuce intended for early spring are now hearting, and if left alone will very soon be of little use. Lifting and transferring with good balls to west walls and sloping banks in a high, airy and shaded part of the garden will retard and preserve many of them. Others less forward may be placed in cold pits to save them from the destruction which severe weather will bring. Meanwhile, seeds of Cos and Cabbage kinds should be sown thinly in boxes, and kept close to the glass in spent Cucumber frames for filling up the gap which the August-sown plants this year will leave in the spring. The best sorts of Cabbage Lettuce for sowing late are Hardy White Dutch and Lee's Immense Hardy. Of Cos varieties, the Black-seeded Bath and Hicks' Hardy White are suitable. If only a tithe of these come to the dibber, they will come in at an acceptable time, or Early Paris Market, sown early in January and again in February, will fill up the gap now threatening. Good salads all the year round are now imperative, and the only way to cope with Nature when she plays pranks, as she has done during the past twelve months, is to make intermediate sowings of one or two suitable kinds and treat the plants as half-hardy annuals.

Eastnor Castle, Ledbury. W. Coleman.

Comparative yield of Potatoes.—It may be of some interest to your readers if I give my experience this year of the comparative yield of Potatoes per acre in our home nursery. The various sorts have been all treated alike; they were planted in April on ground which had been occupied by trees for the previous two years, and manured with good rotten mixed cow and horse droppings. The plots of ground were measured and the yield of Potatoes carefully weighed. It will be seen that Covent Garden Perfection heads the list and that Champions are at the bottom. Very few diseased Potatoes were to be seen in any of the varieties, but the Champions were the worst, and also contained the most small. At the wholesale prices current in this district the Covent Garden Perfection is worth (exclusive of small) £24 per acre. The weights given below do not include small Potatoes: Covent Garden Perfection, 1714 stones per acre; Magnum Bonum, 1682 do.; Vicar of Laleham, 1267, do.; Magnum Bonum Hybrid, 1240 do.; Champion, 1183 do.—W. B. H.

MARKET GARDEN NOTES.

Leeks.—When looking through a large market garden in my neighbourhood a few days ago I was much struck with the fine development seen in the Leeks as compared with what could be witnessed at this time last year. Then, owing to the dry summer, the Leeks were so small as not to be worth marketing; now they are very fine. I have not seen such fine development before, to the best of my recollection, and I attribute this to the adoption of the practice of sowing the seeds in the open ground, and thinning them out instead of in seed-beds, and the transplanting them as heretofore. I imagine that this practice, which is new in my neighbourhood, grew out of the failure of last year's crop from the drought. Unless it is a growing, dripping season when the young Leeks are put out in the open ground, they are a long time getting a good hold upon the soil, and if dry weather sets in failure results, the Leek being a succulent, moisture-loving plant. Leeks are proving a remunerative crop; a workman carefully digs them up with a fork and women collect the roots, take them away and trim and wash them, and then they are sent to market. They make a delicious dish when properly cooked.

Coleworts have been planted extensively this season. Bunched greens have become quite a popular London vegetable. The seed is sown in drills, and when large enough the plants are thinned out, and those removed put into spare ground. Coleworts have done well this season. It is a kind of tradition among the market gardeners that Coleworts require frost upon them to make them tender; already many are fit to pull, but no frost has come upon them. Land cleared of Tomatoes, Beet, and other crops is being planted with young Coleworts, and lines of the hardy Fulham White Cos Lettuce are being put out between them. It is rare weather for the young Lettuce plants to get a start. About here the common green Colewort is the one preferred; it is more compact in growth than the selection from it known as the Rosette Colewort, and it is preferred by the market gardeners.

Fulham Cos Lettuce.—I should think this is a hardy selection from the old London White Cos. What we know as the Paris White Cos is an improvement on the last-named. The Fulham Cos is a very fine and pure one, and the market gardeners always leave a few of the very best types to seed, and by so doing they can ensure a good stock of it. Very large breadths are now being put out. The seeds were sown in frames at the end of August or early in September, and if they can get a good start in the autumn, the plants stand the winter in a very satisfactory manner, and the Lettuces turn in early in the spring, being a few weeks in advance of the early spring-sown plants. My own observation teaches me that the best crops are had when planted in full exposure. Like the Leeks, the plants grow vigorously and to a great size on well-manured, light, stony land.

Vegetable Marrows.—It is only recently that some of the crops—the latest of them—have been cleared away. The vines were very persistent, owing to the mild, open weather and absence of frost, and they bore fruit up to the last till settled by the London fogs and damp. The crop of Marrows proved exceedingly plentiful.

Brussels Sprouts.—Great quantities of Sprouts are now being gathered and sent to market. The plants everywhere have made a vigorous growth this season, and the Sprouts are both numerous and very fine. They are cut away from about 6 inches of the stalks, and so those left swell all the more rapidly in consequence. At present there is every appearance

of a great glut of green stuff this winter, but much will depend, of course, upon the character of the winter. The green crops are soft and succulent, and if severe frost followed close upon rain, a great deal of damage would be done.

STOCKS FOR BUNCHING.—I saw, the other day, some large seed-beds of white, scarlet, and purple biennial Stocks ready for planting out. They are largely grown in market gardens for bunching, and there is a brisk demand for the flowers. R. D.

Books.

CHRYSANTHEMUMS AND THEIR CULTURE.*

PERHAPS no florist's flower has been taken in hand so strenuously of late years as the Chrysanthemum. The reasons are not far to seek. No flower answers more obediently to good, but not difficult or costly, management than this; none is capable of a more bewildering variety of delightful form and colour; none can be grown to equal perfection in a town atmosphere. When other flowers have vanished, then the Chrysanthemum, white and golden, pink and crimson, buff and ruddy brown, comes to brighten the dark months, and to the Chrysanthemum shows there are no counter attractions. The recent publication, within a short space of time, of two books upon the Chrysanthemum testifies to its deserved and increasing popularity. Mr. Burbidge's larger and excellent work has been in our hands some little while, and has now been followed, and, we may say, supplemented, by a handbook by Mr. Molyneux, the famous champion grower—a reprint, in book form, of a series of chapters contributed by him to the pages of a contemporary.

This is one of the most thorough and accurate treatises we have ever read; it is, indeed, an exhaustive sermon upon the author's own text. "It is by rigid attention to the smallest matters that the greatest successes are won." As Mr. Molyneux has in six years won eighty-six prizes, including seventy-four firsts and the champion cup for the last four years in succession, his counsel upon every one of the details of his own method of cultivation must be peculiarly weighty. Points of special importance or possible obscurity are further explained by excellent sketches, such as those of a good and a bad cutting, of shoots bearing respectively the "crown" and the "terminal" bud, with dotted lines showing how to disbud properly, and of a plant similarly explanatory of the "cutting down" operation. Absolutely nothing is omitted, from the preparing of the plants for cuttings (p. 1) to advice about the refreshment of the exhibitor awaiting the verdict, with toilet and dinner (p. 106)!

The chapters upon propagation and the treatment of young plants are most valuable. We have always believed that not only with this plant, but with all plants, much more than is commonly supposed depends upon the very earliest stages of growth, and that the seeming "coming all right" afterwards of feeble beginnings is delusive. Mr. Molyneux's experience of Chrysanthemums causes him to hold strongly that "upon the treatment they receive in the early stages their future welfare depends," and he therefore makes this part of the book somewhat elaborate and minute. A page upon the special management of weak varieties is very helpful, for some of these, *e.g.*, Criterion, afford distinct and very beautiful flowers, but are apt to fail under ordinary conditions. We are surprised, however, to find the splendid crimson M. Henri Jacotot included in this class, for we have found it unusually sturdy and free-flowering. A lighter soil and less stimulant is the summary of Mr. Molyneux's receipt for the management of these weaklings. The question of soils is fully and lucidly treated, the kernel of the matter being given in the shrewd observation that "the soil, while it contains food, must be regarded as a store for additional food that is required and given from time to time, the store or larder all the time remaining sweet." Accordingly, a considerable proportion of charcoal is recommended as an ingredient of the compost. It is to be noted that Mr. Molyneux disapproves of the use of cow manure. The chapter upon feeding and top-dressing is replete with useful suggestions, such as that about the intermittent use of soot water, and the advantages of a change of diet from week to week. We are inclined, however, to think that Mr. Molyneux's practice of giving liquid manure before the flower-buds form may be found risky by growers less experienced than himself. Some of the finest varieties, such as Jardin des Plantes, are easily rendered blind by stimulants given a few days too soon, though others, such as Elaine, seem to delight in strong food from a comparatively early stage. We think, too, that the statement that "the pinks, lilacs, and darker shades are rendered much richer" by the use of sulphate of ammonia is too general, and may mislead. Our own experience is that the finest reds, such as Cullingfordi, are easily ruined by it. Excellent hints are given concerning plants and blooms for market, and a record of the heights ordinarily reached by the principal varieties will be found useful. Indeed, every chapter and every page is crammed with solid information.

We cannot, however, help saying that in thus praising this book we praise it from its own point of view, which is by no means ours. We are most emphatically of opinion that the popular admiration for huge, coarse flowers is a degraded and lamentable taste. The mob demands them and exhibitors supply them, and we shall not easily escape from this vicious circle; but the mere demand for such productions is not a proof of their intrinsic excellence, as Mr. Molyneux and others think. The average Briton's idea of a beautiful carpet pattern used to be magenta Roses 2 feet across on a ground of loud blue, and there was much demand for such fabrics; but the taste was not thereby proved to be perfect and final. We agree with Mr. Molyneux that comparatively few varieties of Chrysanthemum will make beautiful plants if allowed to run up to their natural height and retain all their buds, though some, *e.g.*, Bouquet Fait and Lady Selborne, are far lovelier grown in this way than in any other. But we maintain that the truly artistic grower will delight in a plant abundantly furnished with branches, leaves, and flowers perfect in form, though of medium size, and that such a plant is not unnatural, even though fashioned to some extent by the grower's art; and a Chrysanthemum of the right size, according to our notions, is a flower which adorns its plant, a dwelling-room, or a lady's dress. Two, or at the most three, 9-inch flowers on a gaunt plant fulfil none of these conditions. Such monsters are good for a Chrysanthemum show, and for nothing else in the world. But the object of a show should be not to demonstrate how much bigness and how little refinement a flower is capable of, but to teach folk of high and low degree how best to make their gardens and their homes bright and fragrant. Mr. Molyneux, in his enumeration of the qualities which constitute "a good bloom," puts size first and colour last, an order which we should precisely reverse. We also remark that he omits even from his list of decorative varieties three of our most especial favourites, viz., the old Julie Lagravère, a plant of indomitable constitution, yielding clusters of small velvety flowers of an unsurpassable ruby crimson; L'Ile des Plaisirs, or Early Red Dragon, a dwarf Holly-like bush, almost a species for distinctness, which wreathes itself with a mass of satisfying red-brown; and Tokio, unique among Chrysanthemums for the grace of its long and slender flower-stems crowned with delicately fringed and almost scarlet blossoms. But then not even the champion's skill could induce these plants to supply him with 9-inch blooms for his green board. About one part of the book—the descriptions and illustrations of the dressed bloom, the implements for dressing, the cups and tubes, &c.—we say nothing. We have our thoughts, but they lie too deep for words.

But we are now, we own, taking Mr. Molyneux's book out of its own plane, so to speak, for judgment. Considered from the standpoint of the florist proper, the big-bloom man, the winner of "points," by whom and for whom it is written, it is a specimen of such sound and thorough workmanship as we seldom meet with, and will surely be indispensable to all such cultivators of the Chrysanthemum. G. H. E.

* "Chrysanthemums and their Culture." By E. Molyneux, Swanmore Park, Bishop's Waltham. (171, Fleet Street, E.C.)

Public Gardens.

GARDENS FOR THE PEOPLE.

LONDONERS, with their wealth of parks and gardens and squares, have been slow to realise the immense boon to health and happiness which an increase of open spaces would be to our overcrowded population. Indeed, it is remarkable that, with our appreciation of modern Paris, the example set us by the boulevards is only just beginning to make itself felt. The example, however, has been followed, and the Thames Embankment, Northumberland Avenue, and that more recent achievement, Shaftesbury Avenue, go far to show a zealous desire to escape from what may be called the Oxford Street age. Lord Brabazon, so well known for his untiring zeal in the cause of the poor, has for a long time recognised the pressing necessity of utilising every available plot of ground for their good; and with this aim he has, as president of the Metropolitan Public Gardens Association, been instrumental in throwing open a vast number of spaces throughout the whole of London, and has thus contributed in no small measure, not only to the health and happiness of our less fortunate fellow-citizens, but to the well-being of the whole population. The fourth annual report of the association, which has just been issued, tells a story which it would be well if many would take to heart. It shows how recreation grounds are a necessity, not only as the means of mere breathing space, but also as harbours for the thousands of helpless children who without them are the victims of our now almost unmanageable traffic. We do not propose to go into a detailed account of the good work done and being done by this admirable institution. It will be enough to point out how through its agency many a disused burial ground has been converted into a quiet recreation ground for old and young; how many a waste spot has been levelled and turned into a cricket field; how many a West-end square has been secured during the dead season for the use of the gardenless poor; and how benches and drinking fountains have been supplied and trees planted here, there, and everywhere. There is, however, one feature of this association to which we would call special attention, and it is that, among the many urgent wants it attempts to meet, the giving of employment to the unemployed is not forgotten. The report is, in fact, an unanswerable reply to those who say that nothing is being done for the unemployed, and on this ground alone Lord Brabazon's philanthropic efforts cannot be overrated, nor the association of which he is the head be too warmly supported in its beneficent and far-seeing aim.—*Saturday Review.*

Societies and Exhibitions.

ROYAL HORTICULTURAL.

NOVEMBER 9.

CHRYSANTHEMUMS were the prevailing exhibits on this occasion, and numerous new sorts were submitted to the committee. Several new or rare plants added to the interest of the meeting, and the following first-class certificates were awarded :—

CLERODENDRON NUTANS.—A beautiful old tropical shrub, shown by Mr. Head, of the Crystal Palace Gardens, Sydenham, who brought it from India several years ago. It is quite distinct from other cultivated Clerodendrons, being a much-branched shrub of dwarf compact habit, with long and rather narrow leaves. The flowers are large, pure white, produced in drooping racemes from the tips of the young shoots. The calices are reddish purple, and the flowers are followed by indigo-blue berries. Flowering habitually, as it does, at this season, its value is enhanced.

PONTEDERIA CRASSIPES DELICATA.—A lovely water plant, common enough in botanic gardens, but very seldom seen in flower. The plant is at once known by the swollen leaf-stalks, which cause the plant to float. The flowers are borne in an erect spike; they are about 1½ inches across, of a delicate pale mauve, and adorned with a deeper blotch of the same colour on the upper sepal, and spotted with yellow. This beautiful aquatic was shown by Mr. Ross from Sir George Macleay's garden at Pendell Court, Surrey.

PRIMULA CAPITATA MAJOR. — A large-growing variety of this superb Himalayan Primrose. The flower-stems are over a foot in height, terminated by a dense head of flowers of the richest purple. Shown by Mr. G. F. Wilson, Heatherbank, Weybridge.

ANGRŒCUM AVICULARE.—A singular, rare, and very beautiful Orchid. It somewhat resembles A. arcuatum. It is of dwarf growth, and the plant exhibited by Sir Trevor Lawrence bore two spikes, each about a foot long, and bearing about sixteen flowers set in pairs on the spike. The flowers are white and transparent, and the tail-like spurs are over 4 inches long. It is apparently a free-flowering species.

AMARYLLIS LADY MAYORESS.—A grand new variety of the reticulata race of hybrids; flowers in autumn and winter. The present variety is a cross between the old A. reticulata and Leopoldi. The flowers of the hybrid possess the reticulated and delicately rose-coloured flowers, while from Leopoldi it has gained large size of flower and fine shape. It is a valuable addition to autumn stove plants. It was shown by the raisers, Messrs. J. Veitch and Sons, Chelsea.

CHRYSANTHEMUM COQUETTE DE CASTILE.—A new Japanese variety raised by M. Délaux. It is remarkable for the delicate colour, which is a pale peach-pink, a tint rarely seen among the multitude of sorts now grown. The flowers are large and full, the florets narrow, long and reflexed. The sort was shown in excellent condition by Mr. W. Holmes, Frampton Park Nursery, Hackney, every plant in the group of about a dozen being only about 2 feet high, and carrying luxuriant foliage and very fine blooms.

CHRYSANTHEMUM GLORIOSUM.— A Japanese sort, with large flowers, with a dense mass arranged, long and narrow florets of a clear golden yellow colour. Shown by Messrs. Veitch.

CHRYSANTHEMUM WHITE CERES (Japanese).—Flowers large, long, shaggy, pure white. Shown by Messrs. Veitch.

CHRYSANTHEMUM PHŒBUS (Japanese).—Flowers of a bright yellow, medium size, and full. Shown by Messrs. Veitch.

CHRYSANTHEMUM EYNSFORD GEM.—A single Anemone-flowered variety with blooms about the size of a crown-piece, centre bright yellow, florets deep rose-purple; an extremely pretty sort. Exhibited by Messrs. Cannell, Swanley.

CHRYSANTHEMUM ADMIRAL SIR J. F. SYMONDS.—A very large flower, semi-double, the large yellow disc being conspicuous; the flowers are long and densely arranged around the centre, and are bright yellow. Shown by Messrs. Cannell.

CHRYSANTHEMUM JANE.—A single-flowered and beautiful sort, of moderate size, snow-white florets and bright yellow centre. Certificated as a "decorative" variety. From Messrs. Cannell.

CHRYSANTHEMUM LA FRANCE.—A Japanese variety of a wonderfully rich colour—a kind of crimson-purple: the flowers are of medium size, dense and of good form. From Messrs. Cannell.

Among other plants of interest shown were some new Orchids from Messrs. Veitch. One of these was the new hybrid Zygopetalum leopardinum, which is supposed to be a cross between Z. maxillare and Colax jugosus. The flowers are about the same size as those of Z. maxillare; the sepals are greenish, heavily spotted with reddish brown, while the lip is of a bright purple, mottled with white. Masdevallia glaphyrantha, another new hybrid, is probably a cross between M. infracta and M. Barlæana, it being most like the latter parent. A beautiful hybrid is Calanthe hybrida grandiflora, a cross between C. Turneri nivalis and C. vestita lutea, the flowers of which are large and pure white, borne in much the same manner as Turneri. Messrs. Veitch also showed Begonia John Heal, a new winter-flowering plant with flowers of a bright carmine, which remain on the plant for nearly three weeks, and then gradually wither without dropping. Oplismenus albidus, shown by the same firm, is likely to become a useful carpeting plant in stoves. It is a variegated tropical Grass of trailing growth, and retains its colour throughout the year. Mr. R. J. Measures, Cambridge Lodge, Camberwell, showed a very fine specimen of Lælia præstans, representing a first-rate variety. The plant bore five flowers, each 4 inches across. He also showed flowers of Cattleya Gaskelliana and a twin-flowered spike of Cypripedium insigne. Mr. Tautz, Studley House, Hammersmith, sent a plant of Cypripedium Leeanum superbum, a very handsome hybrid from C. Spiceri-anum, and considered to be one of the very finest Lady's Slipper Orchids grown. Messrs. Heath, of Cheltenham, showed specimens of Ixora Besti; but November is hardly the season to judge of the merits of Ixoras.

NEW CHRYSANTHEMUMS were plentiful, collections being shown by Messrs. Veitch, Cannell, Bull, and Ower. The cut blooms from Messrs. Cannell were exceptionally fine, comprising new semi-double and single sorts, which may yet prove as popular as the doubles. The sorts we singled out of the Swanley collection as the best were Neatness, Scarlet Gem, Eysford Gem, Rose Favourite, Jane, Coquette de Castile, La France, Mrs. Cannell, and Thorpe Junior. Among Messrs. Veitch's sorts were Paul Dutour, Jupiter, Ruy Blas, Mr. H. Elliott, all good. Among Mr. Owen's new sorts the best were Distinction, Mr. Glover, and Mrs. Naish; and among Mr. Bull's were Lady Avenal, W. Clark, and Madame Ghys. A bronze Banksian medal was awarded to Mr. Clark, Twickenham, for a very fine lot of Cyclamens, the first group shown this season. Among the sorts was an extremely dark one called Albert Victor, one of the finest darks yet raised

Fruit.—The following were among the principal exhibits: A new Grape named Miss Clark came from Mr. E. Woodall, St. Nicholas House, Scarborough. It is said to be the result of crossing Black Hamburg and Gros Colmar. The bunches shown much resembled the latter variety, but it is said to ripen a month earlier when grown together under the same conditions. The committee desire to see bunches of it again later together with foliage. The bunches shown were excellent examples of good culture. Another new Grape was shown named Winter King. It is a noble-looking black variety, which the committee consider like Gros Maroc. It was shown by Mr. Bowman, Hylands Park, Chelmsford. Mr. Ronpell showed some excellent fruits of Apples, Cox's Orange Pippin being unusually fine. A cultural commendation was awarded to Messrs. Lane, Berkhampstead, for a very fine display of their Apple Prince Albert, which is one of the very finest kitchen Apples we have. Messrs. Veitch showed fruits of the new Apple Bismarck, a noble fruit, large and handsome; and Messrs. Rivers sent a gathering of the Wyedale Plum, said to be the latest and best of all culinary sorts.

NATIONAL CHRYSANTHEMUM, ROYAL AQUARIUM, WESTMINSTER.

NOVEMBER 10 AND 11.

THE large and really grand show of Chrysanthemums held at the Aquarium this week afforded further evidence of the fact that a central Chrysanthemum society has hitherto been a need among growers and exhibitors of this popular flower. Local societies are plentiful enough, but these for the most part are so hemmed in by restrictions, that growers in out-of-the-way places cannot exhibit. But with this newly-constituted national society the case is different. Anyone can compete, and it is this open competition that is finding favour among exhibitors, who value the honour of prize-winning in classes open to all comers more than when the show is purely local. This national society, though it cannot, apparently, quite make up its mind to renounce its local origin (that of Hackney and Stoke Newington), becomes each year less local in its shows, for now one sees exhibits from the provinces and less from London growers. The society is also making itself important in other ways than holding shows. It now boasts of a floral committee—a tribunal before which new varieties may be placed for adjudication. It, moreover, publishes an official catalogue of sorts, which is excellent, notwithstanding the quibbles that have been raised concerning it in various quarters; and its latest work has been the affiliation of provincial local societies, which now numbers over a score. In short, the society has aimed in making itself the representative Chrysanthemum society, and it is fast gaining that position.

The schedule on this occasion was lengthy and comprehensive, and the prizes offered were substantial, amounting in the aggregate to upwards of £200.

The Chrysanthemum classes numbered thirty-six, and in addition to this there was a fine exhibition of fruit, vegetables, and fine foliaged plants.

Incurved Varieties.

The chief class in this section was that for forty eight blooms, for which the three prizes offered were £10, £7, and £4. There were eight collections, but far surpassing all was that from the well-known grower, Mr. Gibson, Morden Park, Surrey. Every bloom was good, and the selection could not be better, but the exhibitor made a sad mistake. He staged four blooms of one sort; whereas the limit was but three of a sort. Through that blunder he was disqualified, and lost the valuable prize. The following is a list of the sorts he showed :—

Empress of India	John Salter
Princess of Wales	Nil Desperandum
Golden Queen	Barbara
Golden Empress	Hero of Stoke Newington
Queen of England	Jardin des Plantes
Princess Teck	Nonpareil
Jeanne d'Arc	Golden Eagle
Princess Beatrice	Refulgence
Mabel Ward	Lord Wolseley
Lady Hardinge	Yellow Perfection

The second best collection, from Messrs. Drover, of Fareham, was consequently placed first; Mr. Wm. Wildman, second; and Mr. Salter, third.

The best collection of twenty-four blooms was from Mr. Wildman, and consisted of—

Empress of India	Nil Desperandum
Golden Empress	Prince Alfred
Lord Alcester	Alfred Salter
Guernsey Nugget	Queen
Jeanne d'Arc	Venus
Eve	Antonelli
Novelty	Barbara
Mrs. Dixon	J. Salter
G. Glenny	Refulgence
Princess Beatrice	Lady Slade
Mr. Bunn	Mrs. Shipman
Lord Wolseley	General Slade

The president of the society, Mr. Sanderson, took the second prize; and Mr. Strong the third.

There were nine collections of eighteen blooms, that from Mr. Kidd, West Hill House, Dartford, an excellent display, being first. He had the following sorts :—

Princess of Wales	Prince Alfred
Empress of India	Golden Empress
Lord Wolseley	Lord Alcester
J. Salter	Mrs. Heale
Mr. Brunlees	Jeanne d'Arc
Isabella Booth	Nil Desperandum
Baron Beust	Prince of Wales
Princess Beatrice	Eve
Mrs. Shipman	Cherub

The class for a dozen blooms was also large, there being ten lots. The first, from Mr. Doughty, consisted of Queen of England, Golden Empress, Empress of India, Jeanne d'Arc, Mrs. Heale, Mrs. Shipman, Lord Alcester, Princess of Teck, A. Salter, Prince Alfred, Hero of Stoke Newington, Lady Hardinge.

Among fourteen sets of six blooms, Mr. Hill, of Hythe, sent a fine collection for the first prize, which consisted of Empress of India, Princess of Wales, J. Salter, Jeanne d'Arc, Nil Desperandum, and Princess Teck.

The first prize in the class for six blooms of any variety was taken by Mr. Springbett, with Princess of Wales; Mr. Salter, with Lord Wolseley, was second; and Empress of India was third.

Japanese Varieties.

There were six classes devoted to this popular section, and throughout some extremely fine blooms were shown. The principal class was for forty-eight blooms in not less than twenty-four varieties, the prizes being £10, £7, and £4. There were seven competitors, whose exhibits made a great display. The chief prizeman was Mr. Gibson, who had a grand collection of large and highly-coloured blooms and a first-rate selection of varieties. These comprised the following, and of several there were duplicates:—

Mad. C. Audiguier	L'Adorable
Japonais	Hiver Fleuri
M. Lacroix	Mons. Astorg
Maiden's Blush	Fair Maid of Guernsey
Grandiflorum	Roseum pictum
Golden Dragon	Margaret Marrouch
Baronne de Prailly	Jeanne Delaux
Comtesse de Beauregard	Duchess of Albany
Boule d'Or	Meg Merrilies
M. L. Brunel	Thunberg
Elaine	Comte de Germiny
Album striatum	White Dragon
Criterion	Val d'Andorre

Very fine collections were shown in this large class by Mr. Ridout, of Reigate, and Mr. Bettesworth, of Cheshunt, who were second and third respectively. Of the best twenty-four blooms, the finest were those from Mr. Child, of Esher, whose collection was made up of—

Comtesse de Beauregard	Mad. Audiguier
Baronne de Prailly	Mons. Astorg
Val d'Andorre	Thunberg
Meg Merrilies	Mad. Lacroix
Fair Maid of Guernsey	Yellow Dragon
Peter the Great	Galatea
Album plenum	Criterion
Duchess of Albany	Mad. de Sevin
Album striatum	N. Davis
Japonais	Hiver Fleuri
Elaine	Augustine
F. Boucharlat	La Triomphante

There were seven collections in this class, all good but the class for twelve blooms was more numerous, there being twelve competitors. The dozen which Mr. Moore showed for the first prize were—

Baronne de Prailly	Comte de Germiny
Mons. Astorg	M. Delaux
Val d'Andorre	F. A. Davis
Criterion	Fair Maid of Guernsey
Thunberg	Soleil Levant
Triomphe de la Rue du Chatelet	M. J. Laing

The best six Japanese blooms of a white sort were some some grand examples of Fair Maid of Guernsey from Mr. Duncan, followed by Mdme. Lacroix, also remarkable flowers, and Elaine. The best six blooms of any coloured sort were of Yellow Dragon, the second best Japonais, and the third Jeanne Délaux.

Reflexed varieties were a fine class, the seven collections of twelve all being first-rate. The best, from Mr. Moore, consisted of—

Mrs. Forsyth	Golden Christine
Cloth of Gold	Felicity
Peach Christine	Dr. Sharpe
Phidias	Cullingfordi
Garibaldi	

Large Anemone-flowered sorts were also well represented by six sets of twelve kinds, Mr. Moore being first again. His sorts were—

Laing's Anemone	Acquisition
Mrs. Pethers	Lady Marguerite
Sunflower	Fleur de Marie
Gluck	King of Anemones
Georges Sand	Minnie Chate
Empress	Princess Louise

Anemone Pompons were shown best by Mr. Whitley from a London garden at Southwark. His sorts were—

Regulus	Miss Nightingale
Antonius	Mrs. Wyness
Mdme. Chalonge	Marguerite de Coi
Astarte	Mr. Astie
Rose Marguerite	Magenta King
Perle	

Pompons.—This pretty class was represented admirably by a few of the exhibitors of twelve sorts. The best collection contained—

Black Douglas	Dr. Sharp
Marabont	Tousssaint Maurisat
Adele Prisette	Mons. Hoste
Prince Victor	Mdme. Marthe
Golden Circle	

Pot plants.—These, of course, made the principal display, and, on the whole, they were excellent. There were nine classes set apart for them, the chief being the two for groups of Japanese sorts only, and for other sorts exclusive of Japanese. Twenty sorts were the minimum number to be shown, and the allotted space for each group was 60 feet. A very fine lot of uniform medium height won the first prize over the Japanese sorts. This was from Mr. Edwards, Balham Nursery, while the corresponding first prize group was from Mr. Stevens, St. John's Nursery, Putney. The trained specimens were of the usual stamp, excellent in their way, and particularly noteworthy were the six trained Pompon plants. These were from Mr. Reeve, Hadley House, Barnet. Each plant was fully 5 feet across, the trellis being mushroom shaped. The sorts were Rose Andromeda, Golden Cedo Nulli, Sœur Melanie, Fanny and Marguerite de Coi. Mr. Monk's nine trained specimens were good, and the same exhibitor's six trained plants won the first prize. A special silver medal was awarded, and very deservedly, to Mr. Holmes, Frampton Park Nursery, Hackney, the society's hon. secretary, for a magnificent group of mixed varieties, every plant being admirably grown, and most remarkable was the dwarf growth of the whole collection, the average height being 2 feet, yet the blooms were large and fully developed.

Fruit.

The various classes for fruit were well filled, the quality throughout being really first rate. This high form was specially found in the *Grape* classes, the chief of which consisted of twelve bunches, in not less than three kinds. Here a new exhibitor from Ticehurst fairly bore off the honours by sheer weight, having no less than six bunches of Gros Colmar, very fine indeed; three huge Barbarussa, capitally done and weighing 14½ lbs.; and three excellent Black Alicante. The second prize went to a much more varied and interesting collection from Elvaston, but the honours were chiefly won by some grand Gros Colmar, the three bunches showing size of berry, colour, form, and finish such as rarely are seen, and well merited the special cultural certificate awarded. Other bunches were Muscat of Alexandria, Golden Queen, and Mrs. Pearson, whites; and Alicante, Lady Downes, and Mrs. Pince, blacks. The capital lot of bunches from Gunton Park comprised Mrs. Pince, rather loose and lacking colour; Black Morocco, Gros Maroc, and Lady Downes, these latter three being very good. There were seven lots shown, and some fine bunches were left out in the cold. Of *Black Grapes*, in a class for three bunches the best again were from Ticehurst—very fine handsome tapering Gros Colmar; some good, but shouldered bunches of the same kind were second; and good Alicantes third. Three remarkably fine and well-finished bunches of Barbarossa were in the class which comprised nine lots. Of *White Grapes*, the best were Muscat of Alexandria, from Gunnersbury Park, medium-sized, but finely finished. Others of the same kind took the other prizes. A capital lot of Golden Queen had to stand out.

Of six dishes of Pears, eight lots were shown; some splendid fruits were found, though not a few others were past eating. Gunton Park was again to the fore, as in the past, with these fruits; grand samples of Marie Louise d'Uccle, with Beurré Diel, Beurré Bosc, Glou Morceau, Marie Louise, and Doyenné du Comice, making up the collection. From Beckenham came very fine Pitmaston Duchess, Beurré Clairgeau, Beurré Diel, Duchesse d'Angoulême, Beurré Superfin; whilst a nice lot from Cheshunt was third. *Dessert Apples* were mostly shown in good form and rich in colour. Among ten collections from various parts of the country, that from Horsham was the best; the chief sorts were Ribston, Blenheim, and Cox's Orange Pippins, Golden Russet, Court Pendu Plat, and King of the Pippins. The next best lot came from Welford Park, one of the best Apple gardens in the kingdom, and comprised Adam's Pearmain, Cornish Aromatic, Gravenstein, Blenheim of rich colour, and Cox's Orange Pippins, with a very handsome yellow kind; Lady Alice Eyre, a seedling from the old Golden Reinette, and of excellent quality. Petworth supplied rich colour in the Nanny, Scarlet Nonpareil, Ribston, and Blenheim Pippins, &c.; Fearn's Pippin, Mabbett's Pearmain, and Worcester Pearmain were very good in this class. Nine lots of

Kitchen Apples were shown by nine. In the best lot were superb fruits of Cox's Pomona, Waltham Abbey Seedling, Emperor Alexander, Warner's King, Loddington Seedling, and Gloria Mundi, coming from Linton Park; whilst Welford Park followed with superb Brabant Bellefleur, Mère de Ménage, Stirling Castle, Blenheim Pippin, &c. The third lot, from Loughton, included good Annie Elizabeth, Echlinville, Alfriston, and Peasgood's Nonsuch. Thus there were no less than thirteen diverse kinds in the eighteen dishes. A special silver medal was awarded to Mr. G. Bunyard, Maidstone, for a grand collection of 100 dishes of Apples, which included all the best kinds, rich in colour, and very fine.

Vegetables.

Four collections of *Potatoes* were in competition in the class for twelve dishes, the best coming from Edgecote, Oxford—clean and handsome; whilst in the class for six dishes there were five collections, Petworth and Ealing having the best lots. Of white kinds, London Hero, Schoolmaster, Duke of Albany, Chancellor, Reading Giant, Sutton's Seedling, and Favourite; and of coloured kinds, The Dean, Beauty of Hebron, Edgecote Purple, Reading Russet, and Prizetaker were the best.

Special prizes.—Messrs. Sutton and Sons' prizes for six kinds of vegetables brought eight lots, the samples being exceptionally good. Esher was a specially good first with Autumn Giant Cauliflowers, Prizetaker Leeks, Snowdrop Potatoes, Intermediate Carrots, Rousham Park Onions, and Perfection Tomatoes. In other collections were fine Cauliflowers, Chancellor Potatoes, Brussels Sprouts, Red Celery, &c. Five prizes were awarded. Messrs. Webb and Sons, Wordsley, offered prizes for a similar class, six lots competing, the best coming from Coleshill gardens, and including very fine Student Parsnips, Carrots, Autumn Giant Cauliflowers, Magnum Bonum Potatoes, and Snowball Turnips. Messrs. Sutton and Sons staged 100 dishes of Potatoes, including seedlings and good named kinds, all the samples being excellent.

A list of prizes is given in our advertising columns.

Verbenas and red spider.—I shall be thankful if some of the readers of The Garden will tell me what to do under the following circumstances: My stock of plants of Verbenas is badly covered with red spider and other pests. I have watered them with soot water, and should like to know if that will keep them free from red spider and rust. I have heard that it will do so, but should like to know what others think of it. What temperature should Verbenas be kept in during the winter months?—B.

R. R., Nairn.—"Thompson on the Vine." Blackwood and Son.

Names of plants.—*Messrs. B., King Street.*—Rubus rosæfolius.——*T. M. F.*—Judging from a single flower, your Orchid appears to be Cymbidium Dayanum.——*J. M., Ballinakill.*—Pretty forms of Scabiosa atropurpurea; it is an annual.——*H. A. Page.*—Oncidium serratum.——*W. S., Doncaster.*—Specimens sent without numbers are Adiantum fulvum, Pteris serrulata, Pteris serrulata cristata, Selaginella pubescens.——*E. G. L., Weedon.*—1, Chrysanthemum latifolium; 2, Chrysanthemum Leucanthemum; 3, Urospermum Dalechampi; 4, Aster Novi-Belgii var.; 5, Silphium terebinthinaceum; 6, Silphium perfoliatum.——*Miss P., Bristol.*—Oxalis rosea.——*A. R., Windermere.*—Specimen quite undistinguishable; send flower again.

Names of fruits.—*W. Whait.*—1, Pitmaston Duchess; 2, Chaumontel; 6, Napoleon; 7, Doyenné du Comice. We name four only each time.——*W. B. H.*—Pitmaston Duchess.——*R. T.*—All the fruits were too much decayed to identify.——*Scot.*—1, Seckel; 2, Passe Colmar; others will be named next week.

WOODS & FORESTS.

NOTES.

SAWMILLS.—The way "Omega" and others magnify and harp on the importance and duties of the estate sawmill makes one think that if they lost that string, their bow would be almost useless. On the large estate where I first became familiar with sawmills, we had two large ones for the woods and one in the woodyard. The two in the woods were chiefly employed in cutting up rough slabs, rails, and posts for estate purposes, and no one concerned themselves much about them except the two old men and their assistants who looked after them. Their management is of the simplest description. Here we have a steam mill for sawing our timber, and, in addition to our own wants, we do a good deal of colliery work, so that our duties are perhaps more complicated than on most estates. Still, we have had no labourers having their ribs broken that I remember for twenty years back or longer, but, be that as it may, I am puzzled to understand how sawmills can be conducted without labourers, even at whatever risk there may be. In "Omega's" case I can only conclude that the "many handy and good labourers he has seen with ribs broken, arms hands, and thumbs and fingers off through attempting to work the circular saw" has compelled him to do the manual work himself belonging to his sawmill, and to turn the more important duties of forester over to his men. His picture of mutilated limbs, however, will not do, for no such universal disasters happen in any well-regulated establishment. In addition to our own mill, there is another not far off that probably saws up 20,000 feet of our timber annually for a great variety of purposes, and when the owner called the other day and heard "Omega's" catalogue read out, his remark was that the sooner "Omega" took refuge in assurance against the Employers' Liability Act the better, as in anyone else's case the consequences would have been ruinous, workmen not now-a-days usually submitting with impunity to have their limbs mutilated to the extent that seems to have been the case with "Omega's" men. As regards "Omega's" definition of a forester as a "person to superintend general estate management," I have to reply that he is not a person on whom such duties devolve where a forester proper is kept. That is well known, but if it be necessary to magnify his position in that way, well, then, the gardener is by far the most likely man for such an important post, and there have been, and are, gardeners who could be named on whom the post of general estate agent has been conferred from ducal estates downwards, and who have performed their duties in the most satisfactory manner, quite fulfilling the estimate formed of them from their skill and knowledge as gardeners. I could, on the spur of the moment, enumerate about half a dozen gardeners I know of who held, or do hold, such positions. In conclusion, I am sorry I do not convince "Omega" by my writings, but if he would only meet my objections by something else than mere platitudes and assertions, I might try, although his particular conversion on the subject is not the whole end and aim of my writings.

PRICES OF TIMBER.—"Young Forester's" letter on this head is interesting as showing how prices and demand vary in different parts of the country. He has little or no call for "small Oak" in Monmouthshire; whereas, in this part of Yorkshire, poles from 2½ feet upwards are the only kind saleable till we get up to trees fit for wagon sides, which are in fair demand, and that must quarter 13½ inches 18 feet up. Trees between the two are practically unsaleable in any quantity. We have to set such timber out in the falls if they happen to be dying or going the wrong way, but they have accumulated on the hands of purchasers to such an extent during the past few years, that, in order to give purchasers a chance of getting rid of them, we have ceased for the present to mark any trees above 8½ feet, unless dead or ill-placed, always excepting wagon-side trees when to spare. As regards these large trees for wagons, hitherto the best and soundest Oak only has been employed, but of late Memel or red deal has been introduced in place of Oak, with what results I cannot say, but makers speak favourably of it as being nearly as strong as Oak, while much cheaper and lighter. As by far the biggest part of the large Oak in this country goes for wagons, it may be guessed what effect the introduction of foreign timber is likely to have on the home-grown timber market in that direction. The Memel is delivered at about 1s. per foot sawn, I am told; whereas home-grown Oak of good quality has been fetching 1s. 6d. per foot in the wood for the same purpose, and was much dearer than that a few years back. The effects of foreign competition on the home timber trade is simply ruinous. I make no comment on the merits of free *v.* fair trade, but simply record facts. Unless labour becomes cheaper by about fifty per cent, and everything relating to estate management is lowered proportionately, it will be of little use expatiating on the profits of timber growing. Fanciful management is out of the question. Planting on the cheapest methods is all that can be afforded now. Rather than plant good land, I would turn it into a rabbit warren, which I am sure would pay better with good rabbits at 3s. per couple in the market.

As to Ash mentioned by "Young Forester," good Ash is very saleable, and so is small rough in Yorkshire. I knew a buyer pay too much, as I thought, for a fall of small poles for the sake of the small Ash and Sycamore poles in it running from 2 feet to 3 feet; such stuff is sold for shaft wood and a variety of purposes.

WHAT HAVE WE TO SELL?—This is the question very much affecting the home timber trade. Abroad, both in America and Europe, almost every tree in the forest is of a saleable description, and what refuse is left is turned to account for various purposes that we are strangers to here. Charcoal is made extensively from the refuse, much of it is used for firewood, and the large tops and boughs are manufactured into a variety of articles for export and home use. In England at the present time it may be said that only the measurable timber is disposed of, cordwood and underwood seldom fetching a remunerative price now. Sometimes the cordwood is burnt on the spot, as the readiest means of getting rid of it, while underwood is left uncut. The measurable timber consists in England principally of Oak, Ash, Sycamore, Birch, Larch, Scotch Fir, and, in more limited quantity, of Beech and Elm, &c.; and in the north, of Spruce Fir. In almost all falls of home timber set out, the worst timber only is, of course, removed, unless in cases where the whole wood is felled; hence great quantities of it is of little value and could not be sold if it was not put along with the best. This practice is, however, injurious to the trade, and when it is stated that much of the bulkiest timber, which should fetch most, is rough and often foxy or gone in the heart, it will be understood how difficult English timber-merchants find it to compete against the importer of foreign deals and logs already cut to order. These faults of the home-grown timber are chiefly due to our methods of forestry management, and cannot be remedied so far as old forests are concerned, but they should teach us a lesson for the future. Almost all timber is best when the tree is at its prime. For "old Oak" there is a certain demand, but it is nothing compared to the demand for strong, sound timber. Old Oak is unfit for all purposes where strength is requisite, being "tender," as experts in the timber trade say, and fit only for furniture, wainscotting purposes, and such like. Numbers of old Oak trees which have been sold of late years have turned out almost useless when cut up, having become decayed in the heart from old wounds and decayed tops which admitted water. I know of a fall of old Oak, which last year could not find a buyer at any reasonable price, examination having shown that many of the trees had become hollow and rotten at the base inside; and such purchases are extremely risky. In short, it may be said that the greater portion of English timber set out for sale is too rough and too branchy, owing to the manner in which it is grown, and does not fetch near as good a price as it would have done had it been cleaner and straighter, if even of much smaller dimensions. Dear as carriage of timber is by road and rail, buyers will come one or two hundred miles to buy exceptionally clean and well-grown timber, while rough samples may be going a-begging at the door.

GARDENERS AS FORESTERS AND VALUERS.—"W. B. H." does not specify the "details" of woodcraft a gardener cannot soon learn, as I feared, and of course it is in his power to magnify them prodigiously, but now-a-days, fortunately, people do not take things for granted, and until the unlearnable "details" are forthcoming we may safely disregard them. We have the present condition of the forester's charge throughout Great Britain to go by, and the verdict has been universally given against their management. Nobody is "to pay" the gardener for "learning him" forestry. He is fitted at any time to take the charge and have knowledge to spare. As to valuing, I admit the array of instruments mentioned the week before last is calculated to frighten novices; but as neither "W. B. H." nor myself, nor any practical forester ever employs them, having much simpler and equally sure methods to go by, I am surprised at him bringing such an article to his aid. Even the method described this week (p. 443) is too cumbersome where thousands of trees and feet are valued. "A. P." says his example of a valuing book is one he generally uses, but it is as old as the hills, only never carried into the woods with any forester for general use. The idea of going through the wood and making entries in ten separate columns and valuing each tree or every few trees separately is too absurd to be entertained for one moment. No purchaser would listen to such stuff, except, may be, in the case of a few trees of special size and quality, but would go over a large fall of timber, calculate the contents, and offer so much per foot or per lot, and as the forester would have to settle in that way also, what is the use of all the labour described by "A. P."? Last year, for example, we valued 6000 trees and poles in one wood by the simple process of counting the trees and poles separately and the different kinds, taking a careful average of a certain number of trees in certain parts of the fall afterwards to find the contents, and then putting on the price. There is no other way of valuing large quantities in a reasonable time than this. Just imagine "A. P.'s" ten-column memorandum book in such a case, or valuing with the "instruments" mentioned the week before. In every case of valuation done in this manner that I have known the measure has turned out at the end as near the mark as when done by most elaborate methods. Not long since a case occurred which I had to do with, in which 10,000 trees and poles of very varying dimensions and nearly 100,000 feet of timber was involved (a case of damage to woods from a certain railway company's premises), and the whole of the timber was valued by the proprietors' agents on the counting and averaging principle, and afterwards by the agents of the company, who employed competent men. On comparing notes afterwards it was found that the estimates on both sides were so near, that the proprietors accepted, the question of the amount of damages being settled afterwards. As to measuring tapes, Chesterman's self-winding steel tapes mentioned by "A. P." are just toys—as far as timber measuring is concerned. They are principally used by ladies and gentlemen, who carry them in their waistcoat pockets. Nothing beats the common woodman's tape, a few feet long, usually carried loose by men. Compared to the string, with its doubling and double doubling, and measuring and after calculation, the tape is just a ready reckoner, and nowhere is the string used now that I am acquainted with.

YORKSHIREMAN.

Profits of tree-planting.—It has been calculated that the tree thinnings of an acre of land worth

only from 5s. to 10s. per acre, but planted with a mixture of Larch, Beech, Pine, Hazel, Birch, and Oak—the latter with a view to the growth of navy timber or trees of large size for building and other purposes—will at the end of from ten to fifteen years, according to local circumstances, repay the average expenses of planting, rent, and management during that period, together with compound interest at five per cent.; and the profits of future falls may be estimated as follows: In thirteen years, or at twenty-three years' growth, £24 10s. per acre; in thirteen years more, or at thirty-six years' growth, £39 per acre. After that period a triennial profit of about £12 per acre, until the Oak is fit for the many purposes for which timber of first-class quality is required, when the final clearance may be expected to fetch from £200 to £250 per acre. NORTHERNER.

THE CONDITION OF ENGLISH WOODLANDS.

"W. J. W.," in his opening paragraph (p. 444), has hit upon and well described the way in which ordinary English wooded land is dealt with. Bringing to the front such an unsatisfactory condition of affairs would not at any time be inopportune, but just now it is especially to the point, as the season when the havoc described is wrought or the neglect perpetuated is now upon us. Whatever may be said about the importance of planting and the necessity of those being engaged in it having proper qualifications, there can be little disagreement of opinion that judgment in exploiting what has already grown is far and away more important. I, however, attribute a good deal of the condition of our timber supply to mere thoughtlessness. In making shift for the moment's necessities without looking at what the future effect will be is one class of thoughtlessness, and this may be committed either in cutting to raise money or in making wholesale clearance on behalf of the agriculturist. "W. J. W." speaks of the young and straight growing sapling sharing the same fate as the matured tree. This is too often the case, but a little thought is all that is required to save it. From a forestry point, it is the very class of trees upon which we have to depend as coming behind the present crop. From a money-making point, it is the least desirable thing to cut, as a score of such saplings would not realise the price of a single fair-sized tree. On the other hand, it is useless to let rubbish grow on merely because it is young, as it may really have no chance of becoming good timber, and may be seriously damaging what would, if opportunity be given it, grow into valuable timber. The decision of where these points meet is one of the most important questions in practical forestry, and if more carefully looked into, would do much to lessen the evils attendant on the plan of cutting without thought, which has been too long current. If the conditions were more understood, I take it that there is not such a wide divergence between clearing a crop of timber when ripe and keeping a place fairly wooded for ornament. If we take the Elm as a typical tree—and it is certainly one of the most useful as well as ornamental—there is no reason why an individual who has his thoughts about him should not periodically cut what from the timber side of the question should be felled, and still preserve the ornamental character of the property. It will, of course, sometimes prove necessary either to sacrifice a group of trees when they come to maturity, or, on the contrary, let them go on the road towards decay. In such instances the judgment and the taste may clash, but the removal of one group may bring out another which had previously held an incospicuous place. These may be looked upon as minor matters, but it is doubt and fear upon such points which help to contribute to the sum total of the condition of things of which "W. J. W." speaks. I have mentioned thoughtlessness as shown in a too free use of the axe and saw; and doubt and fear, or in other words, caution, being two causes which account for our English woodlands being as they are. To a great extent I so regard it, and there seems no good reason why a material modification should not take place without the elaborate machinery being set in motion of which we now and again hear. It must not be overlooked that it is the judgment in proper selection which is necessary to bring about a change for the better, and this is a very different thing to the technical knowledge required in raising, and also in subsequently felling and dealing with the selected trees. The knowledge of how to select can soon be acquired. The great thing is to get attention directed to it, and this is week by week being done in the columns of this paper, and although diverse opinions are often expressed, they cannot, on the whole, fail in giving fresh tone to what is on all hands admitted to be a neglected subject.

D. J. Y.

THE MANAGEMENT OF WOODS.

As "Yorkshireman" is looking at this subject with a gardener's eye, it is only to be expected that he will attach as much importance as possible to such parts of a forester's duties as most nearly approximate to those of a gardener. It is on the relative value of this that I differ from him. That knowledge gained as a gardener would be useful to any individual who undertakes the management of woods I do not deny, but it would be merely in one branch of the subject. What an estate carpenter would gain in his own work would be another branch, so that a gardener and a carpenter would be on a par by being qualified in different branches, but neither would be competent to undertake a forester's work merely because in pursuing another business they happened to gain information which could be turned to account. Beyond the special department of each, neither gardener nor carpenter would be able to go, unless by "accidental association" they had from time to time been gaining knowledge of how a forester's work is done, and of what it consists. My only reason for particularising a carpenter was, because he was the first class of workman connected indirectly with forest work (in the same way as a gardener would be) occurring to my mind. Unless "Yorkshireman" maintains and can prove that gardeners are superior in mental calibre to every other class of individual who happens to be engaged upon an estate, or are employed upon any branch of work which would give an insight into wood management, his argument entirely fails. Assume that two young men of equal intelligence aspire to become foresters. One enters the garden; the other starts life as an estate carpenter. The first gets an insight into plant growth, and the second gains a knowledge of dealing with the wood when it is grown. Unless each avails himself of the advantages of what I have called "accidental association," he would be entirely unfitted to undertake the management of woods; but granting that each has equal ability and application, I fail to see why a carpenter could not as readily pick up a sufficient knowledge of plant growth and planting as a gardener could the necessary knowledge about dealing with and disposing of the grown product. Let "Yorkshireman" satisfactorily disprove these points, and then I will admit that he has made out a case why gardeners are to be preferred to every other class for employment as practical foresters. I do not say this at all disparagingly as to the legitimate branches of a gardener's work, but merely to properly assess his value as a wood manager.

D. J. YEO.

Timber measuring.—I cannot quite agree with "A. P." in all his remarks on this subject. What I use in measuring timber is a good strong whipcord, which I think cannot be surpassed. I strictly object to tape. For instance, in measuring a lot of felled timber in a wood a difficulty often occurs in getting it around the pieces; and, again, if you are able to get a tape around, it will not stand the test. All disputes as I have been in or heard of, the whipcord has gained the day. As regards taking dimensions of a tree, "A. P." is perfectly right. The book, of which he gives an example, seems to me to be very suitable. In order to get at the real contents of standing timber (a very difficult matter), I take length and girth, then make my remarks as to quality, and leave the calculations till I have time to make inquiries as to roads, &c. It is most important to allow for bark in measuring standing or felled timber. I allow 1 inch in trees that are 12 inches, and half an inch under 12 inches in girth. For my own part I condemn the tape for buying or selling, as I consider it very unfair. Certainly it is useful with standing timber, but it always makes timber more than what is really in it. I cannot perceive how "A. P." can bring the real contents of a tree 12 feet by 19 inches to 38½ feet. Perhaps it would be better for him to give an example in figures, so as to show it more plainly.—YOUNG FORESTER.

NOVEMBER NOTES.

In some respects the present season is a remarkable one, and not the least observable thing is the tenacity with which most trees have retained their leaves. At the beginning of the month there was very little diminution indeed in the bulk of foliage, and up to the time of writing there are comparatively few trees bare. Among common timber trees the Scotch Elm has been one of the first to lose its leaves. In a few cases the English Elms are nearly bare, but in the majority of instances they still (Nov. 5) retain their foliage. Amongst those which are virtually bare may be mentioned the Ash. The Sycamore, too, has within the last few days shed its leaves very rapidly, and the Horse Chestnut comes within the same category. Between these last mentioned trees and the Oak there is a very wide difference in the way in which they lose their summer garb. With the Ash, Sycamore, Horse Chestnut, and others of the class the process seems generally only a matter of a few hours, but with the Oak it is much more protracted. At the present moment, Oaks as bare as they could possibly be in the dead of winter are to be met with, and though comparatively few in number, others which constitute the bulk still have their leaves adhering, but of a russet colour, whilst others again retain the dark green of summer, so that spring-time will be upon us again before the whole of the Oaks have finally rid themselves of the past season's covering. In a lesser degree the same may be said of the Beech. With regard to the smaller trees, many of the Hawthorns have lost their leaves, but the greater portion still have them more or less intact. The difference in this respect between trees of the same species is often very marked, as while some are virtually leafless, others have lost few or none. Situation no doubt has something to do with this, but not everything. Age probably is also a factor, and soil is not without its effect. With us the common Maple was one of the first trees to show the tints of autumn, and now its leaves are disappearing fast. The Hazel often goes to make up a good deal of woodland masses, and this is in its last stage so far as retaining its leaves goes. Very few have really fallen, but the first touch of frost will work a great change. Perhaps a tree which shows the continuity of the seasons as well as any common to our woods and hedgerows is the Goat Willow. At the time of writing the leaves of this tree are as green as at any time during the summer, but the young buds which produce the catkins of the early spring are very noticeable. Speaking of deciduous trees in general, it is a little surprising that the strong winds we have lately experienced have had so little effect upon the leaves, but there is no doubt that the mildness of the season will partly account for it. The fall of the leaf being looked upon as the signal for commencing operations in the woods, the first change in the weather sufficient to clear the bulk of the trees will be enough to cause active work to begin. So far as the woodman is concerned, a few gentle frosts will be acceptable, and there will be but little done until they come. WILTS.

Fence posts upside down.—This plan is never followed here—at any rate, not systematically—and if a post gets set upside down, it is more from accident than intention. The idea, I believe, originated from the theory that moisture would not have the same effect upon the tissue of the wood when it was inverted as would be the case when fixed in its natural position. There may or may not be something in this, but with ordinary Oak fence posts it would be quite counterbalanced by the inconvenience of having the smaller and generally more sappy part of the post fixed in the soil. As the result of a good deal of experience with Oak posts, I should prefer having them sawn and fixed in the same position as the trees grew, especially when the logs from which they are cut taper considerably, which they are pretty sure to do. When posts are cut parallel throughout, which seldom happens, the experiment could be more easily tried.—D. J. Y.

No. 783. SATURDAY, Nov. 20, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
The Art itself is Nature."—*Shakespeare.*

A NORTHERN GARDEN.

In this part of Northumberland the winter, so far, has been exceptionally mild. My garden, near Benwell, is on the very summit of an eminence about 400 feet above the sea level, and it includes the site of a camp and the greater part of "Condereum," the third station on the Roman Wall. In addition, therefore, to the usual inducements to dig deep we have the interesting incentive, that in so doing we occasionally turn up Roman coins, Samian ware, inscribed stones, and other antiquities. To-day (Nov. 17) I took my usual morning stroll round the garden, and though the general effect was the reverse of exhilirating, I was yet surprised to find so many plants still in flower, and apparently little injured by frost. The Cactus and single Dahlias yet showed blooms and were a mass of flower-buds, but never, I fear, to open. The colours of the Chilian Beet, some with stalks of deep crimson and with leaves of metallic lustre, others with stalks and mid-ribs of gold on leaves of yellowish green, were gorgeous. Roses were still budding and flowering, so were Anemone japonica alba, Geranium Endressi, Helianthemum flavum, Fuchsias, Aubrietias, and Antirrhinums. That diminutive gem, Lithospermum prostratum, which began to flower last March has, up to this date, never ceased to cover a rock with its pendent deep green sprays dotted over with charming Gentian-blue flowers. But the choicest gem of the winter garden is the Acæna microphylla, which, planted on the edge of a Vine border in exceedingly rich loam sloping towards the sun, is now a mass of the deepest carmine, far finer in colour than any Alternanthera. What a splendid autumn and, in fact, winter bed might be made of this plant if put into a circle of 6 feet or 8 feet diameter, edged with 2 feet of the deep green Saxifraga atropurpurea, or the same bed might be first filled with Daffodils, Hyacinths, or Tulips, edged with Crocuses or Scillas, and then surfaced with the Acæna and Saxifrage; or the Acæna might be planted as undergrowth to the ordinary summer-bedding plants, and be in perfection after they were removed. I never saw the Saxifrages look so beautiful as at this season of the year. S. rosularis, cochlearia, Stnrmeriana, lantoscana are now encrusted with a pearly sheen, which gives them the appearance of frosted silver. I returned home, therefore, feeling that even at this dull, foggy, dreary season the garden in winter has its charms for the observer of Nature.

John P. Mulcaster.

Benwell Park, Newcastle-on-Tyne.

A new Thorn.—A few weeks ago fruiting specimens of a Thorn were shown by Messrs. Veitch, at South Kensington, under the provisional name of Cratægus tatarica—a name given on account of its having been received from Tartary. Since this Thorn was exhibited it has been found to be C. pinnatifida, and, as the fruits of Messrs. Veitch's specimens appear to be larger than those of the type, it is considered to be a new variety, and has been named by Mr. Brown, of Kew, C. pinnatifida major. As previously stated, this is a valuable new shrub, remarkable for its handsome leaves, which are from 2 inches o 3 inches long, deeply lobed, and tinged with vinous purple. The fruits, which are about the size and shape of Cobnuts and borne in clusters of from two to five, are deep orange-red in colour. The flowers are said to be but little different from those of other Thorns. It is perfectly hardy in the Coombe Wood Nursery, where there is a large specimen of it. It is a native of North China and Amurland, and the type was named years ag'.

THE FIRST CHRYSANTHEMUM.

Mr. F. W. Burbidge has sent us flowers of the Chrysanthemum named Dr. Sharpe in order to enable us to compare its flowers with the drawing of the first Chrysanthemum flowered in this country, and which appeared in the *Botanical Magazine* in 1795. The coloured drawing and the living flowers are so much alike in every way, that there is no doubt that Dr. Sharpe is the identical sort which was flowered by Mr. Colvill in his nursery in the King's Road, Chelsea, just ninety-two years ago. The drawing beautifully represents the peculiar shape of the flower, the toothed florets of the expanded bloom, and the quilled flowers in the half-opened state. The colour, too, is excellent, for even after ninety years the richness of the purple-crimson is not in the least faded. This fact is most interesting, as it plainly shows that a plant may be cultivated for a hundred years and yet not become altered in any way. This Dr. Sharpe variety may, however, not be identical with the wild type of C. indicum, as it may have been introduced from Chinese gardens, where the Chrysanthemum had been grown for ages in great variety. What Mr. Curtis said about this plant in the tenth volume of the *Botanical Magazine* may be interesting to some of our readers. He says: "New as this plant is to us, it appears to have been cultivated in China for ages. Linnæus, who describes it in his 'Species Plantarum,' refers us to a figure in the 'Hortus Malabaricus'; this figure, and the description accompanying it, agree generally with our plant, but the flowers are more double, much smaller, less clustered, and do not correspond in point of colour, yet there can be no doubt that our plant is a variety of the same; it is there described as growing in sandy situations and having green petals. Rumphius, in his highly interesting work, the 'Herbarium Amboinense,' is much more minute in his information; he observes, that these plants were originally brought from China, where they flower in May and June; that there are two sorts principally cultivated in India, the white and yellow-flowered, and a third sort, differing only in the colour of its flowers, which are red (the variety, as we suppose, here figured) began to be known among them at Amboyna; the flowers there do not expand well, owing to their being produced at the rainy season, and they decay without producing any seed. He tells us further that it is cultivated chiefly for pleasure; that the natives and the Dutch plant it only in the borders of their gardens, in which it does not succeed so well as in pots; and that if it remains more than two years in the same spot, it degenerates, becomes less woody, and often wholly perishes; that the Chinese, by whom it is held in high estimation, pay great attention to its culture; they set it in pots and jars, and place it before the windows of their apartments, and that it is not unusual for them when they invite their friends to an entertainment to decorate their tables with it; on those occasions, he who produces the largest flower, is considered as conferring the greatest honour on his guests; besides these three varieties already mentioned, they have a fourth, which is more rare, whose flowers are of a greenish ash colour, all these varieties growing in separate pots, they place in certain quarters which they particularly wish to decorate, and the effect they produce is highly pleasing. In the cultivation of this plant they spare no pains; the shorter it is and the larger its flowers, the more it is esteemed. To make it dwarfish, and at the same time productive of flowers, they check its growth; for, if suffered to grow rude, it assumes a wild nature, and produces little but leaves. When it is coming into flower, of the three blossoms which usually terminate each branch, they pluck off two, and thus the remaining flower grows larger; by this, and other management, they cause the flowers to grow to the breadth of one's hand. He enumerates still a fifth sort with white flowers, which is extremely rare, and smaller than the others, called *Tschuy say si*, that is the drunken woman; its flowers morning and evening flag, and hang down as if debilitated by intoxication; in the middle of the day they become erect, and follow the course of the sun; but this (most probably a distinct species) is not exported from China. Finally, he remarks, that the Chinese and Malays are so attached to these flowers, that they even decorate their hair with them. Thunberg, in his 'Flora Japonica,' enumerates the Chrysanthemum among the natives of that country, and describes it as growing spontaneously in Papenberg, near Nagasaki, and elsewhere, observing, that it is cultivated for the extreme beauty of its flowers in both gardens and houses throughout the whole empire of Japan, and that the flowers vary infinitely in point of colour, size, and plenitude. This Chrysanthemum appears to be a hardy greenhouse plant, and it is highly probable that, like the Camellia and Aucuba, it will bear the cold of our mild winters without injury. As it flowers so late, there is but little prospect of its producing seeds with us, but it may be increased by cuttings and division of the roots."

A MOORLAND GARDEN.

Cookridge Tower, belonging to Mr. A. W. Sykes, is situated on one of the highest pieces of table-land within a radius of five miles of the borough of Leeds. It is some 13 acres in extent, but owing to its half-woodland and half-moorland character, which to nearly its fullest extent has been taken advantage of, it really becomes, from a gardener's point of view, a larger and more important enclosure than one might at first imagine it to be; in fact, the whole area may be termed a series of woodland, rock, pleasure and fruit gardens. The house overlooks a large lawn, unbroken by walks or beds; and here may also be found a well-stocked rock garden, and a cosy hollow, whence stone has been quarried, has been transformed into a charming retreat by ornamenting it with aquatics, and its banks and ledges with Lilies and other large flowers, which do well in such a sunken and sheltered situation.

One of the chief features of the grounds is the great sandstone rocks which crop above the surface, somewhat isolated and weatherworn. Happily, these, though quite near the house, were saved by somebody's forethought from the delver's wedges and hammers, and the owner, by a happy idea, has thrown them into bold relief by surrounding them with pieces of well-kept greensward. There is no other touch of art near them, except a few Primroses under a part, which hinders the close approach of the mowing-machine, and a bit of Houseleek here and there.

In harmony with the semi-wild character of the other parts the drive is minus Grass or any other edging, and there you see an irregular mingling of Ferns, Vincas, Forget-me-nots, Primroses, and similar flowers. There are but few beds, and absolutely no bedding. The beds may be termed rock beds, as in them, among a few Moss-grown stones, a selection of the rarest alpines is thriving in the happiest possible way. I never saw alpines more flourishing under cultivation than in these grounds; doubtless the altitude of 600 feet is something in their favour, and then the resources of the place are almost all that could be wished for. There is a spit of capital loam, leaf-mould, in all stages of decomposition, practically in unlimited quantity, and the same may also be said of peat. In some parts at a depth of 18 inches a bed of fine sand is found. In addition to these natural advantages, the owner, in order to help and protect his favourite plants, has had them planted in the best spots, clearing away as much of the wild vegetation as seemed desirable.

Rhododendrons form quite a feature of this place. The ponticums have been freely planted for backing up the lawns and banks of rarer sorts. It may seem odd, but here, as with Mr. Milne-Redhead, these common sorts suffered more than the hybrids during last winter. Surrounding the larger lawn are grand specimens, which in the flowering season produce some striking effects. In a

field, however, as seen from the rougher rambling walks in the lowly wooded parts, small groups and single specimens have been placed with rare judgment, and to see them in flower among short timber, and surrounded by the varied hues of knee-deep Bracken, Ling, and Heather, is a picture little short of perfection. It hardly need be said that the natural soil and subsoil already mentioned exactly meet their requirements, and doubtless influenced their being planted to such a large extent.

Alpine and herbaceous plants.—Plants of these not often seen in many places are here represented, and it may be interesting to state that the sweet soil and atmosphere, and the comparative immunity from fogs with which we in the valleys have to contend, appear to have a magical effect on plant life. The Himalayan Primulas grow like Cabbages, and those of the European Alps seem equally happy. The finer single and double Primroses, even the old double crimson, so rare and fickle, grow into big tufts in one season. Gentians have not been long planted, but in a year or two they have made rapid progress. Verna and bavarica thrive wonderfully; the curious Paris quadrifolia, so difficult to establish, here finds a happy home. Saxifrages are largely employed in the stony places, and even those many of us find fickle grow away without check, notably squarrosa, the rarer forms of oppositifolia, Burseriana, the diapensoides class, Megasea purpurascens, and other Himalayan species, such as Fortunei, which are often believed to be tender. Just as much may be said for the genus Campanula; the Bellflowers, from the tallest to the most humble, are scattered about, and from the fragile hederacea to the Chimney species, they almost too soon fill their allotted spaces. When it is seen that such moisture and shade-loving species as Ourisia coccinea, Linnæa borealis, the Cortusas, Serapias, Cypripediums, Fritillaries, Reeds, and such like are equally accommodated with such sun-loving and drier-rooting subjects as the Drabas, Arenarias, New Zealand Veronicas, Wall-rues, and the tribe of alpine Wallflowers, it is evident that mixed collections can be made to flourish in the same garden, though it may be under different conditions. I was delighted to see on my last visit, not long ago, how the charming purple Milk-wort was spreading, also Gaultheria procumbens and nummulariæfolia, the Chickweed Winter-green (Trientalis), the Soldanellas, and rarer Andromedas. I was also impressed with the fact that many things which often die in more low-lying gardens during winter seemed to stand the cold better at Cookridge than elsewhere. Some of these, I may mention, were Gunnera scabra, the Platycodons, Phlox pilosa, Onosmas, Arnebia echioides, Sempervivum Laggeri, some Sisyrinchiums, Egyptian Yarrow, the brevifolium set of Stonecrops, and others which do not occur to me just now. I believe I am not far wrong when I state that Galax aphylla, Adonis pyrenaica, Dianthus glacialis, and the Androsaces are generally conceded to be test subjects for culture in our climate, and I am glad that it has been my lot to see them happy. The Edelweiss here has none of the half-decayed or biennial character which it so often has. Umbilicus spinosus has not suffered in the least from the past two winters. When it is stated that cut flowers are in great request, and that the range of glass is limited almost entirely to growing fruit and Orchids, it may be supposed that hardy plants have mainly the cut-flower material to produce.

Rock gardens.—One of these is on a space cleared of wild vegetation, and selected for its nearness to the dressed parts of the grounds, as well as for its adaptability by reason of the stone there cropping up in large and small blocks above the surface. Something has also been done in the way of arrangement, but very little in changing the surface level, and the heaping-up idea was nowhere carried out in the preparations for the plants. The consequence is, that all are set in the natural soil cleared from old roots, and mostly at the old level. In some places moisture largely accumulates in rainy weather. There are positions of dryness and a maximum amount of sunshine as well as of shade, with all practical intermediate degrees of both. From the manner in which the surrounding and dwarfer trees and shrubs have been left or thinned out, and the wild and beautiful undergrowth preserved to the edge of this rock garden, it has a cosy and half-natural effect. Tall things in the way of Sunflowers, Elecampane, Speedwells, &c., have been set in groups in the more open parts of the scrub, and a coppice here and there has been planted with the finer varieties of Heaths. The lower and twiggy trees have had rambling Roses and other climbers placed in prepared soil at their feet, so as to climb into and drape their branches; but as this result can only be obtained after a considerable time, the desired effects will yet have to be waited for. Such bold subjects as Irises, Grasses, Saxifraga peltata, &c., associate admirably with big rocks just standing above the surface. The second rock garden is formed in a hollow; well-grown shrubs and trees close by, but not overhanging, benefit the things grown by keeping high winds well overhead. A series of beds which used to be planted with the usual high-coloured tender plants have been changed into rock beds; they are situated in a good-sized recess of the large lawn, and, being in the line of sight from the windows with one of the big sandstones standing out clear on the Grass, they harmonise and otherwise have a solid, but pleasing effect. In these beds, where but few stones are employed, the plants do remarkably well. Thymes, Mountain Avens, the dwarfest Gentians and Primulas, Saxifrages, alpine Pinks, Andromeda tetragona, dwarf Gromwells, Bellflowers, and Sempervivums, and such like not only prove themselves capable of adorning the most frequented parts of the pleasure grounds equally with tender bedders, but the pleasure and interest which these thriving alpines afford never wane throughout the year.

Lilies.—In addition to numerous ordinary sorts of Lilies, which are mainly grown in the open air, some fine specimens have been grown in pots here this summer. The spotless and distinctly-coloured flowers of Batemanniæ, which has a stem nearly 5 feet high, numbered eight flowers on a stem. Auratum macranthum was in grand form. The pale-rayed, but otherwise pure white, flowers were fully 9 inches across, though reflexed; the petals were quite 4 inches broad, and, overlapping each other, their massive effect may be imagined. Auratum rubrum vittatum was highly coloured in the band; flowers 8 inches across, and three on each 3-foot stem. Auratum pictum showed an unusual form—almost fantastic in the shadings, each flower being 6 inches in diameter, and five flowers on each of the 5-feet to 6-feet stems. Ordinary auratums were grown to 7 feet, and ten to twelve flowers were on each stem. Leichtlini was good; the flowers had been screened, and the fine yellow showed up the distinct spotting of chocolate-brown in a better way than is usually seen.

J. W.

NOTES OF THE WEEK.

Gardeners' Royal Benevolent Institution.—We are informed that Baron Ferdinand de Rothschild, M.P., of Waddesden Manor, Aylesbury, has kindly consented to preside at the forty-fourth anniversary festival of this institution, to be held on Friday, the 1st of July, 1887.

Luculia gratissima.—This fine old-fashioned, but somewhat neglected, stove plant is now flowering freely in Mr. Williams' nursery at Holloway. It is usually thought to be a shy flowerer, *i.e.*, until it has attained a considerable size, but the specimens at Holloway are not more than about 2 feet high, and yet, as we have said, they produce sweet-scented flowers in abundance. Some of them are seedlings, and some have been obtained from cuttings.

The Chinese Date Plum.—Some very fine fruits of Diospyros costata have been sent to us by Canon Ellacombe, gathered from a tree growing against a south wall in his garden at Bitton, near Bristol. The fruits are similar in shape and of about the same size as those of well-grown Acme Tomatoes. They are orange-coloured, and produced three and four on one shoot. Those sent are not ripe, but Mr. Ellacombe says they will ripen if kept. He calls it "Tchi-tchi," presumably its native name. D. costata is a variety of the better-known D. Kaki. It is a native of China, where it forms a small tree. It was introduced nearly a hundred years ago. Mr. Ellacombe does not state his opinion as to the edible qualities of the fruit, but we remember tasting some of D. Kaki, grown in Mr. G. F. Wilson's orchard house at Weybridge, a year or so ago, and these were pleasant to the taste; they were not so good as Apricots, but a fairly good substitute for them.

The green Narcissus (N. viridiflorus).—Mr. Peter Barr sends us a flower of this rare little bulb, which he says is the first flower from his plants this season. It is certainly a curiosity, but no great beauty. The flowers are star-shaped, about an inch across, and of a dull olive-green colour. It has the tiniest of cups, and the whole flower is so unlike that of a Daffodil, that one would hardly believe that it is a near relative of the Emperor and other stately Daffodils of that stamp.

Vitis humulifolia.—The rain deluges which we have lately had have effectually washed the colour out of the few flowers left in open-air gardens, but I notice that the berries of this pretty Vine look all the brighter for the continual washings and buffetings to which they have been lately subjected. This Vine wants a good, hot summer, and if planted in poor soil and in a sunny aspect, it is really lovely when in fruit, but in shady places it does not ripen its berries. Its leafage, too, is good. There is no difficulty as to its growth. I find that in grows freely in the poorest soil, and that its turquoise-coloured berries are more beautiful when checked in growth by a hard root-run than when planted in a rich Vine border.—James Groom, *Gosport.*

Variegated Phytolacca.—We have received from MM. Forgeot and Co., of Paris, a specimen of a new variegated-leaved form of Phytolacca, which they name P. purpurascens foliis variegatis. Its leaves are beautifully variegated, being green and carmine in the centre, and broadly margined with creamy white, while the large fleshy stem is light red. The raisers state that it is a hardy and vigorous perennial, growing about 6 feet high, and that it will prove invaluable for the embellishment of open-air gardens.

Oreopanax Epremesnilianum.—The Comte d'Epremesnil writes: "I have just seen with great pleasure in the last number of The Garden the beautiful engraving of the Oreopanax Epremesnilianum; but a mistake has been made in referring to the garden of Thibermont, near Dieppe, as the place where this plant and others grow in the open air. It is in the garden of the Villa des Cocotiers, Golfe Juan, Alpes Maritimes, that all the Palms and plants of different kinds of which I have spoken to you are found. I think it is indispensably necessary to rectify this error as soon as possible. I should not like to mislead anyone who might suppose that all these plants grow in the open air near Dieppe."

Schizostylis coccinea withstands the wind and wet bravely; in fact, it affords about the only brilliant bit of colour to be found out of doors just now, and as long as sharp frost keeps off we can get plenty of its spikes, the flowers on which open beautifully after they are cut. Gentiana acaulis has been full of bloom lately, and looks like keeping on until its usual spring display takes place. How so many complain about its not growing freely I cannot imagine. I find that if planted in firm soil and left alone it soon forms a dense mass. A good thick edging of this Gentian in full bloom is a sight not readily forgotten.—J. G., *Gosport.*

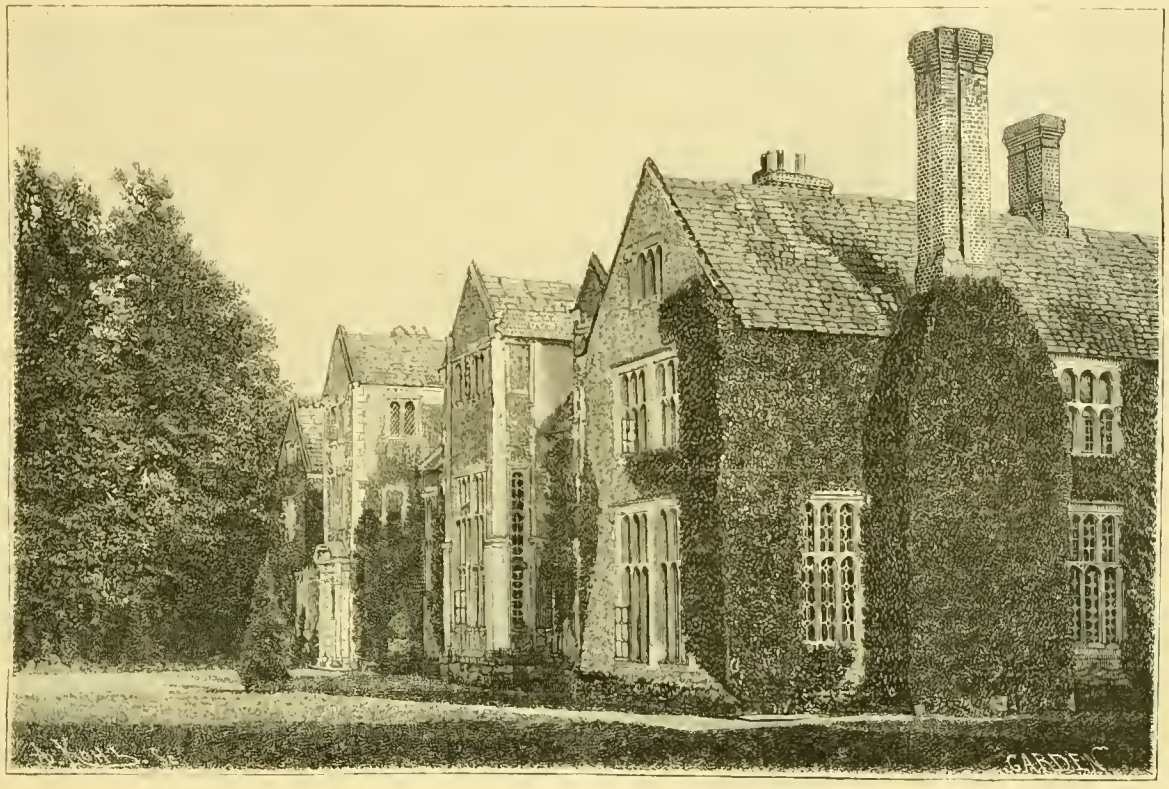
Rosa arvensis.—Is this Rose to be bought anywhere? If any reader of The Garden would send me a sucker I should be glad to give the old White Rose or York and Lancaster in exchange. Also, can anyone tell me where the old Apple Rose is to had?—M. P. Forster, *Lesbury, Northumberland.*

How to eradicate Horse Radish.—Will someone do me the favour to inform me whether there is any method by which I can destroy the growth of Horse Radish in my kitchen garden, which is completely overrun with it? I have tried digging it out, but though I went a considerable depth, the plants only appear to grow the stronger.—Constant Sub.

LOSELEY.

Loseley, near Guildford, the seat of Mr. William More Molyneux, is a fine example of a stately English home, and of the noble style of national architecture of the time of Queen Elizabeth. The building is of the local Bargate stone, with quoins and wrought masonry of freestone, brick chimneys and slated roof, the whole toned by weather and Lichens to a harmonious silver-grey colouring. The house is on three sides surrounded by wide, level lawns, with groups of large trees at a pleasant distance. These fine stretches of Grass are for the most part happily unspoilt by the usual cutting-up effect of flower beds and injudicious planting, and the grand grey house rises from the level sward with its quiet dignity unmarred by any petty frivolities. The lawn on the south side has not been so fortunate, and is a good deal spoilt by a small sunk rectangular garden of no beauty, with beds set out in heraldic patterns. The entrance road from the south-west passes up a steep hill through a double avenue of magnificent Elms, and the view from the last named lawn, looking full into the mass of these superb trees is a sight that a tree-lover can never forget. The fourth side of the house, beyond the offices, is bounded by a large walled kitchen garden. This garden on the south side is not visibly walled, but a steep turf bank rises to a level bowling green, the subject of one of our engravings. A flower border filled with good hardy plants conceals the coping of the wall which descends to the moat on this side. Each angle of the wall is accentuated by a small picturesque building—in some cases a large pigeon house, but in the view engraved, a pretty summer tea-house. The kitchen garden is an ideal one, both for utility and for enjoyment. Its large walled space ensures shelter, and as its extent is needlessly great for vegetable and fruit growing, it comprises, in addition to the bowling green, ample Grass walks and lawn-like spaces, broad borders of hardy flowers, shady alleys of ancient Filberts and fantastic old Apple trees. The house stands on rising ground in a park of fair size, ornamented with groups of fine Oaks, Elms, and Spanish Chestnuts. An old plantation of well-grown Scotch Fir, which comes to perfection in the light sandy soil of the district, makes a pleasant variety. To the north, within a mile, rises the Hog's-back, the westerly section of the chalk range that runs due east and west through a large part of the county of Surrey.

This fine house was built by Sir William More, an ancestor of the present owner, in 1562 and succeeding years. His son added a western wing, which has since been pulled down. Queen Elizabeth was a frequent visitor at Loseley.



Loseley, Surrey. Engraved for The Garden from a photograph.

FRUIT GARDEN.

GRAPES IN THE OPEN AIR.

I must differ from those who assert that the Grape is not suitable for open-air culture in this country. So far from placing it last on the list of hardy fruits suitable for open walls, I would give it, so far as the cottager is concerned, the place of honour. I have, of course, only in mind the warmer counties of this country. Of Grape culture in the north and in the midlands I have had no experience, but I do know that over a large area very good Grapes may be grown by giving them the attention they need. In ninety cases out of a hundred they do not get this attention, and that is why failures occur. I do not understand why, but the love of the Grape seems to have died away in places where, a quarter of a century ago, every cottage was more or less wreathed in Vine foliage. It was pleasant to see the cottager sitting under his Vine-clad porch, and to look at the yellow or blue-black Grapes clustering on the end or covering the front of the dwelling. Whether bad seasons or mildew is the cause of this decadence, or whether outdoor Grapes are passing through one of those phases of neglect which at some time or other overtake every cultivated plant, I know not; but it is certain, from being one of the most popular of hardy fruits, Grapes are now the least thought of. The fault so frequently committed is that of leaving too many shoots. Our climate being uncertain, we need to expose every leaf and bunch of fruit to the full influence of the sun during a great portion of the day. In a general way, growers appear to think that they have a tropical sun to deal with, which is able to force enough heat through a tangled mass of leaves and shoots a couple of feet thick to ripen Grapes buried under it.

The other day I saw a cottager vainly trying to repair the effects of neglect. The lateral shoots of this Vine had formed a drooping mass of foliage, from which here and there peeped out a bunch of green Grapes, and which through the summer had never got the full benefit of the sun's rays. But a short distance from here I saw another Vine, the condition of which compared with the former was as sunshine to shade. Every shoot had space enough; the laterals were cut in regularly, and thereon hung in good condition quite a bushel of Black Cluster Grapes. These Grapes were ripe, though the summer has been remarkable more for drought than heat. The only serious drawback to outdoor Grape culture is mildew, which I will admit is a fearful scourge, and one more difficult to deal with in the open than under glass. There may be years when the most determined efforts will fail to completely eradicate it, but it can always be kept in check; there need be no serious loss from it. What the French Vine growers have done with many acres we may surely do for one single Vine. A short time ago I killed the mildew on a wall 100 feet long in about an hour by syringing with soft soap and sulphur. In this instance the foliage was badly infested, but by taking proper measures at the right moment this pest need never obtain a hold. From long observation I am convinced that there is just one time when mildew appears. No rule can be laid down; it entirely depends on the certain atmospheric conditions which, unless in exceptional seasons, are sure to prevail for a sufficiently long period to favour parasitic development.

This critical and dangerous period must be watched for, and the plague spots attacked the moment they appear. Mildew comes first in minute isolated spots. This is the sowing of the seed, which, left alone,

yields a bountiful harvest of disease, loss, and annoyance to the Grape grower. It is almost inconceivable the rapidity with which mildew under the most favourable conditions spreads. To-day it is seen in the shape of a few isolated minute patches; in a week's time there is not a leaf in which the circulation is not lowered by this parasite. One must act on the stitch-in-time principle if the deadly foe is to be fought with success. A very small amount of sulphur applied at the right moment will often save a Vine from injury, and it is seldom that mildew comes twice in the same year. In the case of badly infested Vines two dressings will generally be found necessary, for mildew, like all the enemies that assail plants, is difficult to exterminate when once it has obtained firm hold. It is only fair to say that this difficulty is intensified in the open air by reason of heavy rains, which often come and wash off the sulphur before it has time to act upon the fungus. It is, however, rare that we do not get a spell of fine weather sufficiently long to enable the remedy to do its work thoroughly, and advantage should be taken of the appearance of lengthened fine weather to apply it. When sulphur is applied in the open air, it is a good plan to use some soft soap with it, at the rate of 2 oz. to the gallon. This will enable it to resist all but very heavy rains.

Great importance is often attached to making the soil rich for outdoor Vines. This is, I think, a mistake, as much strong food causes a rank growth, which is often unable to ripen as it ought to do. In naturally rich moisture-holding soils I would apply no manure, for if the ground is well worked the roots will be sure to find as much food as they want. It has often been a source of wonderment to me to see what a small amount of soil the Vines in many of the vineyards on the Continent have to grow in. In many instances they have not more than 6 inches of workable soil, this resting on a hard pan of stony matter, into which, however, the roots in all probability find their way in time, and which helps them to stand against the drought which one would naturally suppose must be severe on the steep slopes on which they grow. The wood made under such circumstances is not very strong, but it becomes thoroughly matured, exposed as it is to a scorching sun, which not only acts on wood and foliage, but on the roots, by thoroughly warming every particle of soil around them. The fact that the Vines grow and live healthily for an indefinite period under such circumstances shows that much rich food is not needful, and we may conclude that in a level and naturally damp country it is harmful. I have in mind a Vine which grew on a wall, and which was one of the best samples of outdoor Vines I ever saw. It covered the end of a largish dwelling, and for many years annually bore a good crop of well coloured black Grapes. This Vine, it happened, had been in good hands from the time it was planted, and had, therefore, received all proper care in pruning, summer-pinching, &c.

The noteworthy point about it, however, was that it grew in the poorest soil possible to find, and that it got no manure. The natural soil was pure sand to the depth of 2 feet or more, and this on the surface became so hot that it almost burnt the hand in a time of heat. It was about the worst soil for garden crops that I ever knew, not only on account of its inability to retain moisture, but because, when the surface became quite dry to the depth of a couple of inches, nothing short of a tolerably lengthy period of rainy weather could wet it through again. A good summer shower, such as in ordinary soils did real good, was only of use in refreshing the foliage, for none of it got to the roots. The dusty surface did not allow it to pass through, and the first hour of hot sun evaporated it. I mention this to show how little moisture the roots of the Vine in question got. The less moisture the warmer the soil, and I have no doubt that to the warmth the roots enjoyed in summer, in addition to the care bestowed on it, were due the lengthened vigour and excellence of the crops it bore. Just when this Vine was in its prime it changed hands; the new owner neither knew nor cared about Grape culture, and the last I heard of it was, that it was but the shadow of its former self. Whether it succumbed to an attack of mildew or to neglect generally I do not know, but the fact is, that when skilful hands no longer tended, decrepitude took the place of vigorous fertility. I need scarcely say how necessary it is that Vines grown on open walls should get the full benefit of all the sunshine they can get. The position should be, if possible, full south, and where such a situation cannot be commanded, I would say, plant a Plum, a Pear—anything but a Vine. Vines may be planted at any time after the fall of the leaf, but the best time is, I think, early in spring. With respect to the preparation of the soil, there is not much to say. The important point is to thoroughly work it to a depth varied according to its nature. The more porous the soil the greater depth of it will be necessary; but if I were going to plant Vines on a heavy loam, I would keep the roots within a foot of the surface, if possible, so that they might feel the influence of the sun. In the case of soils of this description I have no doubt that an addition of brick rubble, mortar rubbish, or something similar would be beneficial.

Amongst hardy fruits none lend themselves better to artistic trimming than the Vine, and the shoots may be arranged so as to impart an ornamental appearance when at rest. A well-trained Vine is at all times pleasant to see. The simplest form of training is, however, the best, and that which I would preferably employ consists in leading two horizontal branches near the ground from the stem and allowing shoots to rise from them at regular distances to the desired height. This arrangement better allows of easy supervision than any other; the position of each fruiting shoot is better seen, and the necessary work of stopping the laterals, thinning the shoots, &c., is facilitated. It also allows of the renewal of youthful vigour by taking up a young shoot now and then. It is simply a modification of the "long-rod" system, as carried out frequently under glass, applied to outdoor Vines. A most important point is the regulating the shoots, so that every shoot and leaf and bunch of fruit get the direct influence of sun and air. No success can attend an absence of methodical training. If the shoots are so crowded that they overgrow each other, they are mutually robbed of that which is life to them. The best of soils and most favourable of situations cannot, unless in exceptional seasons, counteract such a defect. Even in sunny France training is considered of most vital import, and the renowned Chasselas Grapes of Thomery owe their excellence as much to systematic, careful culture as to favourable climatal conditions. The Vines there are as carefully tended as those under glass with us. The stopping of the shoots and thinning out of laterals must, from the time the bunches show, be vigilantly attended to. A common practice is to allow the shoots to run away for a month or two, and then, when they have become crowded, cut them away wholesale. This is very bad practice, as it involves a loss of time by depriving the bunches of air and sunshine, and causes a check by depriving the Vine suddenly of a number of growing shoots. Every shoot allowed to extend and cut off in this way takes away from the quality of the leaves which must be left on. Every shoot should be pinched back at one leaf from the bunch, and lateral shoots must be taken out as soon as they appear. This throws the sap into the leaf, so that it acquires great substance, and one well-developed leaf is worth half-a-dozen that have grown in partial shade and deprived more or less of air.

Thinning out the berries of outdoor Grapes is not often practised, but it has, of course, the same effect as in the case of indoor Grapes. This should be done as soon as they are large enough to handle; allowing them to remain until they are as large as Peas will not do. It frequently happens that the shoots of a Vine have plenty of room for the first few years after planting, and then gradually become too crowded. In such cases some of the rods should be cut away. When the shoots are young, 15 inches apart will be enough, but later on they will require double that distance. When a Vine from any cause has come into a bad condition, the old wood having a knotted appearance and the fruiting shoots coming weakly, a good plan is to cut away some of the old stems every year and take up a young rod in their place. This alone will frequently give new life, and is often found successful with Vines under glass. The growth of the new wood gives an impetus to root action, and in the course of two or three years a new Vine will have taken the place of the old one. It will soon be seen whether such a measure is likely to have any good effect; if not, then dig up and plant anew. With respect to kinds, we really appear to be in the dark ages of outdoor Grape culture. Even in the days when this form of hardy fruit culture was more popular, only two kinds were known to the million, *i.e.*, the Black Cluster and the Sweetwater.

The French have very nearly 500 hardy Grapes, not one of which has ever been fairly tried in this country, and this number is continually being increased by raisers who are endeavouring to combine reliability with greater precocity. Surely some of these would suit the warmer districts of this country. Who will do the good service of making a special feature of outdoor Grape culture, with a view of testing the numerous Continental kinds in respect to their adaptability for our climate? Some of the kinds I have been acquainted with in France and Germany seemed to me considerably earlier than those commonly grown here. There is one called the August Traube (August Grape) grown in the south of Germany, especially in the Margraviate of Baden (a district bordering on Switzerland), remarkable for its exceptional precocity. I have not the slightest doubt that this Grape would ripen well in this country. A Grape that will ripen in Germany early in August ought to ripen with us six weeks later. I remember, too, very distinctly a Grape that in my boyhood grew on our dwelling, and which no gardener who saw it could tell its name. It came almost as large in berry as a fair sized Hamburgh; the colour was equally good, and it carried a good bloom. This Grape always ripened, and could easily be disposed of to fruiterers in the neighbouring town. I should much like to meet with this Grape again; perhaps some of your readers may recognise it from the description here given. There is no doubt that a series of cool summers with more or less sunless autumns have had a deteriorating effect on outdoor Grape culture, but we are not justified in assuming that this is to be the normal state of our climate. Seasons good or bad are apt to move in cycles, and when we once more emerge from this depression we are likely to be again favoured by a return of old-fashioned summer weather. I would remind those who hold pessimist views on this matter that the question of whether Grapes can be grown in the open air has been practically settled on the Marquis of Bute's estate at Cardiff. I am informed that in spite of adverse seasons the vineyard planted some years ago with, I believe, Continental kinds selected by Mr. Pettigrew in France has flourished, and that good wine has been made from them. I am also told that this vineyard is going to be extended. This does not indicate that our climate is very unfavourable to the Grape, but rather that, given a favourable situation, the right kinds, and skilful culture, outdoor Grape culture may be made a success.

If Grapes will ripen on an open hillside, they will do so on a wall, and, having in remembrance the crops of Grapes on the cottages of the pleasant little villages of Surrey, I do not hesitate to assert that it is care and skill rather than climate that is at fault. No fruit that I can see has taken the place of the Vine; no fruit has been or ever will be so popular with cottagers. The Pear is uncertain; so in a great measure are Plums and Cherries; and Peaches are out of the question in all but professional hands. The Vine is almost sure to bear fruit, as it rarely gets cut by the spring frosts, which bring the average yield of many other hardy fruits down so low. Moreover, the pruning is as simple as that of a Currant or Gooseberry bush. Let those plant Pears or Plums that will, but I cannot think that they will average higher as regards profit than Grapes. Comparing the returns during a decade, I am convinced that the advantage would be on the side of the latter. Pears are only of use for dessert—they are not used for jam; Plums and Cherries are more generally called for, but with them there is apt to be a glut or none. Any greengrocer in a populous neighbourhood will purchase fairly ripened Grapes, and they are often in

request for wine-making. There is never any difficulty in disposing of them at a fair price. I have often known a cottager clear over 20s. from his Grape Vine in one season. J. Cornhill.

VIGOUR AND FERTILITY.

This subject, according to a contemporary, has been revived in a somewhat new aspect. It will be remembered that in the discussion that took place in The Garden some time back, I contended that vigour promoted fertility in the case of both fruit and flowers, and *vice versâ*, Mr. "D. T. F." and others holding the contrary opinion. The following, from Mr. Thos. Meehan, in your contemporary, seems to favour my view:—

In coniferous trees the female flowers, ultimately the cones, are only borne on branches which have plenty of light at command and are endowed with vigorous vitality. When these branches become overshadowed, or weak from age, they are given up to male flowers only. In Indian Corn and similar plants the ears are located where the most favourable conditions for nutrition exist, the male flower, or tassel, forming merely the "tail end" of the stalk. Numerous facts of this character have been collected closely connecting the female flower with full nutrition, and the male flower with a more limited supply in the primordial stages of their existence.

European observers continue to record facts sustaining these views. Among the latest is a paper by Hoffmann in the *Botanische Zeitung* for 1885. He sowed seeds of numerous kinds of dioecious plants closely together, so as to give little food to each plant, and the same plants thinly, so as to give each plant nearly all the food it could use. Where they were thickly sown he counted 283 males to 700 females. In the well-fed lot there were but seventy-six males. In our own country the common Ragweed (Ambrosia) is a good illustration of this fact. In a Potato or Corn-field where the plants grow very strong and vigorous, the proportion of female flowers is largely in excess of the male, and it is not uncommon to find plants with nothing but female flowers under these circumstances. But in fields where grain has been cut, and the Ragweed comes up in thick masses late in the season, and nearly starving each other, male flowers are very numerous, and some are wholly male. Female flowers are always few on each plant.

The above paragraphs seem to be pretty much the same as saying that vigour promotes fertility, as in the case of the subjects exampled by me, viz., the Grape, Nectarine, and Currant, &c., there cannot be perfect fruits without seeds. Whoever may be right, the fact is interesting that the theory that vigour promotes fertility is quite opposed to one of the most cherished convictions of gardeners, as exemplified in "D. T. F.'s" late contentions on the subject, for that poverty produced fertility as well as roots on a plant is an article of faith of gardeners of long standing. The two theories are directly opposed to each other, and it would be disappointing to discover that cultivators had been all along acting on quite wrong principles. It can hardly be forgotten yet that I referred "D. T. F." to Currant and Gooseberry bushes during the past season as affording good evidence of vigour promoting fertility both in the number of racemes and berries produced, and I would almost have expected him to act upon my suggestion and report the result; but he has not done the latter, and I may be excused for taking his silence as favourable to my view. I did repeat my observations, which only confirmed all I had written more and more, as in all the cases observed, whether they related to single shoots or whole bushes, the most vigorous examples bore the most fruit. J. S. W.

Preserving Filberts.—I have found well-matured nuts to keep best in their leafy shells and in a jar placed in a dry, yet cool, place. No doubt very much depends upon the sort of fruit, the soil in which grown, and the cultivation bestowed. Then it seems not easy to keep home-grown nuts beyond Christmas. On the other hand, we find imported nuts to be good all through the winter, perhaps all the year round more or less good. That may arise from the diverse nature of the ripening periods, or perhaps from the greater warmth more thoroughly ripening the nuts. The Barcelonas have a high reputation for sweetness, freshness and soundness, due no doubt to the thorough ripening received. Thus it would appear reasonable that small nuts should keep with us good or bad just as the position has enabled the fruits to become thoroughly ripened or otherwise.—A. D.

MARKET PEARS.

A market gardener in my neighbourhood grows Pears largely for market, and he states that he has done better during this season than for some time past, although the crop of leading varieties was greater generally than for the past few years. He commences to market with the Portugal or Chalk Pear, a variety that I cannot trace, and a Pear that must be eaten as soon as gathered, as it will not keep; it is like the Windsor in appearance, but smaller, and it is a very heavy cropper. This variety, the first sent to market, brought him 6s. per bushel. Then followed the Hessle or Hazel Pear, a variety that grows into a fine standard, and succeeds in almost any situation, and perhaps it is as extensively grown as any other variety, especially in the north midland and northern localities. This year the Hessle almost everywhere gave a tremendous crop, and so Hessles sold somewhat cheaply; a good sample fetched 4s., 5s., and even 6s. a bushel; the inferior ones only 2s. 6d. This Pear is of excellent quality in some districts. Next came in order of time Williams' Bon Chrétien, which in its season fetched from 5s.—the smallest—to 20s. per bushel, according to the sample, the very finest realising the latter price; good average samples fetched 10s. per bushel. Then followed Beurré de Capiaumont, a dessert Pear of good quality that ripens at the end of September and in October; the tree is of hardy, vigorous growth and an abundant bearer; 2s. per bushel was considered a good price; some of the very finest samples fetched a little more. Next came Calebasse, which is regarded as a dessert Pear of inferior quality, coming better on some soils than on others—a somewhat irregularly long russetty Pear, the flesh crisp, juicy, and sweet. My informant not only had a large crop, but the fruit was both good and clean, and for the very best he obtained as much as 24s. per bushel; the inferior fruit fetched 5s., and the best 18s. and 20s. per bushel. Beurré Diel is now being marketed, and which is known to be a dessert Pear of the highest quality. On large standard trees it cannot be expected that the fruit would be as fine as on young and vigorous pyramids, but 10s. per bushel is considered a good price. Lastly, in the order of time, comes the old Bishop's Thumb, an old-fashioned and excellent dessert Pear, hardy in growth, a great bearer, and doing well as a standard. There has been a very heavy crop of this variety this season, and only low prices can be obtained. R. D.

ROOT-PRUNING AND GUMMING.

"Radix" (p. 450) seems to manufacture his vegetable physiology as he goes along—a very good plan where the practice inculcated is not quite orthodox itself. Gumming, he tells us, "not seldom follows" root-pruning, which will be news to most fruit growers. I fear "Radix" confounds gumming with canker, a totally different disease. On looking up authorities on the subject I read that gumming is simply a form of extravasion due "to excessive vigour, in which the sap is formed more rapidly than the circulatory vessels can convey it away," and that "there is but one course of treatment to be pursued—root-pruning, and reducing the staple of the soil." If this be true, "Radix" must have got on the wrong side of the hedge with his root-pruning theories. Robert Thompson and all other sensible authorities take the same or a similar view, and I think most Peach growers know well that gumming is always most to be feared in gross limbs not sufficiently matured and hard cut back at the autumn pruning, and that the symptoms can be sensibly abated by root-pruning, which checks the flow of sap, or provides channels in the shape of growth to give the sap a free run. There are no surer means of extinguishing the disease than these if they are resorted to in time. I never knew nor heard of gumming being actually caused by root-pruning, nor do I think "Radix" ever did either. I put his assertion on p. 458 down simply as one of those little free and easy statements that he is rather fond of making and indulging in. Then he goes too fast when he declares that "experience has almost established into an axiom that wherever there is most sun-heat thither will the larger and stronger roots be most thickly gathered together," an assertion which shows how profoundly reflective "Radix" must be and the extraordinary amount of study he has brought to bear on his subject. If the above statement was true, there would be no need for root-pruning at all, because as the sun-heat is always most felt at the surface of the border, the roots would be "gathered together" there, and not down many feet deep in the cold, uncongenial subsoil at the bottom, where "Radix" tells us to hunt for them. Tho fact of the matter is, "Radix's" practice, theory, and assertions are so hopelessly mixed and at variance one with another, that one may be excused for thinking the idea of giving them coherence never so much as entered his mind. Hugh Miller wrote that some writers cast off their thoughts in writing as joiners did shavings with a plane, and that the products in each case were of about equal value. Anti-Radix.

NOTES.

Winter berries.—Although as a fact Holly berries are less abundant than is usual here with us, yet there is a fair sprinkling of both red, yellow, and orange-tinted kinds. A visitor here the other day remarked that it is only the green-leaved Hollies which berry or fruit really well, and that induces me to ask if the gold or silver variegated Hollies ever do bear fruit abundantly, or otherwise? The yellow-blotched Aucuba fruits nearly as freely as the green-leaved varieties. I saw a fine flat tazza of bronze—a Japan incense-burner, I think it was—filled with the berried branches of Euonymus europæus, both red and white kinds; Cotoneaster frigida, Leycesteria formosa, Snowberries, and winter Cherry, the whole being set off by a few dark, bronzy Ivy leaves, the crimson-tiuted sprays of Veitch's Japan Creeper, Smilax, and the blood-coloured and golden foliage of deciduous Azaleas. Apart altogether from their flowers, lovely though they be, the Azaleas of the Gheut and mollis, and those of the A. calendulacea groups, are well worth growing, for the sake of their beautiful autumnal foliage, which is of all tints, from golden yellow, pink, red, scarlet, bronze, and crimson. I saw a fine bush of Pyrus Maulei growing on a sunny wall yesterday fairly covered with its golden red-cheeked, Quince-like fruits. Wherever it fruits well it is very ornamental, and a bit or two of its scented fruit is a great improvement to an Apple pie.

Smilax.—When the garden is gay with Scilla or Narcissus in spring, with Iris, Roses, and Pæonies in summer, or with the flowers and rank leafy growth of autumn, the Ivy and the Smilax on the old walls are apt to be overlooked amongst the colour and perfume or the plethora of many leafy things. There is no fear of that now, however, and I have just been admiring a mass of white Chrysanthemums which are blooming in front of a group of Smilax, and remarking how much better they seem than other groups equally good, but backed only by the dead wall. Everybody who winters in Rome or Florence will tell you delightful stories of the Violets and Cyclamens, and more especially of the dark bronzy-leaved Smilax, as seen there clustering over old walls or tree trunks, or near to the ruins of former greatness. We may never obtain in our northern gardens quite the luxuriant vigour that the sunny south gives to these elegant things, yet in mild seashore localities many varieties of Smilax, and especially S. aspera, are quite at home. The point is to plant them well at first in sandy loam, old lime rubbish, and to cover them well with stones, through which their young Asparagus-like shoots are not slow to

appear. Even if a very sharp winter cuts them down to the ground level, they soon sprout up again when so protected. The best kinds should always, at any rate, find a place in cool conservatories, where they are perfectly safe, and yield lots of graceful leafy wreaths for cutting as required from time to time. A wreath of Smilax endures fresh and fair week after week in water that is often changed. A dish of Smilax leaves and snowy Christmas Roses is delightful during the chilly wintry days.

Tritoma grandis.—From early in August until now (Nov. 15) we have never been without the glowing erect spikes of the Torch Lilies. The one now in bloom came here under the name of T. grandis, and is a moderate grower, barely half the size of T. nobilis, but very showy, and especially valuable for its late-flowering habit. A good clump planted in a sunny corner among sand and stones would be a very welcome addition to the best of gardens during November. T. media is a plant often sent to me as the T. pumila of the Bot. Mag., a plant I have been in search of for years, and as I now see is throwing up its spikes as usual, and during mild open winters this kind often goes on blooming until T. caulescens throws up its thick spikes in April. So far, I consider T. Saundersi as one of the clearest in colour, and best of all the early autumnal kinds, just as this T. grandis is the latest and best of the November-flowering varieties. I am afraid, however, that names mean but little as yet amongst the plants of this group. We have just been dividing and replanting some masses of the common kind, and find this the best season, as new roots are now pushing out in all directions, and these will be much strengthened by fresh, deep, rich soil.

Stone covering for bulbs.—Mr. G. F. Wilson's note on bulb protection (p. 448) is a very interesting one, and the adoption of the principle which it inculcates may save many a choice and valuable new bulb if adopted at once before a real cold snap sets in, and which may now at any time happen. It is not a new idea, but none the worse for that by any means. The first time I ever saw stones used as a protection for choice bulbs was in a corner near one of the once famous Orchid houses on the West Hill at Wandsworth. The late Mr. Sigismund Rucker had some large groups of Crinum and Amaryllis bulbs planted out in a sunny position, and when I saw them first they were quite warm and cosy beneath a cartload of pebbles or boulders. I believe Mr. Pilcher pointed out this wrinkle to me, and perhaps, if this meets his eye or anyone who knew Mr. Rucker's place and remembers these Crinums, he or they will be kind enough to tell us more about them. Here we adopt another plan. We surround the collar of any rare plant with stones and then fill in the interstices with dry, coarse sand, or with coal ashes or turf mould (*i.e.*, peat earth). Even a spadeful of coal ashes thrown around or over a rare plant or bulb often makes all the difference between life and death. Dry tan is good, but better than almost any other protective substance is the "pob" or "choves"—this being the refuse from the flax or jute mills of Dundee or Belfast. Those who cannot obtain it, however, will find stones, as Mr. Wilson recommends, practically perfect.

Late flowers.—The generally acknowledged fact that late flowers of Dahlias, Gladiolus, Mignonette, and Daisy-flowered things of many kinds keep fresh longer now than during the hot summer weather may, I think, be accounted for in some degree by there now being a lack of heat to develop the pollen and stigmas, so that these very late blooms do not become fertilised as do those of the earlier part of the year. Even during the height of summer if the anthers and stigmas of flowers are removed before fertilisation takes place, such flowers last fresh and fair much longer than otherwise would be the case. Double flowers last fresh longer than single ones for the same reason, and the main reason why some Orchid flowers endure fresh for weeks is simply because they are secure from fertilisation. Of course, I freely grant that development generally is much more slowly carried on now than during summer, but no matter what it is which prevents the flowers becoming fertilised that will also tend to prolong their beauty. The florists long ago recognised this fact, and gummed the anthers of their pet flowers so that the pollen was locked in as it were, or they snipped away the apex (or stigmatic surface) of the styles for the same reason. It is very easy to test the truth of the above so far as Orchids are concerned. The flowers of some Lycastes, Phalænopsids, or Dendrobes will endure fresh for three or four weeks if unfertilised, but if fertilised artificially they scarcely keep fresh as many hours.

Underground.—I think it is the late Mrs. Ewing, when writing "Mary's Meadow," a work which all little gardeners should read, who tells us that every stick or label as seen in winter seemed to her to bear the word "resurgam" on its face, no matter what words were really written there by the gardener. After all it is so, for every bulb is a buried treasure, a joyous hope, a new story, a promised delight, to reward us for waiting patiently through the chilly days of snow, and fog, and rain. It used to be a popular notion that bulbs of all kinds were at rest during the winter, and that they grew up quite suddenly in the spring. Now we know that if most bulbs have any resting season, it is as soon as the leaves fade away. Snowdrops and Siberian Squills rest in May, Ixias and some Irises of the I. reticulata section in June, Narcissi and Daffodils in July, Lilies in August or September; hence we find that they remove best at those times, and not during the winter-time months after their new root fibres are at work underground. This year bulbs began to root very early, and we are now feeding them by a top-dressing of fine well-rotted manure and wood ashes, which every shower helps to carry down to the thousands of hungry little mouths below ground. A bulb is in some ways a miracle we may never fully understand, but we may, at least, save it from starvation at this season when it is doing its best for our delight in spring.

Flowers and gardens.—It is useless asking which are oldest in the world—whether flowers or gardens—since it is sufficient to remember that the first man was set to dress and keep the first garden of which we can read in books. But one cannot help wondering in what part of the world cultivation originated. Was it in India? Was it in Egypt? Was it in Mexico or Peru? Professor Monier Williams, who has translated some Indian poems, informs us that Kálidása, the Hindoo poet, who wrote the beautiful drama of "Sakuntala Regained by the Ring," B.C. 56, tells us that the King Dushyanta when out hunting first saw his bride by chance in a hermitage garden as she and her maids were watering the flowers. No one who has not seen it would believe the actual delight evinced by the more cultured Hindoos and Persians at the mere sight of beautiful flowers. A Persian, towards evening, will take his mat and walk quietly and alone in his garden until he comes to some favourite flower. Then he unrolls the mat and sits down cross-legged before it, lost in contemplation. At the appointed hour he will pray before it, and then roll up his carpet and go indoors ere darkness comes. To-morrow, the next day—so long, indeed, as his favourite flowers endure, he will do the same. Mahometans generally are very fond of flowers; even Mahomet himself must have loved them, as his oft-quoted tribute to the Narcissus shows. "He that has two loaves of bread, let him sell one and buy flowers of the Narcissus, for bread is for the body, but Narcissus is for the soul."

Veronica.

Trees and Shrubs.

FORKED TREES.

So long as trees are young and small there is little harm in having them forked, although, in my opinion, they are not so handsome as trees with single leaders, but when they become old forks are very objectionable. We have many large trees here, and some of them fall now and then at all seasons, but it is when we experience a hurricane such as that which we had in October, 1881, or on the 15th of last month, that they suffer most, and then I find that forked trees are the first to be blown down. Sometimes the fork begins at the root, and such trees are generally split in two or one half falls away while the other remains, or if the fork is some way up the stem there is sure to be a breakage. A casual passer-by might think nothing of this, but anyone who comes to look into such trees after they are broken down will see how very much the fork favours destruction; the water which finds its way into the fork soon penetrates the wood, and this in time decays so much, that it cannot resist a storm and the wreck of the specimen follows. This is not confined to any kind or class of trees, as lately Ash, Oak, and Elm, as well as some valuable Pines, have suffered from this cause, and I have no hesitation in asserting that forked trees should find no place in modern gardens. Where trees are large and the forked portions have each assumed the proportions of trees it is difficult to thin them out to one, but the evil ought to be checked at an early stage of their growth, and if any tree which shows an inclination to fork was taken in hand at the beginning and the leaders confined to one, many fine specimen trees and shrubs which come to an end prematurely would become permanently beautifully. It might be difficult in all cases to prevent forest trees from forking, but those in parks and pleasure grounds would well repay any little attention required to prevent them from forking.

J. Muir.

Margam, Port Talbot, S. Wales.

Magnolia scent.—"W." speaks (p. 391) of Magnolia grandiflora as follows: "It is one of those shrubs which have a bad name because of the baneful emanations proceeding from them." Will "W." favour your readers with his authority for the statement that "baneful emanations" proceed from this noblest of all hardy wall plants? The delicious scent of the flowers is no doubt powerful, but I was quite unaware that it was considered "baneful," or even injurious. We would not have a large vaseful of its flowers in a room; the scent is no doubt too strong for that, but so is the odour of May flowers, such as Gardenias and Tuberoses. This is very different from the scent being "baneful."—W. H. Tillett.

Azalea mollis in autumn.—A large number of seedling plants here of this Azalea differ a great deal as regards the tints of their decaying foliage. Though growing under the same conditions, some retain their leaves much longer than others, while in the case of the decaying foliage their peculiarities are strongly marked. For instance, some will remain quite green till the leaves are just on the point of falling; others die off a dull brown, some a rich golden yellow, while a bright crimson tint is also well represented. Some of the yellow and red shades are very conspicuous, being among the brightest of autumn tints, but even these all pale before some of the North American Vacciniums. These seedling Azalea mollis differ as

widely in the case of their flowers as in their foliage, varying as they do from pale straw to reddish salmon, all the various intermediate shades being represented. The raising of seedlings is an easy matter, for under favourable conditions seeds are ripened in considerable quantities. Ours were sown in a bed of sandy peat and sheltered by a frame, as, owing to the minute character of the seeds, it is desirable to maintain the ground in a uniform state of moisture as far as possible, and this is best effected when sheltered by a frame. When the seedlings are large enough to handle, they are pricked off into other beds of sandy peat, and quickly make rapid progress.—ALPHA.

Jasminum nudiflorum.—This Jasmine seems to be unusually early in flowering this season, for generally but a few scattered blooms, if any, are borne during the autumn months. We have some in full flower now, and, from what I hear, ours are by no means the only flowering plants. Though it is usually trained against a wall, this Jasmine also flowers when allowed to grow as an open bush, and, as soon in the shape of some specimens here, should rank high among autumn-flowering shrubs. All that is necessary in order to cause them to retain their bush form is, in the spring, after the flowering season is over, to shorten a few of the more vigorous of the shoots. I have seen these bushes employed with advantage in the decoration of a cool greenhouse during the winter, as with the protection thus accorded them they continued to flower for a long time.—T.

Golden Tree Ivy.—Among golden-leaved shrubs the yellow-foliaged form of the Tree Ivy is one of the brightest, and retains its colour throughout the year, sufficient, in fact, to be a conspicuous object at all seasons, while now when many of its associates are bare of leaves it is very attractive. This Ivy is not variegated in the ordinary manner, but the exposed portions of the leaves are heavily suffused with gold, and as sunshine is necessary in order to ensure the greatest depth of colouring, this fact should be borne in mind when planting. The tree or bush Ivies are all desirable shrubs: others, besides the kind here mentioned, being the common form and a variety of Hedera Rægneriana, which combines the large deep green leathery leaves of that kind with a shrub-like habit.—H. P.

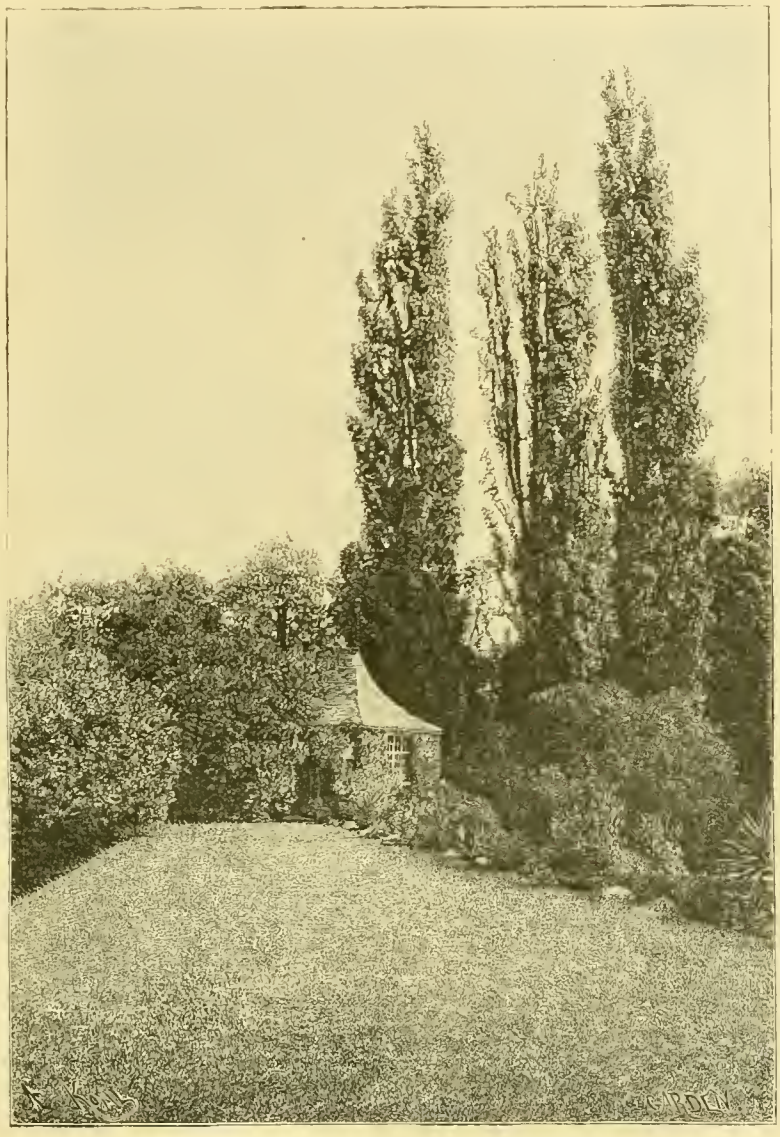
Winter colour of Conifers.—From many years' observation I have remarked that a large proportion of species belonging to the genera Thuja, Biota, and Cupressus, although perfectly green during the summer months, generally assume more or less of a reddish brown tinge in autumn and winter, and return to their usual green colour during the spring months. Some of the varieties, such as the columnar Biota orientalis elegantissima and the globular Thuja aurea, are generally quite brown in winter, but during the spring months they assume the ordinary green tint, while in summer they take on a rich golden hue. Towards autumn the golden tint disappears, and is succeeded by the ordinary green colour of the original species, and finally they return to the brown, or winter tint. The cause of this remarkable anomaly I attribute to want of sunshine in winter. The Cupressineæ tribe from the western hemisphere do not exhibit the same marked difference which is generally noticed in the eastern species, still in some instances a very slight brown or dull green tint is often observable. The higher brown tints are chiefly seen in varieties which, I suspect, have been produced in nurseries or gardens, and are evidently hybrids between eastern and western species.—J. M.

TREES FOR AUTUMN EFFECT.

Now that deciduous trees and shrubs are once more beginning to attract the attention which they so well deserve, and which was diverted from them when Conifers became such favourites, instead of the monotonous sombre green of the Pines and their allies, we may expect to see more frequently the delicate tints of early spring furnished by the swelling leaf-buds or opening blossoms, the manifold shades of green during the summer months, and the brilliant colouration assumed in autumn by many of the fine deciduous trees from North America and Eastern and North-eastern Asia, which were much more generally known at the commencement of the present century than they are now.

If planters would but note the wondrous autumnal changes in the foliage of many deciduous trees and plant accordingly, they could easily create beautiful effects in gardens. With care, too, the summer tints might be made to thoroughly harmonise, so that at all times the individual beauty of a tree might be enhanced by judicious contrast. Trees with totally different habits might also be chosen, so that, even when leafless, the tracery of the branches would be a source of artistic enjoyment. My remarks are, however, confined to autumnal tints and to trees and shrubs which are most noticeable at the present moment. Many of these are somewhat uncommon, all are strikingly handsome, and even the common ones deserve to be more generally known and appreciated than they are.

For truly gorgeous colouration in autumn some of the American Oaks bear off the palm. Perhaps the most beautiful is the Quercitron Oak of the Eastern United States (Quercus tinctoria), the fine, deeply-lobed foliage of which in autumn exhibits a lovely combination of dark glossy green, crimson, and reddish brown, the green occupying generally the central portion of the leaf. Quercus rubra (the Red Oak) and its varieties are especially noteworthy; in these the redder tints of the decaying foliage are more unalloyed with other shades, so that in the sunlight the leaves brighten up and glow as if they were on fire. Q. alba (the White Oak) is a noble tree with large leaves, brownish red being the prevailing shade in autumn. The Chestnut Oak (Q. Prinus) and its varieties, with their large, Chestnut-like leaves, are hardly less beautiful than the Quercitron and Red Oaks, and assume autumnal colours, in which bronze and reddish purple predominate.



Loseley. Bowling-green and summer tea-house. Engraved for THE GARDEN from a photograph.

Totally different in colour and habit of growth are the Hickories, two of the most showy in autumn being the Pig-nut Hickory (Carya porcina) and the small-fruited Hickory (C. microcarpa), from the Eastern United States; both have Walnut-like foliage; the large leaves of the first die off a uniform rich golden yellow. The Yellow Wood (Cladrastis tinctoria), from Kentucky and Tennessee, is one of the handsomest of the flowering trees of the Locust kind; in early autumn it is clothed with large, pinnate leaves, of a fine orange-yellow shade. The Bird Cherry (Prunus Padus), particularly when planted in open ground, has leaves tinged with rosy red when dying, and one of the prettiest effects I have ever seen was a fine group of Bird Cherries with a background—a few yards away—of dark, glossy, evergreen shrubs.

The June Berry (Amelanchier canadensis), although not possessing the delicate tints of the last-named, wonderfully enlivens the autumn shrubbery with its red-brown leafage. The Red Mulberry (Morus rubra), from the Eastern United States, is very conspicuous in October on account of its sulphur-coloured, prettily-lobed leaves; it is a small tree, and, with a background of dark green such as that afforded by the Evergreen Oak (Quercus Ilex), is most striking. The Blue Beech (Carpinus americanus) is a small tree from 10 feet to 20 feet high; its decaying leaves exhibit a charming combination of green, golden yellow, light red, and crimson. The South European Acer Opulus furnishes us with a mixture of purplish, orange-scarlet, and brown tints. The Cherry Birch (Betula lenta) of the Northern and North-eastern United States makes a fine object when covered with clear, golden yellow foliage, which is especially attractive in sunlight. The Black or Sour Gum, or Pepperidge—for under

all three names is Nyssa multiflora known in its native haunts, the Eastern United States—has fine, bold, glossy leaves, assuming in early autumn a brilliant orange-scarlet colour; an accidental combination of this with a specimen of Ptelea trifoliata, with its lemon-yellow, pionate foliage, produces a very happy effect.

The Silver-leaf Maple (Acer dasycarpum), which, on account of its rapid growth and beautiful foliage, is much planted as a shade tree in the United States, is one of the finest of deciduous trees; in early spring it is covered with myriads of reddish flowers; then its handsome leaves, green above, silvery-white below, turn in autumn to a golden yellow. The Red Maple (Acer rubrum), more compact in form and less rapid in growth than the preceding, is also very ornamental in autumn, and in spring its deep red blossoms render it conspicuous and beautiful. The Sugar Maple (Acer saccharinum) is one of the noblest of American trees, and is much valued both for its wood and for the beauty of its form and foliage. In summer its leaves are light green, but in autumn they are clear yellow. The Tulip tree (Liriodendron Tulipifera) is one of the largest and most beautiful of North American trees. As an ornamental tree it is at any time hardly surpassed, but in October, when its foliage is suffused with a rich golden glow, it is especially striking, a fine specimen making quite a feature in the landscape. The brilliant autumnal colours of the Sweet Gum (Liquidambar styraciflua) are too beautiful to be passed over without notice; rich orange-scarlet, crimson, and yellow give place in some individuals to a dull purple, the long-stalked, star-like leaves, when well coloured, being especially handsome. This tree retains its rich leaf-colouring for some weeks. Q.

Flower Garden.

PRIMULA CAPITATA.

P. CAPITATA (Hooker, *Botanical Magazine*, t. 4550).—"I retain this species as distinct from P. denticulata with great hesitation, though it differs much in habit and general appearance." This is the opinion of Sir J. Hooker, given in his "Flora of British India," and, no doubt, there are good botanical reasons for it. But from a gardener's point of view the two species differ very widely and require very different treatment, and though I have cultivated several varieties of each, I have found none in which the peculiarities of the one pass over to the other species. The robustness of the constitution of P. denticulata is such, that not only may it be successfully divided at any time of the year, but I have found that the best treatment of it, in order to promote late flowering, is to cut the crowns into sets at the end of summer, dividing each strong crown into several pieces, shortening the roots to within an inch of the base of the leaves, and so planting them. They then flower in April, instead of trying to flower in January. But the large and thick roots of P. denticulata are so prolific, that if a strong plant is cut off in winter or early spring 2 inches or 3 inches below the surface of the soil, the stump of each root will bud into perhaps twenty or thirty shoots, looking like vigorous seedlings, and every one, if detached, producing a large plant in two or three months. I once counted nearly two hundred plants produced from the roots of one which had been decapitated by some accident. The increase of the famous hydra was nothing compared with this.

On the other hand, the roots of P. capitata are weak and delicate, and very often perish—the decay apparently beginning from below—if they dislike the soil in which they are planted. The crown with leaves attached remains lying loose on the surface. This is the end of most plants of this species before the close of winter if left exposed to the weather in the open ground. In fact, if left out of doors, P. capitata behaves almost as a biennial, never shedding its leaves or gathering its growth into a compact bud in winter, like other Primroses. It lives through winter in a frame, but always as an evergreen. Even when it spreads into several heads it is so difficult to divide, that after several years' experience I never consider it worth while to attempt it. Raising from seed, which it ripens plentifully, is the easiest way of increasing it. Such are the differences in habit between P. denticulata and P. capitata. I observe that my friend, Mr. G. F. Wilson, has been exhibiting at South Kensington a P. capitata major. I think it a pity to give this surname, especially in the case of a comparatively new plant which is known to be very variable, because if we are to advance a degree of comparison every time we get a variety a little larger than before, we must soon reach maximissimus, or even beyond it. Besides, we do not know that the increase in size will be persistent; the plant may degenerate when grown from home seed, as I have found some other Himalayan Primroses do. The variety, no doubt, which was sent to England as seed by Dr. King last winter is very fine, and it grew up into flower more quickly than I had ever known P. capitata do before, many plants flowering in September from seed sown in February. If a distinctive name had been wanted for it, var. plana would have been, I think, safer and more descriptive than major, for its most remarkable character is the arrangement of its broad, flat leaves, all being turned quite horizontally close to the ground. The other plants which came up from the same packet of seed are distinguished by their leaves being narrower than typical capitata, as well as more upright. This latter variety follows the normal habit of the species in being less quickly developed, not one of them as yet having shown a bud, though they appeared above ground the same day as the others and have had precisely the same treatment. Another variety I raised from seed, collected and distributed four years ago by Mr. Elwes, is remarkable for shortness of leaf, dwarfness of growth, and pale lavender-coloured flowers. The leaves are very farinose, and in general appearance the plant much resembles P. farinosa. It has preserved all these peculiarities through three or four generations from seed. Perhaps the most remarkable variety of all is one which I saw at Kew this autumn, of which through the kindness of the authorities there I received a plant. It has the rachis and veins of all the leaves of a deep purple colour, and appears to be of more robust and firm texture than any other P. capitata I have seen. C. WOLLEY DOD.

Edge Hall.

White Trumpet Daffodils.—Having seen that the suggestion made at a meeting of the Narcissus Committee in last April, that all growers of white Daffodils should send bulbs of what they believe to be distinct varieties to be grown in the trial grounds at Chiswick, has been repeated, I should be glad to know whether the objection then made to it is a valid one or not; it was that the soil at Chiswick is quite unsuited to the growing of white Daffodils. If this statement was incorrect, the matter ends; but if not, does it not seem rather a mistake that we should send our bulbs to Chiswick? To say that it is as fair for one grower as for another is beside the question; there is no competition in the matter, which is purely one of scientific investigation, and is it not desirable for such a purpose that the specimens should be as perfect and as good as possible, for in badly grown ones the most distinguishing characteristics might be wanting? The puny, miserable appearance which white Daffodils are capable of presenting when not happy, we all unfortunately know too well. I most heartily agree with the writers who wish to have this question of the nomenclature of white Daffodils settled, and I shall with pleasure send bulbs of mine to any place which may be decided on as best suited for testing them. But I consider it a highly important matter that the place selected should be suited to them, which indeed is such a fundamental axiom in the growing of all plants, that I see no sufficient reason in the present instance for departing from it.—H. M. WHITE, *Charleville, Roscrea.*

OUTDOOR CHRYSANTHEMUMS.

How finely Chrysanthemums are blooming in the open air this year! The small-flowered kinds are in quality quite up to those under protection; indeed, in many instances they are better, owing to the greater luxuriance induced by a more extensive root-run. I saw the other day a bunch gathered in a cottage garden which, as regards size and colour, was equal to that produced by an exhibition plant. This is not to be wondered at, seeing that the weather during the past month has been generally of an exceptionally genial character. Copious rains have fostered luxuriance, whilst spring-like days have thrown colour and form into the blooms. Up to the present we have had scarcely any frost, so that the buds have developed without a check of any kind. Such seasons as this, which enable Chrysanthemums to develop so finely, do not come often, but it is nevertheless rare that a fair measure of success does not attend the outdoor culture of this fine flower. Every garden should possess some of the late-blooming Pompon kinds, for they come in when the summer flower garden is past; they give plenty of flowers for cutting, and they help to render the interval between autumn and winter less dreary. Up to the middle of October there is still much brightness in the garden, but after that time Chrysanthemums are about all that can be relied on. I do not see much use in those varieties that bloom in summer; neither do I think that they will ever become popular; but there is a great future for the early autumn-blooming ones. All that we want in them is greater size and more decided colours. When we get a race of Chrysanthemums which in quality shall equal the best show kinds, whilst they bloom six weeks earlier, an addition of inestimable value will have been made to outdoor garden flowers. Considerable advances have been made in this direction during the last few years, and, seeing what has been done, there is every reason to believe that in time we shall get a number of large-flowered early autumn-blooming Chrysanthemums.

Although Chrysanthemums are often grown in the open air the varieties commonly seen are not very varied, probably because the more tender ones die out. Many of the Pompons are not sufficiently hardy to stand hard winters, especially in moisture-holding soils. In their case some form of annual propagation should be adopted. There is no need to take cuttings in the usual way if, when the flowers fade, a root of each kind is taken up and divided; selecting the strongest offshoots and dibbling them in a cold frame, where they can be protected against climatal vicissitudes, they will make good specimens for another year, and the grower will be insured against loss. Young plants, too, will be found to yield larger flowers than old stools allowed to stand from year to year. In the case of kinds of approved hardiness it is best to divide them in March, and their growth will be much improved if a spadeful or two of good manure is buried a few inches under the roots. At the same time there is something to be said in favour of allowing the plants to remain undisturbed for several years, for where they do well they make such a fine show of colour. I have often stopped to admire large bushes of the old pink and yellow kinds in a cottager's garden, each plant bearing two or three hundred blooms. Cottagers are rather fond of planting their Chrysanthemums close up to their dwellings along with Wallflowers, and this is one reason why one often sees them so good there. The plants get warmth and good drainage in winter, and the roots probably ramble down deep among the

foundations. This brings me to mention the usefulness of Chrysanthemums on walls at this time of year. A few plants set out at the foot of a wall and trained to it as they advance in growth, with slight protection will expand their flowers, and, being naturally rather later than those indoors, they will give a succession and be most useful to cut from. Any exposure but a north one will do.

Twenty years ago, when Chrysanthemums were not so popular as now, there was a grower at Hampton, in Surrey, who grew all the best large-flowered kinds in this way. I remember going to see them one fine November afternoon, and was much impressed with the fine show they made. Anyone having a piece of wall unoccupied cannot do better than use it in this way. The ground should be rich, watering must be well attended to, and in hot, dry weather the syringe should be frequently and liberally used, for in such a position it is not uncommon for red spider to make a lodgment. I once had a lot of plants quite ruined by this pest through not seeing it in time. In syringing, the water should be applied with some force to the undersides of the leaves, two good washings weekly being better than an every-day sprinkling. A good mulch and an occasional soaking of liquid manure will work wonders. J. C. B.

GLADIOLUS BULBS AND SEEDLINGS.

"Delta" states facts when he says he has had many years' experience in the culture of the Gladiolus. I have exhibited against him many times, and can bear witness to the excellent quality of his exhibits. His experience as regards the disease coincides with my own. The malady is very mysterious indeed to the ordinary cultivator, and being, as I believe, climatic, there is, I do not think, any cure for it. If we had the climate of the Cape of Good Hope, and would be content to use less manure than we do in the soil, perhaps we would not have any disease amongst our bulbs. A good deal may be done by the proper preparation of the ground; this I have proved many times When I used to grow 2000 or 3000 bulbs for exhibition, it was sometimes convenient to trench and manure it in August or September, allowing it to remain undisturbed until planting time, except so far as to lightly fork over the surface when it was dry. This thorough exposure to atmospheric heat as well as cold caused it to be better adapted to the requirements of the plants than it otherwise would have been; but if only trenched in winter it is not in such good condition for planting in March. Probably the plan which was adopted by M. Souchet years ago at Fontainebleau, viz., that of allowing the ground to become fallow for a season, would be even more beneficial. I have tried different systems of planting, and do not know of any better than that of simply drawing drills as if for Peas. The bulbs were placed in the rows about a foot apart, a little clean sand was placed under and over each bulb, and we used to fill up the drills with some dry maiden loam. The ground was rich in manure, but none of it could come into contact with the roots, as some of it was 6 inches under the surface, and another portion of it 18 inches, as the bulbs require plentiful supplies of water after hot weather sets in about the end of May or early in June, and as this has to be continued until the flowering period is over, which is just before the autumn rains set in; consequently the ground instead of being comparatively dry when the bulbs are ripening is usually immoderately wet. I have stirred the surface with a fork sometimes, or with a Dutch hoe, with a view of helping to dry it.

Harvesting the bulbs in good condition is certainly a very important part of Gladiolus culture. I tried lifting and storing them with the soil, but found that that was not a good plan. We had a long border in a lean-to Peach house, and in this border they were planted in decayed and damp Cocoa-fibre, but the corms shrank more in that way than if they had been dug out of the ground and their tops at once cut off. The best plan is to take some clean pots and a hand-barrow to the quarter in which the Gladioli are, dig them carefully up, cut the stalk off close to the bulb, and place each variety with the small bulblets attached to it in separate pots. We always had an early vinery, from which the Grapes had been cut, in which we placed the pots. Thus situated, they soon dried, and the first opportunity was taken to clean them and store them in paper bags for the winter. "Delta's" plan of hanging them up in a dry shed would answer, but I do not see any advantage in leaving 18 inches of stem, except as a convenient means of tying each variety up by itself.

As regards degeneration, it will certainly not do to put that quite out of the question. I believe many good cultivators will bear me out when I say that Gladioli do rapidly degenerate in some gardens under good cultivation. I have year after year purchased a collection of new and old varieties direct from France, and the result has been that the plants from the French bulbs were much stronger and the foliage of a deeper green than that of English bulbs. Anyone could point the French bulbs out without even looking at the labels. Next season the produce from these same bulbs would be much deteriorated, and so they would go on degenerating until they were scarcely worth growing. This was not the usual disease, of which the bulbs bore no trace; they were as sound as the original imported corms, and generally larger. The same thing happened in the case of our seedlings. I raised at one time from 1500 to 2000 seedlings annually, and was successful in taking many first-class certificates, but I could not get up a stock of healthy corms from these seedlings owing to degeneration—not disease. Like "Delta," I have had diseased bulbs, but they were to be found indiscriminately throughout the collection.

I advocate the raising of seedlings, as being the best way by which a grand display can be obtained at the smallest possible cost. Probably I have described our system of seedling raising before, but recent experience confirms all I have to say in regard to it. The seeds should be saved from pods that have been produced from artificially hybridised flowers. The very best varieties should be selected to save seeds from. The anthers can easily be removed with the fingers before the pollen is scattered. Two or three days afterwards the pollen from another good variety may be applied to the stigma of the seed-bearer. The anthers have to be removed from the seed-bearer before the flowers open. The seed-pods are gathered when it is seen that they are bursting from the top downwards. Sow the seeds thinly in 6-inch or 7-inch pots in a hotbed early in April. The plants will be up like a Grass plot in two weeks, and if well cared for, each pot will produce its quota of nice corms, from the size of a parched Pea to that of a Filbert. Planted out in March of the following year, most of them will produce strong spikes the same season. Some of them will be as good as the parents; a few will be better, and none will be alike. The pleasure of cultivating any class of flowers is greatly increased by anticipating the flowering of the seedlings, and an immense quantity of beautiful flowers can thus be obtained at a small cost.—J. Douglas.

—— "Delta" (p. 430), who somewhat incorrectly quotes me, has not yet seemingly arrived at fixed conclusions on several important, if not vital, points affecting this peerless queen of outdoor autumn flowers. In order not unduly to trespass on your space, or repeat what I have before stated in your columns, I propose to notice first—

The best place to grow Gladioli.—"I had rather grow them in Cambridge than Tipperary, or, notwithstanding so many things in its favour, than in Somersetshire." "Delta" gives no reason for this opinion, and with your permission I would ask him why? I was hitherto under the impression that the soil and climate at Langport were specially suited by Nature for the Gladiolus. And why, may I ask, has he arrived at the conclusion that Cambridge approximates more closely to Fontainebleau than any other part of England he knows? As to temperature, which is a main item in estimating climate, I was, too, of the opinion that our average temperature in the south of Ireland is above that of Cambridge by several degrees. At the same time I am aware that splendid Gladioli are grown at Gourock, in Scotland, and as good at Newtownards, in the north of Ireland.

The time of lifting.—"The end of October or beginning of November is about the best time." I think this is a month too early for the majority of the varieties, and "Delta" seems to agree with me further on, for, after stating he cut a spike October the 25th, he adds, "I have before me two spikes, Duchess of Edinburgh and Marquis of Lothian, cut on November 10," and he very properly says, "it would be absurd to lift these corms the same time as those that bloomed five weeks before." He might have said "fifteen weeks before," as I had some in bloom the end of July.

Lifting and storing.—He says, "I think it was 'W. J. M.' who advocated lifting them with the soil and storing them in that manner," and then comments on the assumption. I take it your correspondent writes from memory, and misunderstood me. My method for many years past has been to lift them gently with a fork or spade, so as to disturb the "spawn" as little as possible; stand them upright against the wall of a dry room, and then cover the corms about 3 inches high with moist river sand. Here they slowly mature and dry out. When quite withered I remove the stems. Now to this maturing process of the late varieties, for that I regard it, I attribute much of whatever success I have had with Gladioli hybrids. I should have remarked when grown with a handful of sand above and below the corms, at lifting no soil ever adheres to them.

Labelling.—Formerly I tied the labels to the stems when lifting, but the corms readily and naturally fall therefrom, and the name among large numbers gets lost. I gave this up and tied the wooden labels to the corms, but this also is inconvenient. "Delta's" method has, to my mind, the fatal objection that they dry too rapidly, and that a portion of the sap in the green stems that would perfect the corm is dissipated and lost to it. Kelway, Dickson, Campbell, and most of the nursery growers store them in triangular paper bags.

Reproduction from spawn.—Every grower should depend to a considerable extent for increasing his stock both on seedlings and spawn—both only from superior varieties. Corms from either method possess greater vitality and produce finer spikes, if fairly treated and well grown, than the old ones.

Lastly. "Delta" does not admit "degeneration," but calls it "disease"—a Rose by any other name will smell as sweet. If a variety, say any of the white kinds, as being most tender, does well this year, worse the next, and dies the third, what name would he give it? I am not sure if I would not be justified following his own illustration of the Potato, in recommending growers to try those varieties native-raised, as those coming from a warmer climate are—like American varieties of Potatoes—certain to degenerate.—W. J. Murphy, *Clonmel*.

Giant Daisies.—I am a little nonplussed with regard to one of these perennial Daisies, and shall be glad to have some assistance under the difficulty. I have a plant which corresponds to Mr. Wolley Dod's description of Chrysanthemum maximum. It is about 2 feet in height, bushy in habit, produces very large flowers, and increases by throwing out suckers at the base. It is, however, in bloom now, and has been for the past few weeks, and yet I read that its proper season of blooming is June and July. Perhaps this unseasonable blooming is due to the plant having been grown on from a small piece planted last spring. Chrysanthemum latifolium, which blooms later, seems to be so tall, that it cannot possibly

be that kind. I can but hope that it is the real maximum out of season. It is interesting to find how the Chrysanthemum family gives us representatives in bloom all the year round. Of course we are indebted to house culture for the winter blooming of the Chinese and Japanese kinds, as also for the abundant blooming of frutescens; but out doors we get none the less a very long season, in which none play a more important part than the wild Ox-eye Daisy. Annual Chrysanthemums of the coronaria and Dunnetti forms are wonderfully floriferous, and give a long season, and the common yellow segetum is now a highly favoured garden flower. None seem, however, to excel in profusion of bloom some apparently distinct hybrids from coronarium crossed with segetum, for these never tire of blooming, and can, indeed, be had in flower under glass all the winter. The Chrysanthemum is thus rendered most useful. —A. D.

ASTER IBERICUS.

Readers of The Garden will wish to know something of Aster ibericus, which so good a judge of flowers as M. Max Leichtlin considers one of the three best Michaelmas Daisies (see p. 451). It is Aster Amellus var. ibericus (De Candolle, "Prodromus," vol. v., p. 231). This is all the description De Candolle gives: "Leaves quite entire and acute; inner involucral scales almost colourless. A. ibericus of Steven or Bieberstein." Boissier, in his "Flora Orientalis," vol. iii., p. 157, also mentions the variety, referring to De Candolle, and giving precisely the same description.

Three years ago M. Max Leichtlin kindly sent me a piece of his Aster ibericus. I afterwards sent a plant of it to Kew for verification; so I may conclude it to be rightly named It grows here about 2½ feet high; has very few stems—with me seldom more than one—which is very thick and strong for the size of the plant, and at flowering time leafless for two-thirds of its height. At this point it divides into many spreading leafy branches, forming a broad and flat umbel, all flowering at once. It flowers at the same time as A. Amellus, and the flowers are of the same colour, but of a lighter and brighter shade. Each flower is not half the size of a flower of A. Amellus, and the leaves are much smaller and broader at the base, quite sessile, if not amplexicaul. Speaking as a gardener, and not as a botanist, I cannot see any resemblance in the plant to A. Amellus, either in habit or in general appearance, distinct and good as it is; but if I had any doubt about having received this very plant as A. ibericus from M. Max Leichtlin, I should think he was writing of a different species. The geographical specific name, intended, no doubt, to be descriptive of the habitat, is unfortunately ambiguous. Iberia and ibericus, to those who know Latin classics, are as applicable to the north-east of Spain, the basin of the Iberus or Ebro, as to the country between the Black and the Caspian Seas, both regions having been peopled by Iberi, so we have to be told that the plant is Caucasian. M. Max Leichtlin's description, judged by itself, and his incidental mention of the Pyrenees, would rather have suggested another species, A. pyrenæus of De Candolle, A. sibiricus of Lamarck, the latter name being still retained for it in some collections. This species flowers early, grows from 1 foot to 2 feet high, and has large light blue flowers larger than those of A. Amellus. It is found only in one or two spots in the Pyrenees, the famous Val d'Esquierry, near Luchon, being the only habitat specified by De Candolle, who adds, rather ambiguously, "nec certissime in Siberia." Nyman, in his "Conspectus Floræ Europæa," though he seldom condescends to any descriptive words, says of it, "planta rarior spectabilis." Still, somehow or other, whether because the disc wants brightness or the foliage is rather shabby, it is not here quite a first-class flower.

Of the other two Asters mentioned in the "three best," A. grandiflorus never attempts to flower here till nearly Christmas, and fails, though I believe it is good in Devonshire. As for Mdme. Soymier, I once saw the name in a foreign catalogue and ordered it. The Aster sent was what is sold in England as longifolius formosus, which evidently is not the flower indicated by M. Max Leichtlin. C. Wolley Dod.

Edge Hall, Malpas.

Christmas Roses failing.—The failure complained of (p. 429) is undoubtedly due to recent removal in combination with a hot, dry summer. If the plants were disturbed in February it is probable that many of the best roots rotted before the soil became sufficiently warmed to induce root action. April is quite soon enough to transplant Christmas Roses, and they should be well looked to in the way of watering in dry weather. We received some roots early in spring which behaved exactly as described (p. 429), they have made few leaves, and will not bloom worth speaking of. We shall give them a good mulch of manure in spring and an occasional soaking in dry weather, and, as a number of small crowns have formed on them, we have no doubt as to their making themselves useful again next season.—J. C. B.

Dahlia roots in winter.—Dahlias are easily and inexpensively kept during winter. In some cases, even, they are mulched over and allowed to remain in the ground during that season; but of this practice I do not approve, as if severe frost does not reach them, the damp condition of the soil in winter is not in their favour. The best way of treating them is to cut the stems over about 6 inches above the ground, tie the label on to them, dig the roots up, allow them to stand in an airy place under cover until dry, and then store them in some dry corner in which there is a temperature varying from 40° to 55°. They keep well on the floor of an Apple room or on any dry loft. The point is to keep them dry and away from frost. I know of some enthusiastic cottagers who store their dry Dahlia roots under their beds in November, where they keep them until March, and they never lose a root.—Cambrian.

Drummond's Everlasting Pea.—I may state that I raise a few seeds of this annually with but little trouble. I keep the seeds until the May following, when I soak them for twelve hours in cold water. They are then kept for twelve hours and sown in a light sandy soil in a well-drained flower-pot, and stood in a cold frame. They germinate in three weeks or a month, and I scarcely have a single failure. Let those who complain that they cannot raise plants of this Pea try to raise them in a cold frame instead of in heat, and I think they will have better success. Have any of your readers succeeded in striking this plant from cuttings? I have experimented with cuttings taken at various stages of development, but so far without success. It is a beautiful Everlasting Pea, and I wonder it is not more grown than it is. I have one large specimen planted out in the open ground, and I think I have taken at least 200 seeds from it. The decaying foliage is cut away in autumn, and a good mulching of short manure given for the winter.—R. D.

Centaurea ragusina in winter.—In many parts this is considered to be only half hardy; it is lifted in autumn and treated as a greenhouse plant during winter. Years ago we, too, followed this practice, and we had often a hard matter to find a place for our Centaureas. Four years ago we decided to allow them to remain outside altogether and take their chance. The first winter they were out they were injured considerably, but recovered in spring, and in the following summer they were as good as ever they had been. Since then we have always left them out and they have become hardier; last winter, although very frosty, did them little or no harm, and we now regard them as hardy plants. Have any of your readers, who have been in the habit of taking them in during winter, ever tried the experiment of allowing a few of them to remain outside on trial? if not, may I ask them to do so this winter.—Cambrian.

Garden Flora.

PLATE 571.

AUTUMNAL CROCUSES.*

The species of Crocus have within the last few years been very considerably increased, chiefly through the untiring exertions of Mr. Maw. Instead of about thirty, as hitherto, we have now something like seventy known species, perhaps fifty or more of which are at present in cultivation, though not yet generally distributed. In the accompanying coloured plate have been placed two spring Crocuses (2 and 4), in order to show the similarity that exists between the spring and autumn sections, and, indeed, throughout the whole genus. In the way of autumn-flowering sorts we have found C. nudiflorus, medius, speciosus, and others do well, and amongst spring kinds, vernus (and its varieties), aureus, susianus, &c., all do exceedingly well. Others, however, of a more tender constitution have to be placed in sheltered situations in which they can be protected, some flowering late in autumn and winter, and others in spring; besides, many require protection from wet during the resting season when the leaves have died down; these should be in isolated patches, as in that way they are easier attended to than when scattered. Some species increase rapidly from small cormlets formed at the base of the old corms; these in two years or so are ready to flower, while those from seed take twice that time to produce good flowers. Many of the late autumn kinds might, we think, with advantage be introduced into the greenhouse in pots.

The following autumn-flowering kinds are all well worth attention, viz.:—

C. asturicus.—This appears to be very variable as regards colour and stature, both in a wild state and also under cultivation. It much resembles some of the forms of C. vernus in its range of colouring, but has deeper basal markings in all the purple forms. It is also nearly allied to C. serotinus, differing from it principally in its bearded throat and broader leaves. It flowers from October to November, and in open seasons has a wonderfully pretty effect out of doors in turf or in the wild garden; it is not so useful, however, as some of the others. Its leaves, which are cotemporary with the flowers, lengthen in spring to 9 inches or 10 inches, and the flowers, which vary from purple to white, are very effective, the darker basal markings setting them off to advantage; the anthers are bright yellow and the filaments white, with a deep orange stigmata. It is found plentifully in the meadows of the Asturias, at 4000 feet elevation, reaching as far south as Sierra Guadarrama.

C. Cambessedesi.—This is a charming little plant when isolated, but it is much more curious than useful; under ordinary cultivation it drags out a very long flowering season, varying from September to April, one or two flowers coming at a time. In a wild state it is said to flower in October and November. In consequence of this variableness it is hardly suitable for the open border, unless specially protected. Its small, but pretty markings render it a fit subject for the conservatory, where planted in a border we think it would do well. Its leaves are few—never more than two or three—1 inch or 2 inches long at flowering time, very narrow and glandular. The outer three segments of the flowers are pale buff, prettily marked externally, with purple featherings, the inner three white, or tinged with lilac. It is a native of Minorca and Majorca.

C. cancellatus.—This is, without doubt, one of the best of the autumnal Crocuses. It is robust in habit, carrying its flowers well above the ground, and rarely failing when the corms are planted in a proper medium. It varies

* Drawn in the Royal Gardens, Kew, last year.

GROUP OF AUTUMN CROCUSES.

1 C. MEDIUS 2 C. ETRUSCUS 3 C. OCHROLEUCUS 4 C. WELDENI 5 C. SPECIOSUS

both in a wild state and also under cultivation. The western forms are generally white, while those from eastern latitudes are invariably blue with varied markings, and Mr. Maw describes a variety from the Bithynian Olympus as being exactly like C. aerius, recently introduced to gardens. C. cancellatus will doubtless take kindly to naturalisation in our wild gardens, in spots where the Grass is thin and never allowed to become long, especially when the ripening season arrives. It flowers with us from October to December. The leaves, which just show their tips at flowering time, grow in the following spring to about 1 foot long. The flowers are white, purple, or marked with purple, and generally have a yellow base; style deep orange, finely divided. It comes from Northern Palestine, Syria, &c.

C. Boryi.—The flowers of this are outwardly much the same as those of the above, and it may, therefore, be placed here for convenience sake. They are white, with a bright orange throat; the leaves, which appear before the flowers, overtop them at flowering time. It is a pretty little species for dry sheltered spots, flowering from October to December. It is a native of the Cyclades, &c.

Crocus Boryi.

C. Clusii.—This is a charming little free-flowering species from the neighbourhood of Oporto, and also from the Pine forests south of the Tagus, where it flowers in October and November, but much earlier under cultivation. It is the Clusianus of Herbert, and, judging from the corm tunic, it is not far removed from the reticulatus group. The tunic is, in general, obviously reticulated, although sometimes obscure. It does well in little groups on the rockery, and is very effective all through the autumn months. The leaves in this species appear before the flowers, and reach their level at flowering time. The flowers are purple, and generally deepest in colour towards the throat; style dark orange, much divided.

C. hadriaticus.—This pretty little species is nearly allied to C. sativus, but has none of the variableness of that species about it. Its flowers, which are pure white, vary only in the forms saundersianus, which has a purplish throat, and chrysobelonicus, which has a yellow throat and reddish lines. The leaves appear along with the flowers, and lengthen to a foot or 18 inches in spring. The figure in the accompanying plate, above and to the right of C. speciosus, gives a fair representation of C. hadriaticus. It is a native of the Ionian Islands, Albania, &c., and flowers from September to November.

C. iridiflorus.—This is one of the most distinct plants in the genus; indeed, so much is it unlike our typical Crocus, that some botanists have suggested its separation and introduction under the name crociris, which would also be descriptive, as it appears to be between the two genera. Parkinson's name of byzantinus, by which it is well known in the trade, has been superseded in the latest monograph of the genus by that given above. Parkinson's name implied an error in its geographical distribution. It is a very charming tall-growing plant, which flowers with us from the beginning of September to the end of October, and thrives well in rich light soil. The leaves, which are broader than in any of the other species, are shiny, and do not appear until after the flowers have been and gone; the outer segments are clear rich purple; the inner ones, which are much smaller, pale lilac. It is a native of Transylvania, &c.

C. medius.—This is a tall-growing, very floriferous species, with large, rich purple flowers, and with a constitution capable of securing for it a place in the wild garden. It is represented by a figure in the plate, and the contrast between the large brush-like scarlet stigmata and the segments leaves nothing more to be desired. It flowers early, generally in September and October, and has therefore every chance of being fully appreciated before severe weather sets in. It increases rapidly, and therefore there is little chance of its running itself out. The leaves, which do not appear until after the flowers have come and gone, lengthen to a foot or more in spring. They are narrow, and there are generally two or three to a corm. The flowers are bright purple, pale towards the throat, and have a few darker lines on their inner side. The style is scarlet, much divided, and little, if at all, exceeding the anthers. It is a native of the Riviera, Mentone, &c.

C. Salzmanni.—This is another variously-coloured Crocus, and a good subject for naturalisation. It is nearly allied to C. serotinus and C. asturicus, but has a more robust habit and larger flowers, more freely produced, than in those species. It is found abundantly near Tangiers and also farther south-west than any other known species. The leaves, which appear along with the flowers, lengthen to about 2 feet in spring. Its flowers are purple and lilac of various shades, with darker featherings and orange stigmas.

C. Scharojani.—This is the earliest of all the autumnal-flowering species, and the only one blooming at that time that has orange flowers. C. Scharojani must be taken in hand by hybridisers, and were it possible to make it as plentiful and as easily cultivated as the spring-flowering kinds, it would undoubtedly be a very desirable addition to our gardens in autumn. This species is perfectly hardy, and, so far as we have been able to judge, likely to do well in most places. Its leaves do not show themselves until after the flowering season is over, and generally remain until the following July. The flowers are deep, unstriped orange, medium in size, and open well. They are produced from the end of July until the middle or end of August. This species is a native of the Caucasus and mountains south of Trebizond at an elevation of 7000 feet.

C. nudiflorus.—Of all the autumn Crocuses this is perhaps the easiest with which to deal. It may be naturalised in the wild garden without much trouble; indeed, in many localities in the midland counties it grows with all the robustness of a native plant; and Withering gives the sandy meadows that lie between Nottingham Castle and the Trent as its British locality. We have had it planted four years amongst lanky Grass, and it has lost none of its usual vigour. It has not, however, increased much, but it holds its own, and appears likely to do so under present conditions. Its leaves, which are not produced until spring, then grow from 6 inches to 12 inches in length. Its flowers are bluish purple, from 6 inches to 8 inches high, and are produced from September to the end of October. The style, which is divided, is rich orange, exceeding the anthers. It is indigenous in the Asturias, Pyrenees, &c. (Syn., pyrenæus of Parkinson.)

Crocus nudiflorus.

C. speciosus (5 in the accompanying plate) is amongst the largest-flowered and the best of the autumn-blooming section. It commences to bloom about the middle of September, and continues to produce blossoms until about the beginning of November, and in favourable seasons even later than that; the markings of this species are very beautiful, forming as they do quite a network of purple. It flourishes in the wild garden equally well in the border, and makes a handsome pot plant for the greenhouse. The leaves are not developed at flowering time, but lengthen to a foot or more in spring. The flowers are large, quite 3 inches in diameter, when open bright lilac and variously feathered with purple lines; stigmata bright orange, much exceeding the anthers. It is a native of the Caucasus, N. Persia, &c. It may be increased with wonderful rapidity by means of the small cormlets formed at the base of the old corms.

Crocus sativus.

C. sativus is so well known in gardens, that it hardly needs more than a passing mention; some of the varieties, however, not so well known in gardens might with advantage be added to existing collections. Cartwrightianus, a handsome kind, is a native of Greece and the Cyclades, and cashmerianus, Elwesi, &c., are well worth cultivating. K.

Books.

THE GENUS CROCUS.*

Mr. Maw's long-wished-for monograph of the genus Crocus is now in our hands. The tantalising tastes he has given us of it in the course of its preparation have made us more eager for the whole work, and though our expectation has been great, it is fully satisfied by the result; for seldom has a monograph been given to the public more likely to please at once all lovers of flowers by its popular qualities, and botanists by the completeness of its scientific details.

The preparation of this book, we are told in the preface, has occupied all the leisure time of the author for the last eight years, during which

* "The Genus Crocus." By George Maw. Dulau & Co., London.

Mr. Maw has not only visited the native home of many of the rarer species, but has also brought back and cultivated successfully in his garden at Broseley about three-fourths of all the known kinds, so that his illustrations are mostly taken from living specimens. We can, therefore, have no better authority concerning the cultivation of Crocuses—a subject to which Mr. Maw devotes a chapter, the fifth of his work, but the first in its importance to gardeners. We may here quote a very comforting assurance, extracted from the author's account of the geographical distribution of the Crocus (p. 29):—

The genus is remarkable for the wide ranging in altitude of the majority of species, those that are essentially alpine or lowland being comparatively few in number, and I believe there is no single species of the genus that is not perfectly hardy and capable of enduring any of the extremes of frost and heat in our climate.

We must not suppose, however, that there is no limit to the degree of frost which all Crocus bulbs can endure. In the case of the common yellow Crocus (C. aureus) that limit is probably reached at about zero of Fahrenheit. In February, 1854, all the Crocus bulbs in a box outside our window were frozen to pulp in one night; the thermometer on that night marked about 2° Fahrenheit; these bulbs were, of course, exposed to frost on all sides. We have never known Crocuses killed in the ground, even when the cold of the air has been considerably greater than this.

But to return to cultivation. Mr. Maw divides Crocuses into autumnal and vernal. The flowering season of the genus extends from early in August to the middle of April. Crocus Imperati, we are told, is the earliest vernal species, flowering in February. In the warmer parts of England, however, it generally flowers much earlier. A friend who lives in Devonshire has sent us the dates of the flowering of this beautiful species for ten years. The earliest is Nov. 29, the latest Jan. 31, this date being eleven days later than any other during the ten years. We have always found it desirable to protect not only this, but all Crocuses which flower between October and March, with a light or bell-glass. A still better plan is to grow them, as recommended by Mr. Maw, in a frame, for which full directions are given (p. 50). It is a great mistake in a climate like England to plant any Crocus in shade. A full southern exposure is best.

A remarkable point in the geographical distribution of species of Crocus is the continuity of the area of each. We find in hardly any case that a species occurs at wide intervals over a great extent. The limits of each are, for the most part, well defined, and are clearly shown in the monograph by diagrams. The Greek Archipelago and Asia Minor must be considered as it were the metropolis of the genus. It would be interesting to find that the species radiate from the celebrated Corycian Cave in Cilicia as a centre. This cave has from the earliest times been renowned in connection with the Crocus, and we might almost be disposed to endorse the opinion, mentioned in Mr. Lacaita's appendix, that Corycus and Crocus are the same word, except for the fact, of which the writer reminds us, that four other places are mentioned in classical authors as bearing the same name. Mr. Lacaita should have said five, for he omits from his enumeration the Corycian Cave on Mount Parnassus, mentioned in Æschylus as the "abode of nymphs and resort of deities." We may add that the Corycian Cave in Cilicia is remarkable in recent times for the discovery of a new Crocus, C. Boissieri, of which only one imperfect dried specimen is known to exist. We remark that Mr. Maw does not allow any Crocus to be included in the indigenous flora of Great Britain. This may seem hard to some of us who recollect Nottingham meadows more than half a century ago in their integrity, before the railway station had begun to draw down the town to the flat ground near the Trent. We shall never forget the view on a clear March day, as one looked down from the Derby road across the park; the meadows looked just as if the sky had descended to carpet them, many acres being completely covered with flowers of blue C. vernus. Again, in September, large masses of C. nudiflorus ornamented a different, but less extensive, part of the same meadows. But England is quite out of the well-defined native area of these and all other Crocuses.

Two curious points remain to be noticed with regard to geographical range. The first is, that species which have a wide longitudinal area, and of which the normal colour in the west is white, have a tendency to deepen in colour as they extend more eastwards, especially C. cancellatus and C. biflorus. The second point is so remarkable, that we prefer to relate it in Mr. Maw's own words (p. 30):—

In Dalmatia there is a general absence of the striping and feathering of species which occur elsewhere with feathered flowers. There are even more marked cases than this of mimetic colouring, and of different species associated in the same habitat putting on some identical special form of colouring. Especially remarkable is the exact identity of the colour and markings of the Santa Maura varieties of C. cancellatus and C. hadriaticus, species which are not nearly allied, and the type colourings of which differ from those of the Santa Maura forms. Another remarkable case is that of the form of C. cancellatus found on the Bithynian Olympus in association with C. aerius, putting on the exact colouring of its companion; moreover, there is a large series of variations in the markings of C. cancellatus which are exactly mimetic of the variations in the markings of C. aerius with which it is associated. I do not think that these are the result of hybridisation, for as far as my observations go I have been unable to detect a wild hybrid Crocus; nor do I know of any authenticated case of the production of garden hybrids.

We must next touch on the important question of classification. In discussing this, Mr. Maw does full justice to the labours of all former authors, more particularly of Dean Herbert, who wrote half a century ago, and of Mr. Baker, who more recently proposed to classify Crocuses by the characters of the stigmata. Mr. Maw gives reasons for preferring the older arrangement, and for following Dean Herbert in dividing Crocuses into two great classes—1, Involucrati (those which have a basal spathe); and, 2, Nudiflori (those from which a basal spathe is absent). This basal spathe, which grows out from the point where the scape leaves the corm, must be distinguished from the spathes proper, which grow out from the base of the fruit, and in many species are two in number. These two primary divisions are subdivided according to the well-defined characters of the corm-tunic, and again into vernal and autumnal.

Arranging them by these characters, Mr. Maw catalogues in order all the known species, from one to sixty-seven, preserving to each its own number throughout the work, a plan of the greatest convenience to collectors. Of course, we must not suppose that the list of Crocuses is as yet closed; on the other hand, the author tells us that the geographical range has recently been found to extend much further to the north-east and south-east than it was before known to do. Information received last year from the Afghan Frontier Commission leads us to hope for new discoveries in that direction, and even in Europe the Crocus-bearing regions are perhaps not exhausted. Asia Minor and Cyprus are as yet very insufficiently explored. Mr. Maw appeals (p. 52) to all travellers to help this branch of botanical science, and points out on the same page how easily it may be done. We have mentioned sixty-seven as the number of species of Crocus already recorded, but we may add incidentally that nearly all those beautiful garden varieties so popular and in such large demand, known as Dutch Crocuses, belong to only two species, C. vernus and C. aureus. Though sold as Dutch Crocuses, they are really grown in a part of Lincolnshire known as South Holland, which extends from Spalding to the shores of the Wash. These bulbs fetch for the raiser about 2½d. a pound, a price at which new Potatoes are thought cheap, and which suggests the thought whether the Crocus might not be utilised as food, the analysis of the corm showing that it is both wholesome and nutritious. Well worth perusal is Mr. Maw's history of the cultivation and uses of saffron, the product of the stigmata of a variety of Crocus sativus, of which the wild origin is unknown. To sum it up briefly: saffron has been in high estimation and value from the days of Solomon to the present time (1) as a perfume, (2) as a dye, (3) as a medicine, (4) as a flavouring for food. The first use is mentioned in the Song of Solomon; the second frequently in the Greek classics; the fourth is at least as old as the Augustan era, as Corycian saffron in mentioned by Horace as an ingredient in a recipe for "double sauce." The cultivation of saffron in England, especially at Saffron Walden, is an interesting episode in its history.

Space will not allow us to follow Mr. Maw in his ample description of the sixty-seven species, every one of which is fully illustrated, not only by a coloured figure of the plant in flower, but by a complete analysis of all the parts, the stigmata, the anthers, the leaf section, the corm tunic, the pollen grain. Some of these parts are so well defined in their character, that a stigma, or even a portion of the corm tunic, is often sufficient to determine the species. Besides these, we have as chapter-headings, well executed engravings of many of the native homes of the Crocus, taken from original photographs. These, as well as the descriptions, show that Crocus hunting has to be carried on amongst some of the most beautiful scenery in the world, and we conclude our notice of Mr. Maw's book by expressing a hearty wish that he may enjoy many another pleasant excursion after Crocuses, and live to add a long supplement of new species to some future edition of his delightful monograph. C. W. D.

WORK DONE IN WEEK ENDING NOV. 16.

NOVEMBER 10 TO 16.

RAINY weather is still to the fore. We have, out of the six working days of this week, had four days and nights of it almost without intermission, besides showers on the other two days; consequently outside work has been quite at a standstill, a little leaf-raking and carting them away excepted. We have, however, always plenty of inside jobs on hand for such weather, and have been fully employed in looking over Potato and root stores, Carrots, Beet, and Onions; also planting out on floor of cellar Cannas and Fuchsias in cocoa fibre refuse, and boxing up tuberous Begonias and herbaceous Lobelias. Fruit rooms have also again been overhauled, and every decayed fruit thrown away. Label-making, mat-tying, pointing sticks for tying plants, repairing netting, Birch-broom making, limewashing sheds, and sundry other little jobs that are essential to perfect order and cleanliness, but which probably would never get done were it not for an occasional spell of bad weather. Of work in the houses there has been no lack. Grape-preservation must have,

and has our first attention; all are well ripened, and now give us but little trouble in the way of cutting out bad berries. Their good keeping is, I believe, due—first, to their having been well ripened; next, to removal of all useless foliage which engenders damp and mildew; and next to the maintenance of a dry atmosphere and of an equable temperature, ranging from 55° to 60°, by keeping slight heat in the pipes constantly. As space in the Grape room can be had, the fruit is cut and placed there. All our Hamburghs are now in bottles, and keep far better than they did on the Vines. Completed pruning of Peaches in second house, and after cleaning it out and limewashing the walls, it was filled with Chrysanthemums that are intended for late flowering. It is only the inconvenience of housing these plants in fruit-growing establishments at this season that hinders their being grown by the hundred instead of the score, for they virtually give no trouble all the summer, except the labour of watering; and to a willing mind in an active body this counts as nothing, for one is more than repaid by a grand floral sight right through the dullest weeks of the whole year. The wet weather has caused us some anxiety as to the well-being of the flowers, as many have damped off prematurely; and in fruit-houses at rest—having the welfare of the trees at heart—one has been afraid to apply much fire-heat to expel damp. This we have done, however, but have taken the precaution to keep the ventilators fully open the while, so that the heat has never been excessive. Pruned an intermediate and mixed house of Vines; washed glass and woodwork and filled it with kinds of bedding plants that a few degrees of frost will not injure, as artificial heat cannot be turned on. Picked over and re-arranged flowering Pelargoniums, Carnations, Cyclamens, and Primulas, with which our Strawberry house is now filled; by intermixing a few Maiden-hair and Lomaria gibba Ferns with the flowers, the effect has been greatly enhanced. The temperature we keep about 60°, and the atmosphere as dry as is possible under the present wet-weather conditions. We have a late lot of Melons, the fruit of which is about half grown, but of late they have made no progress, and I scarcely think they will mature; but we mean to continue the experiment, and have now increased the fire-heat and withdrawn all atmospheric moisture, as there were signs of mildew. Cucumbers, too, are so unsatisfactory, that we shall be compelled to destroy them; the fact is, they have been neglected in the interest of flowering plants. The demand for the latter has ousted the former. A penurious policy is seldom a wise one, and it has not been in this case. HANTS.

HARDY FRUITS.

The Orchard.

As a rule, all root-pruning and planting should be finished by the end of the present month. This year, owing to the mildness of the season, this work in many places has been delayed, as many of the trees were not only in full leaf, but actually growing up to the evening of the 7th, when 10° of frost produced a most desirable check upon vegetation. Just now the burning question amongst pomologists is the best and cheapest mode of growing fine Apples and Pears that will enable them to compete profitably with our enterprising colonists. Another question of equal importance is the best mode of disposing of them after they are grown. Apples, we learn from all quarters, are not plentiful in England, but they are fine, and a consensus of opinion goes in favour of their quality being superior to that of the bulk imported from abroad. This being so, or assuming that they are equal, how does it happen that the producer living a great distance from London barely receives a penny a pound for fine samples, whilst the consumer pays from threepence to fourpence? If the quantity imported keeps the wholesale prices down, one might suppose that the consumer would get good fruit proportionately cheap, and no one would have ground for complaint, but this does not seem to be the present state of affairs; consequently, next to growing good fruit, a question of equal importance is the establishment of more markets and the breaking up of a huge monopoly. In my last paper I dwelt upon the cordon system as being applicable to small gardens and limited plots of ground; but when planting extends to acres, present prices in a comparatively scarce season will hardly induce owners or occupiers to incur the outlay of placing one or two thousand trees on twice that number of square yards of ground. For quality, I believe the cordon system stands unrivalled, but for bulk of fine marketable fruit, trees worked on the English Paradise and trained as bushes will possibly give the greatest return, and that at less cost at the outset. The preparation of the ground for bushes should be precisely the same as for cordons. It should be well drained and trenched, or double dug, and if it is unsuitable, heavy loams may be made porous by the addition of old lime rubble, road-scrapings, clay or stiff soil burnt to ashes with wood; anything, in fact, that will improve their character and favour the free passage of water to the drainage. Light or sandy soils, on the other hand, may be rendered more binding by the free admixture of dry pulverised marl, clay, or chalk, as well as by the use of cool, heavy manures for mulching. Firm treading or even ramming after trenching, always when the soil is dry, also does good service, as it produces a resisting medium, which all fruit trees like, and compresses a greater quantity of food into a given space.

Preparation of the trees.—Bushes, two to four years old and well furnished with flower-buds, can be obtained in any quantity, and, provided a quick return is of paramount importance, properly prepared trees, three years from the bud or graft, should be selected. If economy takes precedence of time and yearly extension of the orchard be the object, then the spaces between the rows of the first batch planted may be utilised by the introduction of maidens, or even stocks, if the occupier is an adept at budding and grafting; otherwise home manufacture should be left alone, as there is a certain mode of procedure which experience alone can impart. When maiden trees are planted in autumn with the view to their making really dwarf, perhaps goblet-shaped, bushes, it is necessary to cut them back in the spring and train the side shoots in a horizontal position; but head room being abundant, the removal of the leading point from well-feathered, untrained pyramids is the most natural as well as the quickest mode of getting healthy fruit-bearing trees. Some varieties are horizontal growers; others assume a pendent habit, and actually require supporting when carrying heavy crops of fruit. A third section will be found decidedly fastigiate, and may require drawing out to induce them to cover the space allotted to them. These, as a rule, attain the greatest height in a given time, and for this reason should be planted where they will be least likely to cast shade upon the dwarf growers.

Distance apart.—Having decided upon the direction in which the lines are to run—from north to south answers best—permanent trees should have sufficient room to admit of their full development and the free passage of sunlight and air, without which colour and flavour will be found wanting. A Kentish grower of great experience says bush trees and pyramids should be placed 12 feet apart, or 300 to the acre, but after looking at some of my own of about twenty years' growth, I should be inclined to give them 18 feet, as I am a great believer in extension and allowing them to grow into fertility. This arrangement would leave a great deal of unoccupied space at the outset, but this, as I have previously remarked, might be planted with younger stock for future transplanting, as more ground is worked into condition. Bush trees, including Gooseberries and Currants, or Strawberries might also be introduced and destroyed as their space is wanted. In the arrangement of the trees great care should be devoted to their selection—in other words, whole rows of one kind or of kindred habit should be kept together, not only for producing a tasty and pleasing plantation, but also for the convenience of gathering and manipulating. When trees on the English Paradise stock are intended to attain their greatest size in the shortest time, all the shortening the shoots require should be directed to the maintenance of the proper balance of the heads, but they will need annual thinning to prevent the centres from becoming crowded. The roots, unlike those of miniature cordons, will not give much trouble, but bearing in mind that these stocks cast out one or two strong anchor roots in a downward direction, whilst surface fibres are the main feeders of the fruit, each tree should be carefully root-lifted when it has been two years planted. By root-lifting it must be understood that all the vertical roots must be raised to a horizontal position, the strongest only shortened and relaid in good fresh loam near the surface. Some may require lifting a second time, but the majority under good mulching will go on for years, as roots once laid in the way they should go seldom depart from it; whilst shoots that are allowed to extend become crowded with flower-buds. If one-tenth of these set, the fruit requires thinning; if they miss, then it may be necessary to maintain the balance by again working round the roots in the autumn.

The Fruit Room.

A season of extremes, although fruit is very fine and clear, does not seem conducive to the keeping of dessert Pears. Apples, on the contrary, are unusually sound, and many varieties look like extending beyond the limits of their allotted period. Pears, especially from walls where there was just a suspicion of dryness at the roots, came quickly up to the gathering point, and that condition may have been the cause of early maturity and an inclination to become sleepy before their time. Marie Louise and Pitmaston Duchess, although allowed to hang a fortnight later than last year, are quite a fortnight earlier in ripening. They do not shrivel, neither do they rot, but when touched nearly all the finest fruits are found to be soft and mealy, and, as a matter of course, unfit for use. Fruit growers in this country like to leave their best Pears on the trees until they part with the slightest touch, or, perhaps, a few begin to drop, but I am afraid I have overshot the mark, as samples from pyramids and standards are maturing gradually, and although smaller in size, their quality is superior to that of kindred or the same varieties from trees trained against walls. People do not often chronicle failures, if fine Pears becoming prematurely mealy can be called a failure, but this is one of those peculiar facts, perhaps the natural outcome of a peculiar season, which others living in drier and warmer parts of the country may be able to explain. To me the phenomenon is new, as this is the first time I have had occasion to complain of too much fierce sun-heat in Herefordshire. Apples, as I have just remarked, are keeping sound and good, and the sweating stage having been got over, the store room may now be kept moderately close, particularly during the continuance of this incessant fall of rain. The crop in many parts of the country being light, some growers will not require reminding that the store should be carefully examined at short intervals, and double or treble rows laid out in single file as the consumption of early varieties sets the shelves at liberty. In this part of the country, although the crop was partial, many varieties, notably Blenheim Orange, have filled the store rooms to overflowing; thousands of pots have been sent away, and still there are quantities requiring more room. These, it is hardly necessary to say, should be taken out of the hampers, as one decaying fruit soon affects the mass, and if better accommodation cannot be provided, a good layer of sweet Fern laid on a dry, cool floor will form an excellent resting-place for the present. Others, again, may be placed in dry barrels or large earthenware pots, in which selected samples free from spot or bruise will keep much longer than on dry airy shelves, especially where the fruit room is easily affected by external changes. Extra fine varieties and choice Pears, if behaving themselves

properly, may be rolled up in white tissue paper and put away in drawers from which the air can be excluded. If sound and free from spot, as every specimen so treated should be, there will now be slight danger of decay, but for all this they should be carefully examined occasionally, as the finest and, I regret the impeachment, the most perfect-looking Pears may be found sleepy.

Strawberries under Glass.

Where very early forcing is contemplated, the first batch of plants should now be placed under cover, and after they have thrown off some of the moisture with which everything in the open air is saturated, the tops of the balls may be rammed and surfaced with rich top-dressing. If a Strawberry house proper is at command, the most promising plants in the smallest pots, after being washed and examined to see that the crocks are satisfactory, may be placed upon the shelves to come on slowly at first, under the faintest taste of artificial heat. Hot water is, of course, the prime agent, but a very important factor will be found in fermenting material, than which nothing can be more suitable than well-fermented Oak leaves, as they not only throw off soft, genial warmth in which plants of all kinds luxuriate, but the moisture constantly exhaled reduces the necessity for continuous syringing. Where suitable houses are not provided, a sharp pitched summer Cucumber or Melon pit, fitted with temporary shelves some 16 inches from the glass and previously filled with a good body of fermenting leaves, will answer fairly well for carrying the plants through the early stages of their growth, but unless it is span-roofed and perfectly ventilated, another structure should be ready for their reception when they come into flower. Lacking these, very early forcing dead against Nature is best left alone, at least for the present. Many people not from choice, but through force of circumstances, plunge into a sea of trouble and worry by filling all available space in their Peach houses and vineries as soon as they are closed for forcing. The temperature at the outset is satisfactory, but the attempt to grow two kinds of fruit so subject to red spider frequently ends in disappointment, as many fine and promising plants often become blind and leave a legacy of destructive insects behind them. By many employers who expect their gardeners to perform miracles these difficulties are ignored, but they exist nevertheless, and it is only right they should know the man who succeeds is worthy of very much credit. If, then, Strawberries must have a place with Peaches and Vines, they should occupy shelves near to the glass and ventilators, and fermenting leaves should be placed beneath them. If not already stored away, the main batch of plants may now be plunged up to the rims of the pots in coal ashes or other materials where these are considered objectionable. Some (myself included) do not approve of covering the tops of the balls with ashes; but this difficulty can be got over by the application of a light covering of leaf-mould.

Vines.

The month of November is always considered the most trying period in the whole year, but when incessant rain darkens and saturates the atmosphere; when one cannot move without carrying mud and moisture into the houses, the difficulty that attends the keeping of half-ripened Grapes is greatly intensified. Grapes, on the other hand, that were black, as all well-managed Grapes should be, in September will now be thoroughly ripe, and capable of holding their own until the time comes for bottling. If all the leaves have not fallen from the Vines they should be gathered up every day, and the atmosphere kept dry and temperate to prevent the spread of mould or condensation of moisture. Cleanliness and the removal of all decaying vegetable matter is, of course, imperative, and ventilation with gentle warmth on fine days, when they come, must not be neglected. Although Grapes and wood may be ripe, a condition which fits them to withstand a low temperature, a sharp circulation of air when the weather does change should be carefully avoided. The Grapes at the time will not show the effect of a chill, but when the fresh healthy stalks of such kinds as Gros Colmar rather suddenly turn black, although too late, it may be well to inquire how they have been ventilated. If not already done, inside borders may now be covered with some dry non-conducting material for the protection of the surface roots and keeping down moisture. Where at hand, fresh dry Fern answers well, and gives the floor of the house a neat appearance. Outside borders, having received so much rain, may also be covered with the same material; or, lacking this, a good layer of fresh dry stable litter. When glazed lights, sheets of corrugated iron, or shutters are used for throwing off rain and snow, they should be elevated to admit a circulation of air, which will prevent an accumulation of stagnant moisture ready to rush into the house when the front lights are opened. If thin-skinned Grapes are still hanging on the Vines, they must be kept very dry and cool, as shrivelling is better than damping. But, in order to avoid either, they will not only keep better in the dry even temperature of the Grape-room, but the Vines will derive great benefit from a free circulation of air before they are let down for pruning.

The Grape Room.

This is now a thoroughly established section of every good Grape-growing garden, and few who have tasted the comfort which attends the removal of the last bunch from the Vines would like to go back to nights and days of anxiety. Much has been said and written about Grape as well as fruit rooms, but the secret of success in their management rests in a nutshell. An atmosphere too damp or too dry, or which fluctuates with every external change, is the bane to long keeping. A dry, well-ventilated cellar is better than an airy room in the upper storey, and expensive fittings are a superfluity. Given a well-ventilated room or cellar, with thick dry walls; fit it up with racks for carrying bottles or other vessels filled with water; limewash every year, and use it not for perspiring Pears when the Grapes are in it. Avoid the use of fire-heat if the atmosphere can be kept dry and the temperature at about 50° without it. Cut the Grapes on a dry day, and be careful to remove every imperfect berry before the bunches are taken into their winter quarters. Each piece of wood carrying a bunch should be severed with a sharp knife—not with secateurs—close to the pruning bud, but not the slightest tip or lateral should be taken off beyond it. If a new Grape room must be built, sound hard brick is preferable to stone, and on the old lines laid down years ago. The walls may be hollow, the ceiling double, but well ventilated, and the windows not too many, fitted with shutters. Hit-and-miss brick ventilators let in near the floor, and a flow and return pipe from a slow combustion boiler placed outside for expelling damp or keeping out actual frost, need not be a very costly affair. The cost of the fuel will be next to nothing, as fires in some seasons may not be needed at all, but this provision should be made for meeting cases of emergency.

W. Coleman.

Eastnor Castle, Ledbury.

SHORT NOTES.—VARIOUS.

Lamarck's herbarium.—The celebrated collection of plants that belonged to Lamarck, and subsequently passed into the possession of the late Professor Roper, of Rostock, has been purchased by the French Government, and will be shortly placed in the Jardin des Plantes.

Boussingaultia baselloides.—Mrs. Axtell, of West Lodge, Dorchester, sends us some delightfully flowered sprays of this plant. It is very fragrant and extremely graceful, and she is fortunate in being able to grow it so successfully. As a rule, it is an unsatisfactory plant, because it is not quite hardy enough to survive out-of-doors about London, and does not seem to flower well under glass.

Sundials.—I have a sundial in my garden consisting of a thick slab of slate 21 inches square, fixed perpendicularly, and placed in its position on June 17. We arranged the shadow from the gnomon at the hour of 12 noon. At this time of the year when the sun makes a lower transit across the sky the dial is not accurate. Would "Veronica," who writes on sundials, or some other correspondent oblige us with information as to any rules that may exist for the correct reading of the instrument at the various seasons of the year? T. H. Delves.

Kitchen Garden.

Messrs. Sutton's Potato Experiments.

Most of our readers are aware that Messrs. Sutton, of Reading, have for two or three years been carrying on a series of experiments with Potatoes, with the view of producing a race that will be disease-proof. They obtained from Kew tubers of what they thought was Solanum Maglia, but by some mistake tubers of the wild Potato (Solanum tuberosum) were substituted. These were fertilised with pollen taken from some of Messrs. Sutton's best Potatoes and were grown on, and on Monday last we went to Reading to see their produce, when the following results set forth in the annexed tables were realised:—

No.	Produce 1885.	Produce 1886.		No.	Produce 1885.		Produce 1886.	
	grains.	lbs.	ozs.		lbs.	ozs.	lbs.	ozs.
1	19			14	1	7½	53	2
2	6			16	1	10½	47	4
3	11			17	1	5½	122	6
4	11		14	18		1½	11	2
	lbs. ozs.			19	2	12½	83	6
5	3½	54		20		10	43	10
6	½	10	5	21		4½	39	14
7	4	24	8	22	1	9½	10	12
8	11	56	2	23		11	47	13
9	10½	22	6	24		½	6	3
10	7½	2	4	26		6½	20	7
11	5	31	14	27	1	2½	6	
12	13½	56	15	28		9½	23	14
13	2 1	43	9					

Second Series of Crosses made in 1885.

Male parent, Sutton's Reading Russet; female parent, wild Solanum tuberosum, from Kew.

No.	Produce 1886.		No.	Produce 1886.		No.	Produce 1886.	
	lbs.	ozs.		lbs.	ozs.		lbs.	ozs.
1		2	9	4	14	18		½
2	5	15	10		7¼	19	1	3
3	3	15¾	11	1	14½	20		0½
4	4	15	12		½	21		¼
5	4	6	13		¼	22		4½
6		13½	15		11¼	23		1¼
7	2	12½	16		9½			
8	1	2½	17	(1 small tuber)				

Male parent, Victoria; female parent, wild Solanum tuberosum, from Kew.

No.			No.		
	lbs.	ozs		lbs.	ozs.
25	4	3	30	4	14½
26	4	8	31		8¼
27	5	8¼	32		1½
29	1	13			

Male parent, Walker's Regent; female parent, wild Solanum tuberosum, from Kew.

No 34, 9¼ ozs.

The motives which led to the commencement of these experiments were to produce, as we have just said, a race of Potatoes which shall have all the good properties of a first-class Potato, be a large cropper, and possess such a hardy constitution as to withstand disease—in fact, be a disease-resister. In order to obtain the constitution it was deemed necessary to go back to the wild state of the plant, but as Solanum tuberosum (the plant from which our Potatoes of the present day are supposed to have descended) is a native of somewhat dry regions in the Andes of Chili, some other kind was sought for; and Solanum Maglia, discovered by Darwin in wet, swampy places in the Chonos Archipelago, a group of islands off the west coast of Patagonia, was thought likely to withstand the vicissitudes of our climate better than its near ally, S. tuberosum, from a dryer atmosphere. Accordingly, tubers of S. Maglia were, as was supposed, obtained from the Royal Gardens, Kew, where wild species of the Potato have existed for some years. No pollen was, however, produced by these wild plants, but their flowers were fertilised with pollen taken from one of the

best (if not the best) Potato yet known, called Antagonist, with the result herewith shown. The female parent of this new race, as will be seen from what has been stated, is not S. Maglia, as Messrs. Sutton would have liked it to have been, but S. tuberosum, raised from imported tubers. By this little mistake, however, we consider that the Messrs. Sutton have been gainers instead of losers, inasmuch as trials recently made with the true S. Maglia have proved it to be of such a rambling habit as to be useless for cultivation. Other varieties crossed with the wild S. tuberosum were Paterson's Victoria, Walker's Regent, and Reading Russet; the results from the latter are heavy, good-looking tubers of great promise, but the most curious fact of all is that cuttings taken from a red-stemmed Potato, which had become white towards the ends of the stems, when struck produced white tubers of excellent appearance, whilst the tubers at the base of the stems from which these cuttings were taken were found to be of the normal purplish red hue, thus showing that, though the original colour of a Potato may be red, it may at any time break into an albino under cultivation. One result Messrs. Sutton's experiments certainly serve to show, and that is that our Potatoes of the present day have been obtained from Solanum tuberosum, as tradition records.

IMPROVED CELERY.

It speaks volumes for the remarkably staying powers of that fine white Celery, Incomparable Dwarf White, that hundreds of strong plants from seed sown ever since April last year still remain unbolted. I have never had such an experience before, but all the same have always found this dwarf kind to be very late in starting off to flower. I think it is a great recommendation to any Celery that it is not only hardy, but in no hurry to bolt. We have need of Celery over a long season, indeed, till the end of May, at least, if it can be preserved. I am not aware that blanching facilitates running off to bloom. I have not found that to be the case, but invariably that much is contingent upon kinds. For that reason I find the Incomparable Dwarf to be so good either for early work, bearing early sowing and planting so well, or for the latest planting, standing so late into the following year before running to bloom. Apart from this recommendation, it is at once one of the most solid and hardy of Celeries, bearing comparison with the red kinds, whilst its short stems conduce to an even head of foliage, which standing just above the earthed-up ridge of soil much more fully protects the stems from frost and snow than do the stalks of those larger-growing and, of course, much looser-leaved sorts. These a few frosts, or a moderate snowfall, utterly demoralise, break, and almost destroy, and once that result happens the younger and tenderer leafage is left exposed to the rigour of the winter. Broken stems soon lead to decay, and that decay soon affects the blanched stalks injuriously. Then the vacancies left around the plants by the decayed leaf-stalks enable moisture and slugs to find free entrance, and hence we see so much stained and half-rotten Celery later in the winter. It is from no lack of quality or endurance that the Incomparable Dwarf kind has been so much put aside.

There has been too much anxiety to get big-stemmed kinds that look well upon the exhibition table. Were Celery served up to the dinner table in massive sticks just as lifted, dressed and cleaned, there might be some reason in this anxiety to get large-stalked kinds. However, that notion is too absurd; hence we see these big sticks of Celery only on the show table. But if the Dwarf White were grown under precisely similar conditions to those of Giant White, Grove White, Prizetaker White, or under whatever designation any large white form may be known, it would be found in the end after the sticks were duly prepared for table, that the dwarf gave quite as much good, edible, blanched matter as did the biggest sort, and much more economically. As evidence of the favour which clusters still round the dwarf, compact Celeries, it is noteworthy that the chief novelties in Celery of late have been dwarf. I think I am justified in saying that the Incomparable Dwarf has had to do duty several times as a novelty, but when so introduced, if true, it is at least a good thing. Some years since, when Celeries were tested at Chiswick, four or five strains of the Dwarf White and Sandringham (the same thing) were grown, it was found that only one lot was true. That at once shows that care in keeping stocks pure is not always found. With respect to some other very dwarf Celeries said not to require earthing, we may take it for granted that no Celery is fit for consumption that is not in some way or another artificially blanched, and it seems moreover that no blanching element produces sweeter or crisper Celery than does the soil, especially when earthing is done with care and the soil is fairly fine and dry.

We have done very little in the way of improving sorts of Celery of late years, as is evidenced by the fact that old kinds still hold their own. We see this fact in the red section prominently, for Major Clarke's is now quite an old kind, and it is without exception the best of all the reds yet. Although not quite so dwarf as is the Incomparable White, yet it is dwarfer and much more compact than are most of the other red sorts. So even and compact are the tops of this red (also known as Leicester Red), that it can be detected at a glance; whilst others are much less easy to distinguish, and several have very irregular, long, loose stalks, which now flop down under the influence of heavy rain or snow. Of course, every seedsman likes to praise and push some special Celery, but unless they produce sorts which excel these old kinds that are everybody's property, it is hardly fair to lay claim to the possession of superior specialties. There is some merit in preserving good strains, and the better or purer the strains, the more credit is due to the house offering them. Considerable discussion took place recently with reference to the best system, or rather time in the plant's growth for earthing up. Without doubt that gardener's system is the best which in the end gives him the best results, but there is very much diversity of opinion in spite of that, and the majority hold to the old notion that gradual and careful earthing is best. I think there can be little doubt that the most effective blanching is produced in that way, and that the Celery, because less exposed to the light, is far more tender and sweet than is the case when blanched after the plants are fully grown. The defect of such a plan is that it may, should the autumn prove wet, have to be done when soil and plants are wet. In such case it would have been far wiser to have begun the earthing during the summer. A. D.

Sweet Brier.

SWEET BRIER.

(ROSA RUBIGINOSA.)

Sweet Brier is ever welcome and ever beautiful, whether in garden, hedge, or woodland. The sweet scent of its foliage greets us in the earliest days of April when the leaf-buds are unfolding; it bears a profusion of flower in June, and a mass of fruit that is highly ornamental in late autumn. Planted near or among the lower branches of some evergreen tree, such as a Holly, a good effect may be gained by encouraging it to throw up its strong shoots through the dark foliage: the showers of bright flowers and brilliant berries are more than usually beautiful when seen in such companionship.

INDOOR GARDEN.

WINTER-FLOWERING PLANTS.

Christmas Roses are, or ought to be, everybody's flowers. No class of plants which we cultivate give such good returns for so little trouble. One strong undisturbed clump is capable of producing hundreds of blooms in one season; we have gathered as many as sixty at one time, and an unlimited supply of such lasting and nearly pure white flowers in mid-winter would be welcomed by any lover of flowers, and more especially by makers of memorial wreaths. It is a mistake often perpetrated, I believe, to attempt to force Christmas Roses; this ends in the production of weakly blooms and the weakening of the plant's constitution. If early blooms are wanted, a few strong clumps may be lifted with plenty of soil about their roots, and either potted or planted in a light house or frame. They will perfect as many flowers as those left in the ground, will be earlier, and most probably much whiter. The stems, too, are thinner—an improvement, I think. Potted-up plants will, if well attended to, flower strongly the second year, after which they should be divided, planted out, and not interfered with for the next two seasons. Our stock of plants is arranged in beds to suit the size of long, narrow, span-roofed frames, and four of these yield us ample supplies of bloom, with no further trouble than protecting them from severe frosts. It is well to cover the plants with glass if possible any time before the blooms expand, handlights and bell-glasses being best for the purpose; without this protection the colour of the blooms will be nearer green than white. Christmas Roses are coarse-rooting plants, and do not succeed well in either poor or light soils. Ours are improved by occasional lifting, this being done in spring, just as active growth commences, and unless lifted, it is almost impossible to maintain the proper degree of fertility in the soil. They like a moderate supply of manure within reach of their roots, plenty of moisture at all times, and are benefited by liberal mulchings of manure. We depend wholly upon one variety, Helleborus niger maximus, and the form being a good one—that grown extensively in the neighbourhood of Bath—it is doubtful if we shall improve on it.

Gardenias are not, as a rule, plants of easy culture. In some few gardens we meet with them in the best of health, but more often they look miserable, being either smothered with mealy

bug or of a sickly yellow hue. The best course with such plants is to burn them and start with clean, healthy stock, such as any nurseryman would be glad to sell at a comparatively cheap rate. Or, if clean, quickly produced cuttings can be procured in spring, these will strike readily in a brisk bottom heat, and may be grown to a good size, *i.e.*, large enough to perfect a dozen or more blooms before Christmas. We find either a heavy loamy soil or over-potting to be both liable to end fatally. If good, fibrous loam, devoid of clay, is available, this may be mixed with an equal quantity of good peat, and after a liberal addition of sand and charcoal, if at hand, has been made this compost ought to grow Gardenias well. Our loam is clayey, and we use only one part of this and an equal portion of good leaf soil with the peat. Large pots are to be avoided. Some of the finest plants I have seen were in 11-inch pots; but a 9-inch pot is quite large enough for a plant 2 feet high and proportionately bushy. Pots well filled with roots are what are required, these admitting of plenty of water being given and frequent supplies of soot water, than which there is nothing better for Gardenias. We find it advisable to mix the soot in the form of paste, a state in which it can be kept in a flower-pot conveniently near, and a small lump of it readily mixes with the water. Very little suffices, the water being little more than coloured with it, and this soon communicates a dark hue to the foliage. A healthy plant is bound to be floriferous; sickly plants also attempt to flower freely, but many of the buds drop off, and the flowers that do open are small. Low temperatures or cold currents are injurious to Gardenias, and dry heat is also unfavourable, often causing many of the buds to drop off prematurely and otherwise injuring the plants. A Pine stove just suits them; they may be said to revel in a high temperature and a moist atmosphere. This may easily be proved by placing a plant or plants over a hot or warm-water tank in a plant stove or forcing house. Some good cultivators never give them any air, not even in the hottest of weather, but they are usually afforded a little shade and are frequently syringed overhead. Syringing overhead whenever the house is very dry not only benefits the plants, but also materially hastens the unfolding of the blooms, and this hint should not be lost on those who may want an extra number of blooms at a given time. We have set strong plants on the hot-water trough and kept them constantly moistened overhead as well as attended to carefully in the way of watering, and this brings blooms forward very rapidly. Mealy bug is their worst enemy, but scale is also troublesome at times. It is not safe to use petroleum, or, indeed, any other strong insecticide during hot, sunny weather, or all the fully-grown leaves as well as the insects may be destroyed. In autumn and winter, petroleum, at the rate of 2 ozs. or one wine-glassful to a gallon of hot water, may safely be syringed on to them, and this proves fatal to both bug and scale. The water should be soft and heated to about 120°, and the petroleum should be kept stirred with the syringe, and thus forcibly mixed with the water it may be effectively used. Subsequently those that escape ought to be killed with a pointed stick. Young practitioners are fond of using stiff brushes for clearing off bug, but these do nearly as much injury as they do good. Gardenia radicans major is sometimes classed as a greenhouse plant, and during summer it will succeed in such a house, but it must be a very warm greenhouse that would agree with it in cold weather. We have it in a moderately warm stove, the temperature of which ranges from 50° to 60° by night and rather higher in the daytime, and, on the whole, we consider it to be the most profitable sort we have yet tried. It is a continuous flowerer, and I should advise all who have not succeeded with Gardenias to their own satisfaction to give this variety a trial. Fortune's variety of G. florida is a useful kind, the blooms of which are larger than those of the type. Many err in cutting wood with the blooms; this plan effectually checks continuous blooming, and autumn and spring crops are the most that are secured. With every bloom are cut away one or two side shoots, some perhaps having buds already formed on them. The blooms with their stout foot-stalks only should be cut or snapped off. It is true, the foliage sets off the blooms to the best advantage, and when cut with a flower a button-hole is ready formed. However, it is a very simple matter to pass a fairly stout wire through the fleshy tube, bringing the ends neatly together, and they may then be mounted on neat shoots of the green and glossy-leaved Escallonia macrantha; or, failing this, a few back Gardenia leaves may be safely removed from strong plants, and may be wired and attached to the blooms. Thus mounted, they are stronger than those cut with leaves attached and not wired, and the blooms last quite as long.

W. I. M.

WINTERING SOFT-WOODED PLANTS.

Calling, a few days ago, upon a neighbour who is an enthusiastic, though not an experienced, gardener, I found him busy preparing a pit in which to winter some plants he had lifted from his flower beds and placed in pots. But he had very crude notions as to carrying out his purpose. He had actually built up a wall of manure in the shape of a frame, with the back against a wall, and with nothing but the ordinary garden soil at the bottom, and in this he expected to successfully winter his favourites. He had no thought of damp and the loss of his plants from that cause; he thought only of excluding frost, and he fancied his wall of manure would retain sufficient warmth to keep away frost all the winter, and bring his plants triumphantly safe through that season of the year. Now, there are a great many amateur gardeners in a small way who take a great pride in wintering a few plants successfully, though they have no greenhouse in which to house them. One can bring safely through the winter a great deal in a cold house, with due precautions, if they will be careful in the matter of watering. Keep the floor of their house dry, and in times of sharp frost cover up their tenderest plants with newspapers and any such material. They can also bring into requisition one of the petroleum stoves now so common and so cheap, and I have never found the fumes from the oil do the plants any harm. But the great secret is keeping the plants dry at the roots and avoiding by all possible means wetting the floor of the house more than is unavoidable.

But it is possible to construct a cold frame in a homely fashion in which many things of a tender character can be wintered in safety. I know a cottager who is an exhibitor of plants during the summer months, and a successful one, too, growing and showing capital Verbenas, Petunias, Fuchsias, Pelargoniums, &c., and as the show at which he competes is held in July, he has to get his plants as forward as possible, and the young plants he grows into specimens are struck from cuttings in July and August. He has constructed a most serviceable frame, which serves him in good stead of a greenhouse. It is a homely-constructed pit rather than a frame: the sides are made of strong rough planks, and set up nearly level with the ground, the lower sides of the planks not quite touching it. The surface slopes from the back to the front, so as to afford natural drainage, if necessary.

Now, in order to have an appropriate base to the bed, the soil was dug out to the depth of a foot or so. Then was laid into it a foundation of 9 inches' depth of stones, brick rubbish, &c., and on this were placed 2 inches of coarse cinder ashes, and then some 6 inches of finely-sifted ones. It is almost impossible that such a bottom could be a damp one, but that the chances of damp should be reduced as much as possible, an outlet was made for water to run away, should any gather. During autumn, a wall of dry tan is built up round the outside of the frame nearly to the top, and outside this a wall of turf. This is removed in spring and utilised for garden purposes. The lining of tan is found to be a better non-conductor of cold than the soil, which is built up level with the tan. The frame is covered with two glazed lights that fit close to the framework. Here the plants are placed, and as opportunity offers they are gone over, any dead or decaying leaves removed, and the surface soil stirred, &c. On all fine mild days in winter the lights are tilted up, if not altogether removed, so that the air may circulate among the plants. At night, when the air is frosty, a covering of mats is put on; indeed, anything in the way of covering is called into requisition. In this way Camellias, Indian Azaleas, Richardias, and things of a similar character, in addition to those named above, are kept through the winter in perfect health. Water is given very sparingly during the dull, dead season, and when a thaw follows a season of frost any plants that have become very dry are lifted out of the frame, the pots immersed in a pail of water, and then allowed to drain thoroughly before they are returned to the pit.

I need scarcely state that such a frame is very serviceable in summer in many ways, and the fine specimens shown by this cottager are grown entirely in this frame and in the open air. Surely this is an example that can be followed with advantage by many amateur and cottage gardeners.

R. D.

COLD FRAMES IN WINTER.

Cold frames are useful in many ways during winter. They afford protection from wind—an important point—and they ward off a great deal of frost and snow. The greatest enemy to the occupants of cold frames is damp, and the great majority of deaths which occur amongst cold-frame plants in winter may be attributed to this cause. If damp can be excluded or timely expelled, it is remarkable how well even half tender plants can be preserved in cold frames in winter, but great care and attention are needed in air-giving, an operation, however apt to be neglected, doubtless not intentionally, but under the impression that damp is best excluded by keeping the frame shut as much as possible. The sun may come out for an hour or two at mid-day, but it may be thought that it is not worth while opening the lights for such a short time. It is, however, often little air-givings of this kind which preserve the plants, as by opening the lights on every favourable opportunity, no matter how short the time, if the outer air is inclined to be dry, good results will follow. Wind, too, when not too cutting, soon dries up the interior of a cold frame, and if the lights are opened in such a manner that the currents do not come directly in contact with the plants, the latter will be greatly benefited thereby. There are many days, too, during the winter when the lights may be drawn off altogether for a few hours, and this helps wonderfully to keep the plants robust. Plants treated in this way are vastly different from close-grown ones. The surface of the soil in which the plants or cuttings are growing should never be wetted more than can be helped, and the soil should always be kept on the side of dryness. A few dry ashes or sand sprinkled thinly now between the plants are one of the best damp antidotes which can be used. Covering up from frost should never be done until absolutely necessary to do so, as many make the occupants of their cold frames tender by covering up when frost is only expected, that they are unable to bear the confinement when it does come.

Cambrian.

Tacsonia exoniensis. I am inclined to put this before T. Van Volxemi as a decorative plant in a conservatory. I was particularly struck the other day with its beauty in the conservatory at Willersby Castle, where there were two large specimens in pots. Their roots had penetrated to the border beneath, and the plants had not only made marvellously free growth, but they also bloomed with a freedom which is truly astonishing, far beyond what I have ever seen in the case of T. Van Volxemi. The rosy magenta flowers hung down in the most profuse manner. The plants are

pruned in pretty freely in the early part of the winter, and break into growth early the following year.—R. D.

SOME EARLY-FLOWERING BULBS.

Many doubtless would like to have a good display of bulbs in flower in December, and especially about Christmas-time. Flowers then are generally scarce, and the addition of a few attractive bulbs is much valued. There are many in almost all classes of bulbs which it would be quite impossible to have in flower on this side of the new year, as they absolutely refuse to be forced early, but there are others more pliable, and these, although not very numerous, are both choice and showy. First and foremost amongst early-flowering bulbs I would place the Roman Hyacinth; it is a free and early grower, and a sure flowerer. No flower could be more delicate in colour or fragrance, and its slender flower-spikes are very graceful; indeed, there is no better flower for choice decorations than this, and it is so easily grown and so remunerative, that in gardens of all classes, even down to the very smallest, it should be grown by the dozen, hundred, or thousand, as the case may be. Other Hyacinths which flower closely after the Roman kind, and which may be had in full bloom at Christmas, are Homer, fine red; L'Ami du Cœur, very bright; Grande Vedette, pure white; Princess Beatrice, pure white; Rowland Hill, bright yellow; and Victory, deep yellow. These are all single varieties. La Tour d'Auvergne is a good double white. Early double-flowering varieties are not so numerous as the single ones, and it is not often that any attempt is made to force double ones, so as to be in flower before the turn of the year. It may be well to remark that the varieties just named are best suited for greenhouse and conservatory embellishment, and are not so useful for cutting as the delicious Roman kind.

Of Tulips for flowering early or in December there are several both showy and good. The Duc van Thols are undoubtedly the best and easiest to deal with. The colours are red, crimson, gold, scarlet, rose, white, and yellow; one and all may be had fully in flower by the middle of December, and it would almost be impossible to imagine anything more showy at that time than masses of these. They are beautiful for front rows in conservatories, and very suitable for cutting and putting in small glasses for the table or rooms. In a dark December day the free use of scarlet and bright Tulips in a room gives it a brilliancy which no other flower is capable of doing. Those who have a good stock of Duc van Thols need not desire many more varieties for early flowering, but there are others only a little later, and almost as easily forced, which are worth attention. Amongst these we would mention Belle Alliance, Bride of Haarlem, crimson and white; Canary Bird, rich yellow; Cottage Maid, rose-pink; Fabiola, purple and white; Joost van Vondel, rosy crimson pencilled with white; Le Matelas, white flushed with crimson; Pottebakker in two colours, white and yellow; Proserpine, dark rose, very fine; Queen of the Violets, light violet; Roi Pepin, white flaked with crimson; and Vermillion Brilliant, which is very effective. The advantage of dealing with these Tulips is that they do not require much space, as from six to eight bulbs may be put into a 6-inch pot, and they will not fail to make an excellent show.

The Polyanthus Narcissi are very sweet-scented, and some may be had in blossom by Christmas. Of these we would name the Early Double Roman and the Early Paper White, which are two of the easiest to cultivate and most satisfactory. Good bulbs of both can be bought in at little more than 1d. each, and a few dozens or hundreds would make an acceptable addition to early winter flowers in either a large or small garden. With these ends our list of bulbs which can be forced extra early and with the utmost freedom. Many could be added, and different classes could be introduced; but they could not be recommended either for special or general culture as early flowering bulbs. We have tried to have Crocuses and Snowdrops in bloom previous to January, but have never succeeded to any extent worth speaking about. Lily of the Valley at Christmas would certainly be useful; but it cannot be profitably or freely forced by then, and unless in the hands of those who have forcing facilities beyond common, attempting its growth early in the season would only end in disappointment. Those who are able to secure a good show of the Hyacinths, Tulips, and Narcissi named above in December, can well afford to wait until February or later for other classes of bulbs to flower.

Bulbs for flowering after Christmas should be potted now. Our soil for one and all is mixed up in one heap; they are potted on the same day, plunged in the same place, and introduced to heat together, and they generally flower together. We do not therefore recommend one kind of soil for Hyacinths, another for Tulips, and a third for Narcissi, and as all succeed under the same treatment, they can be most conveniently treated together. Some of the Hyacinths may be potted singly in 3-inch pots; others of the small Roman class may be put into larger pots in groups, and the named varieties may be treated in this way too. Tulips are always prettiest in clusters, and so are the Narcissi, but the latter require larger pots than any of the preceding, and from three to five bulbs may be planted in a 7-inch or 8-inch pot. The pots should be well drained, and the soil used should consist of two parts of fibrous loam, one of decayed cow manure, and the other of leaf soil and sand. In potting keep the rough material to the bottom, and in planting the bulbs only allow the crowns to be seen above the soil. Finish off firmly, and then shake a sprinkling of sand over the top of the bulb and on the surface of the soil. As soon as potting has been finished they should all be plunged in a shed or frame, where excessive moisture can be kept off them. An empty frame is a good place in which to plunge them, or they may be put under the potting-shed bench or along the bottom of a wall, in a cellar, or in an open shed. The whole should be placed together as closely as they will stand, and then the covering should be put over them. This may consist of ashes, sand, soil, or sawdust, and should be from 3 inches to 5 inches deep. Under this the bulbs will soon begin to emit roots and the crowns push forth, and it is when their tops are up from 2 inches to 3 inches that they should be taken from the covering. If left until the growths are 6 inches or more in height they never assume such a natural habit as when taken out early, and by being left too long the flower-spikes often get injured. It is well to examine them now and again after the first fortnight, moving each kind out as the growths are up sufficiently. At first they should be placed in a cool frame or house away from frost and cold winds until the foliage hardens and becomes used to the light, then introduce them to heat. One and all may be forced in December in a temperature of 60° or 65°, and the best way of keeping up a succession is to move a few dozen from the cool place into warmth every ten days or so. They will all grow freely in a moist atmosphere, but the flowers will not keep long fresh in such a place, and as soon as the first blooms open they should be moved into a dry, airy atmosphere, such as that of a sitting-room or conservatory. J. M.

LIFTING CHRYSANTHEMUMS.

The planting out of Chrysanthemums in summer is likely to be extensively practised where large bushes and heavy crops of flowers are required. The experience of past seasons has shown that with care exercised in the lifting, and liberal treatment afterwards, a capital show of Chrysanthemums can be made, and a great saving of labour effected, through planting out during the summer months. As soon as all danger from frost is over, *i.e.*, not later than the beginning of June, we threw out shallow trenches, as if for Peas, 30 inches apart, and work in a good lot of manure. We then put in the plants the same distance from each other, and if the season is dry surface-mulch. For three months they receive no further attention, except a pinch when they have well started, an occasional inspection for maggot or fly, and a single stake to keep them upright. They receive two cuts round with a spade at intervals of a fortnight, commencing at the end of August, and by the end of September they are strong bushes ready for lifting. The pots used are 12-inch and 16-inch ones, with a few a trifle larger for extra-sized plants. These are taken to the plot where the Chrysanthemums are growing; the plants are carefully lifted and receive two or three sprinklings of native guano about the roots; while the potting is in progress no new soil is used. As the season is well advanced when they are lifted, they are removed at once to the Peach houses, and are thoroughly well soaked with water. With this care exercised in lifting, the foliage is preserved intact down to the rim of the pot, and we do not find any shading or syringing necessary except perhaps a slight dewing overhead if the weather proves very hot and airy; plenty of air is kept on night and day, and this not only keeps the foliage stiff and strong, but is a thorough preventive of mildew. The native guano keeps them right until the buds are on the point of bursting and they are ready for removal to the show house. As soon as they get to their new quarters, we start watering them with liquid cow manure. This kind of treatment will be found to be specially suitable for amateurs, as by it are produced not only good plants, but plenty of very fair blossoms. E. B.

BEST INCURVED CHRYSANTHEMUMS.

It may be assumed that we saw quite a representative collection of Chrysanthemums at the recent exhibition of the National Chrysanthemum Society at the Royal Aquarium. All the sections were not only numerously, but finely produced, and ample opportunity was afforded for making a fine selection. I went carefully through the flowers, and what I took to be the best I will now set down. But before doing so I may remark that there is ample room for more dark-coloured flowers, especially of purple, maroon, and crimson hues. The deepest coloured flower shown was Refulgence, which may best be described as a shining maroon-purple, and when finely grown it is very handsome indeed. Prince of Wales and Lord Derby are both lilac-purple varieties, coming next in point of colour of those shown to Refulgence. Of lilac or lilac-pink flowers there are Empress Eugénie, Princess of Wales, Lady Hardinge, Princess of Teck, Princess Beatrice, Beauty, and Hero of Stoke Newington. The bronze-coloured flowers, with which are included those having more of orange and less of bronze, are Nil Desperandum, Barbara, Golden Eagle, John Salter, Lord Wolseley, Mr. Brunlees, Baron Beust, Angelina, and Mr. W. Shipman. All these are very striking, and tell in a stand of exhibition varieties. The best golden or orange-coloured flowers are Mr. Bunn, Jardin des Plantes, and Yellow Perfection; the best yellows, Mr. Dison, Golden Empress, and Mabel Ward; the best sulphur coloured varieties are Golden Queen, George Glenny, Emily Dale, and Lord Alcester; the leading white varieties are Empress of India, Queen of England, Mrs. Heal, Jeanne d'Arc, and Mrs. George Rundle. Here we get something like thirty flowers, all of the best show quality.

A further good useful dozen will be found in Alfred Salter, deep rosy pink; Abbé Passaglia, bronzy amber, rather small; Beverley, creamy white; Cherub, golden amber; Golden Beverley, golden yellow; Isabella Bott, pearly white; Lady Carey, silvery rose; Mr. Cobay, ruby-red, very fine when caught in good character; Novelty, blush; Princess Teck, blush-white; Princess Beatrice, lively rosy pink; and Venus, lilac-pink.

The reflexed flowers are a very pleasing class when shown in good condition, and when disbudded they grow into large size. At the head of the list must be put Cullingfordi, which has been shown this season in fine condition, its rich bright crimson hue being especially striking. The others are Cloth of Gold, golden yellow; Chevalier Domage, bright gold, very fine; Christine, peach; Dr. Sharpe, magenta-crimson; Felicity, pure white; Golden Christine, golden buff; Julie Lagravère, velvety crimson, when it can be got large enough to show; King of Crimsons, rich crimson; Mdlle. Madeleine Tezier, white, tinted with blush; Mrs. Forsyth, creamy white; and Phidias, rosy blush. I may mention that Chevalier Domage, Christine and its varieties, Dr. Sharpe, King of Crimsons, and Mrs. Forsyth make good

exhibition specimens, being very free. To the foregoing reflexed varieties may be added Triomphe du Nord, a Japanese variety, but one of the finest reflexed flowers grown, the flowers large, full, and very handsome, and of a bronzy chestnut-rose colour.

A selection of the finest Japanese varieties will be found in the following list: Belle Paule, Boule d'Or, Baron de Prailly, Balmoreau, Bouquet Fait, Comtesse de Beauregard, Comte de Germiny, Criterion, Ceres No. 2, Duchess of Albany, Dormillon, Dr. Macary, Elaine, Fernand Féral, Fair Maid of Guernsey, Fée Rageuse, Flamme du Punch, Fanny Bouchariat, Grandiflorum, Galathée, Japonais, Jeanne Délaux, L'Adorable, L'Incomparable, Lady Selborne, Meg Merrilies, Mdlle. Moulise, Mdme. C. Audiguier, M. Délaux, M. Burnet, M. Tarin, M. Moussillac, M. J. H. Laing, M. Astorg, Margot, Mdme. de Sevin, Mdlle. Lacroix, Mons. Ardène, Peter the Great, Roseum Pictum, Sarnia, Soleil Levant, Simon Délaux, Thunberg, Triomphe de la Rue du Châtelet, Triomphe du Nord, Val d'Andorre, and Ville de Toulouse.

I have confined my selections to the three sections named. If anyone might be disposed to form a collection for blooming next season, I would recommend that they obtain cuttings as early in the current year as possible, when they may be expected to have them strong and healthy. Good cuttings may be struck singly in pots; they root all the more quickly if placed on a gentle bottom-heat, and then they can be grown on in a cold greenhouse or frame, and as they gain in size they should be shifted on into larger pots, be grown on into size in a cold frame, but they must be excluded from frost. If it is intended to grow for specimen plants, they must have the extreme points taken out when the shoots are about 9 inches high, so as to encourage the production of side shoots and form a good bushy plant. The plants can be stood out of doors in May as soon as the weather is fine enough and be shifted until they are in their blooming pots. R. D.

STEAMING V. FUMIGATING.

I wish to direct the attention of plant growers, and Orchid growers particularly, to the advantages of the practice of boiling tobacco juice in houses for the destruction of insects over the old practice of fumigating. One great advantage is that the steam does not scald nor discolour the most tender foliage nor the most delicate flower; that it can be done without previous preparation, *i.e.*, drying the foliage, &c., and that the operator can walk about in the house if necessary during the operation. I saw the practice recommended by M. Godefroy-Lebeuf in THE GARDEN two or three years ago, and have exclusively used the plan since with the best results. We have been in the habit of using an old saucepan without a lid, but this does not produce a sufficient volume of steam. I have lately converted an old copper warming-pan into a retort by screwing down the lid, and having a piece of copper pipe fastened in the middle of the lid, upright for 9 inches, and then an arm of an equal length bent at right angles: a screw valve is also fitted for filling the pan. The heat is derived from a clear charcoal fire, made in a zinc pail, which may be introduced into any house without risk of damage, as it does not either flame or smoke. This kind of apparatus, though rough, is useful for small houses, and amateurs who do not care to incur the expense of a more elaborate apparatus. A new apparatus for larger houses has been devised by a French manufacturer, which is a very simple and effective affair. No doubt it will before long be brought prominently before the horticultural public. The copper warming-pan suggested itself to me as the cheapest form of a good lasting utensil; a good one may be bought second-hand for from 3s. to 5s., and the fitting up costs about 3s.

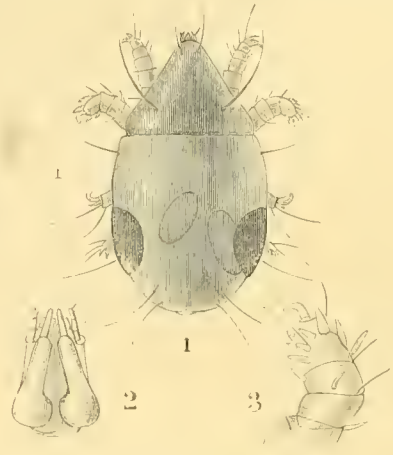
J. C. D.

Leafy Violets.—So far as soil is concerned, the Violet is very accommodating, but it likes plenty of light and air, in spite of its meekness in a wild state. True, in our market gardens hundreds of acres of plants are grown beneath trees, but not where the shading is too dense, and, of course, during the winter and spring the trees are leafless. Then Violets make better blooming crowns and less of coarse leafage where the soil is rather dry and warm. If "Inquirer" has his plants in a cool, shady position, he should divide them and replant in the sunshine. Nothing is said as to kind, but I take it for granted that the Russian or other single kind is referred to.—A. D.

GARDEN DESTROYERS.

MITES ON VINE ROOTS.

THE well-known Eucharis mite (Rhizoglyphus echinopus) now appears to be a not infrequent pest at the roots of Vines grown under glass. I have several times had Vine roots sent me for examination by persons who fancied they had been attacked by Phylloxera. These roots puzzled me; in all cases they were much decayed, but I could find no traces of Phylloxera, and I was unable to detect any cause, either from the attacks of insects or fungi, for the decay, which I then presumed must be due to something wrong in the cultivation of the Vines; but I am now convinced that they had been attacked by these mites, which had left the portions submitted to me for less decayed parts. Another batch of



Root mite. Fig. 1, mite; fig. 2, mouth of do.; fig. 3, foot of do. All magnified.

roots was received by me the other day exactly resembling those previously sent. I was more successful, however, this time, for on examining one of the roots with a pocket lens I detected a small mite, and immediately searched carefully for more on another of the roots. I found them in considerable numbers. These mites are somewhat difficult to recognise, as they are so much like grains of sand both in size and colour. They are, however, rounder, smoother, and more glistening. When once detected they may be readily distinguished from the grains of sand which adhere to the roots. Mr. Andrew Murray, writing on these mites, or rather on a closely allied species (Rhizoglyphus Phylloxeræ), in his work on Acari, &c. ("Economic Entomology Aptera"), says: "M. Planchon, in his work on the American Vine, and Mr. Riley (*loc. cit.*) record the presence of this allied species in North America. They found it in association with the Phylloxera of the Vine, feeding in its young state on the juices of the roots injured by Phylloxera, and when older preying extensively on the root-inhabiting type of that insect. Mr. Riley mentions that when this fact was published it was hoped that the introduction of the Rhizoglyphus into Europe might be of service in reducing the numbers of Phylloxera, and he received orders from Vine growers in France for a supply of the cannibal. Mr. Riley, however, though he endeavoured to comply with the request, did not anticipate much good, in which we agree with him, chiefly because they have already in France associated with the Phylloxera a Rhizoglyphus, which we believe to be the preceding species (R. echinopus), and the one should be as good an exterminator as the other, if that class of mites did really feed upon other insects; but the statement of Messrs. Planchon and Riley to that effect has been viewed with doubt by some French entomologists. Mr. Riley is well known to be a careful and accurate observer, and any statement of his is entitled to great weight, but, like all of us, he is liable to error, and may have been deceived (as sometimes happens) by abnormal conduct under abnormal circumstances.

"There are many instances of insects that are vegetable feeders having eaten their neighbours when shipwrecked into an entomologist's box or breeding cage. Dr. Fumose, who has studied the habits of the Tyroglyphi more than any other living naturalist, objects to the idea, as being opposed to the habits of all Tyroglyphi, which never attacks living animals, and, further, because, although not rare in France on Vine roots attacked by Phylloxera, there never has been any appearance of their number being diminished by them. It is, moreover, opposed to the habits, so far as hitherto known, of the section of Tyroglyphi to which it belongs, for that section feeds exclusively on vegetable food." From this extract it appears that these mites are often found with Phylloxera, but I quite agree with Mr. Murray that it is improbable that they are habitually carnivorous. The mites are evidently feeding on the roots I have just examined, which, as far as I can see, show no trace of Phylloxera or any other insect on which they might have fed; from the manner in which they are buried in the decaying roots there cannot be, I think, any doubt but that they live at the expense of the Vine. Whether they are the immediate cause of the unhealthiness of the roots, or whether they only infest roots which are in that condition, is a more open question; but from the way in which they attack otherwise apparently healthy bulbs, I must say I am of opinion that they are the direct cause of the decay of the roots.

Vine-growers will, I have no doubt, say this is all very fine, but we want to know how to destroy this pest. Well, I am sorry to confess I cannot help them. These mites are very hard to kill, and it is hopeless to try and destroy them by watering the Vine borders with any insecticide I am acquainted with. Even if the Vines were lifted and the roots cleaned and soaked in some insecticide which would kill the mites, it is very doubtful if their eggs would be affected. If the injury to the Vine is very great, the Vine had better be destroyed, and great care must be taken to ensure the removal of all the soil that can possibly contain any of the mites. Water at a temperature of 115° Fahr. will kill them; would it injure the roots? A figure and description of this mite was given in THE GARDEN of the 28th March, 1885. G. S. S.

Spicer's Lady's Slipper.—I send for inspection a two-flowered spike of Cypripedium Spicerianum, cut from a plant that has produced similar spikes for three years in succession. This year it has three two-flowered stems and one solitary flowered one. Our plant was a very small one, in a 2½-inch pot when it first came from the nursery, about four years ago.—C. R. BICK, *Harborne Hall, near Birmingham.*

On the spike sent were two fine flowers, the footstalks of which were sufficiently long to display the beauties of both without crowding. C. Spicerianum seldom produces two flowers on a spike, and if yours does so regularly, it will be valuable.—ED.

ORCHIDS.

Phalænopsis Sanderiana.—A spike of this lovely Moth Orchid, received from Mr. Partington, amply confirms all that has been previously said in its favour; the flowers are upwards of 3 inches across, round in outline, and of a beautiful soft rosy mauve colour, the base of the lip being stained with orange.

Phalænopsis grandiflora.—We have received from Mr. C. J. Partington, Heaton House, Cheshunt, a very fine spike of this Phalænopsis, cut from a plant bearing thirteen large leaves. The spike in question is some 2 feet long, with three lateral branchlets bearing in all forty of its pure white flowers, slightly stained at the base of the lip with yellow; each bloom measures upwards of 3 inches in diameter.

Cattleya Dowiana aurea.—A very fine variety of this gorgeous Cattleya is at the present time one of the chief attractions in the Orchid houses of Mr. Southgate, Selborne, Streatham. The sepals and petals are deep primrose-yellow, the large frilled lip being rich purplish crimson in front, whilst the basal part is primrose-yellow streaked with lines of gold. This plant requires more heat than the majority of Cattleyas, and the variety here named is a more profuse bloomer than the normal C. Dowiana. It lasts a very long time in full beauty.

Cœlogyne barbata.—This species is apparently bearing out the description of Lindley, although some of the earlier introduced plants produced flowers small in size and poor in appearance. We have, however, recently seen a plant in Mr. Southgate's collection at Streatham bearing erect racemes of large flowers, the individual blooms measuring some 3 inches in diameter; the flower is pure white, saving the apex of the bearded lip, which is greyish brown. It is a native of Northern India, and thrives best under cool treatment.

Cypripedium Mooreanum.—This provisional name was given to a new hybrid Lady's Slipper, now in bloom in the Victoria Nursery, Holloway. It is a showy variety, and a valuable addition to winter-flowering Orchids. The foliage of this plant is very long, strap-shaped, and of a uniform green tint. The peduncles, which are upwards of a foot high, are single-flowered. The dorsal sepal is erect, long and broad, snowy-white and plain on the margin, the central part being ornamented with numerous large round spots of reddish brown. The lower sepal is also large, white, and streaked with lines of reddish brown dots; whilst the petals and small pouch-like lip are light brown.

Orchid prices.—The following are a few of the highest prices realised at Messrs. Protheroe & Morris' sale in their City auction rooms on November 5. Calanthe Sanderiana, £1 14s. 6d.; Cattleya labiata, the true autumn-flowering variety, £35 14s.; another plant of the same variety, £7 7s.; Angræcum Chailluanum, fine imported mass, £10 10s.; Lælia elegans, £8 8s.; another plant of the same variety, £5 5s.; Cypripedium œnanthum, £6 5s. 6d.; Cypripedium Arthurianum, £15 15s.; Aerides Ballantineanum, £9 19s. 6d.; Cypripedium œnanthum superbum, £12 12s.; Aerides Wilsoni, a new pure white-flowered variety, £11 11s.; Cœlogyne Massangeana, £6 16s. 6d.; Aerides Lawrenciæ, £12 1s. 6d.

Forms of Cypripedium Spicerianum.—If any good could come of naming chance forms of species, especially Orchids, one might find material to work upon in this Lady's Slipper, which has been introduced in such large quantities. In a large collection of plants one might single out at least a dozen forms more or less distinct. For instance, in Messrs. Veitch's nursery, Chelsea, there is a house nearly filled with this Orchid, and most of the plants are in flower. Three of these we consider very distinct, and as their distinguishing characters appear to be permanent, they might well receive varietal names. There is one plant which persists in producing pendulous flower-stems, which hang on all sides of the plant, and as it flowers like this every season, the plant, a large specimen, has been placed in a suspended pan so that the flowers may be seen. Another large plant always produces twin-flowered stems. There are about half a dozen stems on it at the present time, all bearing two flowers. A third form is very marked in respect of colour, the dorsal sepal being heavily stained with purple on the reverse side, and the flower is altogether larger and brighter than the rest. Several others less distinct may be found in this large collection.

Lælia porphyrites.—From the gardens of Mr. Day, at Tottenham, comes a flower of this elegant species. It belongs to the L. Dayana and L. præstans section. The pseudo-bulbs, however, are said to be much longer than those belonging to either of these plants, and the leaves are larger and broader. The flowers about equal those of L. præstans in size; the lip is, however, very different in shape, and the throat is more open, the front being rich purplish crimson, whilst the sepals and petals are lilac-mauve.

Cypripedium Lindleyanum.—This remarkable species appears to belong to that section of Lady's Slippers of which C. Roezli may be taken as the type. The plant in question has broad, long, deep green leaves, narrowly bordered with yellow. The peduncle is about 2 feet high, furnished with several large boat-shaped green bracts. The flowers are densely clothed with woolly hairs; in colour they are pale nankeen-yellow, tinged with green, regularly streaked with Indian red, the mouth of the pouch being densely spotted with the same colour. We saw it recently in the Victoria Nursery at Holloway.

The hybrid Phalænopsis.—The beautiful hybrid Phalænopsis which has proved to be identical with the P. intermedia Portei is again in flower in Messrs. Veitch's nursery at Chelsea, where it was raised by Mr. Seden. It is the result of intercrossing P. amabilis and P. rosea, both of which may be also seen in bloom. The hybrid is precisely intermediate, the flowers being white with a beautiful vinous-purple lip, while in size they are intermediate between the parents. This is without doubt one of the most interesting and valuable hybrid Orchids yet produced, and it proves conclusively that hybrid Orchids are introduced and regarded in the light of true species.

Orchids at Croydon Lodge.—Mr. Stephenson-Clarke's collection is now gay with bloom, the principal kinds being Dendrobium Dearei, its beautiful white flowers being much in demand for buttonhole flowers; Dendrobium formosum giganteum, the ivory-white blooms of which are very conspicuous; whilst the lovely D. bigibbum appears to be a perpetual bloomer. Amongst Oncidiums, O. Rogersi, with its large yellow lip, is very brilliant; so also is O. varicosum, O. cri-pum, and O. ornithorhynchum. Of this latter plant there are two varieties here, one producing a much shorter and less branching spike, with flowers double the size of the ordinary form. The butterfly-like flowers of O. Krameri are very pleasing, and contrast admirably with such plants as Vanda cærulea and V. suavis, Cattleya Loddigesi, Cymbidium Mastersi, and Cypripedium Sedeni. Amongst old and seldom-seen Orchids we noticed numerous plants of a good variety of Burlingtonia decora, Brassavola nodosa, and the curious Scuticaria Steeli; but the great feature of the place is the brilliant display of Indian Crocuses (Pleiones). They are grown in small pots, in large pots, and in pans, producing hundreds of flowers.

Orchids at Holloway.—Amongst Orchids in bloom at Mr. Williams' we specially noted the following the other day, viz., the charming Odontoglossum Rossi majus, a fine specimen bearing some thirty flowers, and several examples of the beautiful Cattleya Dowiana aurea; it is to be hoped that some method will be discovered by which this species may be made to produce its flowers in greater abundance than it has hitherto done. Another shy-blooming Cattleya, C. gigas, is also displaying its beauties, and contrasting beautifully with the pure white Lycaste Skinneri alba and the blue Vanda cærulea. A highly coloured form of Lælia elegans, called prasinata, is valuable as a winter decorative plant; so also is the rare hybrid Cypripedium called Sallieri, a cross between C. villosum and C. insigne. Amongst seedlings from Cypripedium Harrisianum there are some remarkable variations in colour, one in particular being very noticeable for the intense deep colour of its polished flowers, whilst the lovely C. Sedeni and its variety candidulum and C. cardinale appear to be ever-blooming. The free-flowering Oncidium tigrinum is also very showy, and its flowers fill the air with a delightful fragrance. The shy-blooming Odontoglossum Londesboroughianum is also now in flower. Here, too, are many varieties of that beautiful Dendrobium from New Guinea, D. superbiens, which, although resembling D. bigibbum in habit and being usually found growing in company with it, is nevertheless abundantly distinct when in bloom. Cœlogyne Massangeanum is a beautiful plant for hanging baskets; a specimen here bears five spikes upwards of 2 feet long, each spike bearing some twenty-six flowers of a creamy white colour, the lip being blotched and fringed with cinnamon-brown. Other Orchids here contributing to the November display are the grand old Cymbidium giganteum, a fine form of Oncidium incurvum, called albo-purpureum, Angræcum Leonis, Maxillaria grandiflora, Sophronitis grandiflora, Cattleya maxima, and C. Dormanniana, Lælia Perrini, and the lovely little Trichocentrum orthoplectron, which differs from its near ally, T. albo-sanguineum, in its lip being quite flat and wholly rich purple, with just a tinge of yellowish white in the centre.

BORDER CARNATIONS.

WHAT are border Carnations? may be a fair question to ask. Are not all Carnations adapted for cultivation out of doors? Yes, if circumstances are favourable. But what are understood to be border Carnations are selfs and fancy varieties. They are much more hardy than bizarres and flakes. Take that fine old scarlet bizarre, Admiral Curzon, as an illustration. If, say, six plants of it are grown either in pots or planted out, and two of them retain their original form, displaying the two colours, maroon and scarlet on a white ground, two of them may lose the white and show on their petals the maroon and scarlet only, while two more may produce wholly self-coloured flowers. This is no fancy sketch, as this variety produces all the above in one season, and the plants that have self-coloured flowers will grow the strongest, and their foliage will be the darkest. The variety with two colours from which the white has been discharged will also grow stronger than the original form, and this holds good all through the various classes. Take, for instance, the old-fashioned crimson Clove; it is as hardy as any plant grown in the garden. I have known it for more than thirty years, and cannot see that its constitution has been impaired during that time in the least. It requires no special treatment, producing its bold handsome foliage in ordinary herbaceous borders, and fighting for a place with the strongest of its associates. Many admire this and other self-coloured Carnations in large beds or masses. I greatly admire them when the beds are well placed and in harmony with their surroundings. When employed in a very old garden north of the Frith of Forth, at least thirty years ago, part of my duty was the charge of two beds of Cloves, containing hundreds of plants. The low old mouldering garden walls were Moss-grown, and covered in places with the Wall-rue Spleenwort and the Ivy-leaved Toad-flax. Masses of dark-foliaged Rhododendrons and old Ivy, quantities of the true East Lothian Stock and other sweetly perfumed flowers, and Lavender and Rosemary were all established in the borders—a sort of Corisande's garden, in fact. Here we obtained the best blooms of our Cloves the second year. The first season the bed was formed of good, strong, well-rooted layers, planted 18 inches apart. These produced good flowers, but in no great quantity. In August they were layered. Each plant would produce from six to twelve layers. A slight mound of sandy soil was placed round the base of each plant; into this the layers were pegged. This mound would be about 2 inches higher than the surface of the bed. Late in autumn the entire surface of the bed would be raised as high as the mounds by means of a mixture of equal parts loam and decayed manure. This rich dressing had a most beneficial effect upon the plants. The layers were not in any way disturbed; they were allowed to flower where they were, and the quantity of flowers produced was truly astonishing. The beds were destroyed after the second year. Masses in borders may be treated in the same way. An interesting and instructive way of growing border Carnations is to raise seedlings.

Seeds produced from the best show varieties can be purchased from the principal seedsmen, but seedlings cannot be depended on. I save my own seeds, and we are very careful as regards the crosses; indeed, one would scarcely believe that such results could be obtained as we are able to note year after year. For instance, I wanted to raise some improved light purple-edged Picotees, and the method adopted was to take the two best varieties we had, Nymph and Her Majesty. Both are pure white, with the exception of a very narrow edge, like thin wire, of a purple colour, on the outer petals. The flowers were fertilised both ways—the pollen of Nymph on to the stigmatic portion of Her Majesty, and *vice versâ*. Now for the result. Amongst the seedlings there are a few light-edged purple Picotees, but a large proportion of them are of the most vigorous character, producing large, well-formed purple self Carnations. A peculiar buff ground Picotee produced rose self coloured Carnations. Florence, buff-coloured border Carnation, produced two flowers of the same colour, but many rose and white selfs. We cannot—or at least do not—try to shut out the bees from enjoying the sweets of the Carnation bloom, and to their agency may be attributed the changes to which I have just alluded. All our Carnation and Picotee seeds have been saved from artificially fertilised flowers. We continue the work of fertilisation all through the flowering period, and the seeds are mostly all gathered by the second week in October. The pods are carefully dried, and are stored in a dry place until the seeds are wanted to be sown in April. Sow in pans or pots in frames over a gentle hotbed. The seeds would probably vegetate in the open ground, but a larger proportion would germinate under glass; when it is a question of raising a few hundreds of plants only, it is easy enough to take extra pains with them. In ten days the plants will be up, and in ten days more ready to be pricked out into boxes about 2 inches from each other. They should be kept in a frame until they are well established, when the boxes may be placed out of doors in an open situation. The plants should be placed where they are to flower about the first week in June. They should be planted in rich deep soil at a distance of 18 inches plant from plant. Each plant will produce a large head of bloom the following season, some of them as many as 200 blooms. All of them will be different from each other, and only about one in ten will produce single blooms. Some varieties will produce flowers with ten and others with a hundred petals. Between these there will be all sorts and sizes, but twenty petals is a sufficient number to constitute a perfect flower. Small strap shaped petals in the centre are a disfigurement. A florist's bed of striped Carnations and edged Picotees is his delight. Those who prefer the rich colours and delightful fragrance of the old Clove, and the wonderful variety of colour and fragrance in border Carnations, may enjoy to the full their beauty and fragrance. I recommend their culture in masses or beds, each colour by itself, so placed as to harmonise with its immediate surroundings, but in such a position that the plants may receive plenty of light and air, with, if possible, some kind of shelter to break the force of east and north winds. Where our Carnation layers were exposed to the full force of these winds last year they were nearly all killed in February, while those sheltered from the north-east by a thick hedge were safe.

As to varieties of border Carnations, the Bride, Bridesmaid, Virgo, and W. P. Milner are white varieties of the best description. The Governor blush white, Edith and Lady Cathcart are good yellows, and Florence is a good buff. Rose and pink varieties are best represented by Annie Williams, Gertrude Teigner, Mary Morris, Mrs. Teigner, and Mrs. Whitmore. Field Marshal is an excellent crimson-rose, Fire-eater a pure rosy scarlet, Coroner bright scarlet, Albert and Purple Gem valuable purples. Fancy varieties succeed well out-of-doors, and are, as a rule, merely sports from the usual bizarres or flakes. Titania is a lovely variety, flaked with very delicate pale rose, Grand Master crimson and maroon; Lord Stamford and Lady Stamford are also pretty border flowers. The flowers of the fancy type, usually seen at exhibitions, are merely sports which the exhibitors find amongst their ordinary stock. Any quantity of new varieties can be obtained in this way, but many growers do not care to propagate them. D.

AMERICAN NOTES.

Canadian and American Apples.—Mr. P. Barry writes to us from Rochester, U.S., as follows: "I suppose you saw the great show of Canadian Apples. I see the *Journal of Horticulture* states 'that as regards freshness and general good appearance, the English fruit, as a whole, was markedly superior to the Canadian Apples shown at South Kensington.' I am not surprised at this, because the majority of Canadian cultivators, like our own, are poor and bad. These Canadian specimens were picked up at the various shows by Prof. Saundey, and he had to take them as he found them, and, besides, they had been very much more handled than the English specimens. I have just examined a small collection of Apples grown in Arkansaw or Arkansas In size and beauty they are marvellous. Among them are Ben Davis, Shockley, Willow Twig, Lawver, Shannon, Rome Beauty, M'Afee, well-known western and southern sorts, besides many I had not seen before, local sorts."

A new method of glazing.—It is well known that all glass now (both in portable sashes and in fixed greenhouses) is simply imbedded in putty, and kept in its place by glaziers' points, no putty being now used on the top, as was formerly done. It has been found that when the glass lies on the sash-bar thus imbedded, the putty soon rots or wears out, and water gets in and not only loosens the glass, but rots the bar as well. A simple plan to obviate this is to pour along the junction of the bar with the glass a thin line of white lead in oil, over which is shaken dry white sand. This hardens and makes a cement that effectually checks all leakage. It is quickly done. I have seen glass so cemented that has stood for ten years still in perfect order, and it looked as if it would stand for ten years more without further repair. This plan, which is but little known as yet, is of the greatest importance; had I known of it thirty years ago I would have saved many thousands of dollars in repairing, besides having the plants under this water-tight glazing in better condition.—Peter Henderson, in *American Agriculturist*.

American Blackberries are certainly as easily grown as Raspberries, and come in as a table fruit when there is need for something to take the place of the earlier fruits. As a conserve and cordial they are excellent and much in demand as a pleasant astringent. A dry soil does best for them; it does not require to be rich, but as the plants require more room than Raspberries, the rows should be at least 6 feet apart. In pruning, which should be done after the fruit is gathered, strong leather mittens and a pair of shears with long handles are a great help. The best plants are raised by root-cuttings, and a very large number of plants can be made from the roots of one good stool. If a variety is scarce, it can be cared for in a propagating house by cutting the root into pieces less than an inch long, mixing with sand, and keeping in moderate heat. When a callus is formed, place some fine earth composed of leaf mould and sand in a temperature of about 80°. They can be potted singly when 6 inches long. The old Lawton has been replaced by Kittatinny and Wilson's Early; the latter, as its name implies, is an early variety, as is also the Snyder, which is very productive and hardy, but the fruit is small, though sweet. Wachusett Thornless we have discarded, after a fair trial, as unworthy of cultivation, but Taylor's Prolific, a late, medium-sized berry, is worth a trial, as is also a new fine variety called Early Harvest, of which, however, I cannot speak as yet with certainty until it has stood the test of another winter. I have also received a plant for trial of Minnewaska that made great canes last season, but it has not yet fruited. For profit, the Blackberry does not stand so high as the Raspberry, but often the yield per acre makes the returns average higher. Pickers do not, as a rule, agree so readily to gather Blackberries as other fruit, on account of the fierce scratches that they sometimes give, and the rents that are made in their clothes. There is a running Blackberry (R. canadensis), popularly known as Dewberry, to which horticulturists object, on account of its straggling propensities. Its fruit is, however, large, ripens early, lasts long, and is excellent in quality. My own experience goes to prove that it is the Concord among the Blackberries, and not to be despised, and I think the time is coming when this fruit, in its finest varieties, will be better known and find more favour in our markets than it has hitherto done.—A. L. Jack, in "Report of Montreal Horticultural Society."

The American Mist tree.—According to Mr. Falconer, in the *Country Gentleman*, this grows much faster than the European Rhus Cotinus. It is one of the rarest of American plants, for though long ago discovered and described by Nuttall as Rhus cotinoides, it has only just found its way into cultivation. Our largest plant is 6 feet high, of pyramidal form, very branchy, and 6 feet in spread of branches. We have several plants, now two years planted, and they seem to be hardy enough; in some cases the tips of the young wood get winter-killed.

The Spitzenburgh Apples.—Having often wondered what could be the parentage of our renowned Spitzenburgh family of Apples, which includes the Red Canada, Jonathan, Northern Spy, Esopus, and Newtown Spitzenburghs, I am now of opinion that the Herefordshire Pearmain is the prepotent parent. The Herefordshire Pearmain is an old English variety, and if the Apple I know by that name is the true English sort, it is to me the finest in quality of all imported Apples I know. Permit me to trace some of the points of similarity of tree and fruit between the Herefordshire Pearmain and those of our Spitzenburgh family. In tree the Herefordshire Pearmain is an upright, rather slender, moderate grower, with smallish, rather whitish or downy leaves. The Herefordshire Pearmain tree is rather tender in cold climates, is very productive, does not succeed in many locations, and drops its fruit early. In fruit, the colour of the skin and flesh, the fineness and firmness of grain, the delicious flavour, the keeping quality, and the liability to scab of the Herefordshire Pearmain are all more or less manifest in the Spitzenburgh family. In the great awakening in favour of hybridisation and the production of more hardy choice winter Apples, especially from seed, the Herefordshire Pearmain should not be neglected.—F. K. P., in *Country Gentleman*.

J. O.—"Vines and Vine Culture," by A. F. Barron, Royal Horticultural Society's Gardens, Chiswick.

Names of plants.—*W. Spencer.*—1, Pernettya mucronata; 2, Retinospora plumosa aurea; 3, Cupressus Lawsoniana; 4, Ruscus racemosus.——*T. B. Field.*—1, Chlorophytum orchidastrum; 2, Iris fœtidissima; 3, Saxifraga ligulata.——*H. D.*—Orchid is Calanthe vestita luteo-oculata; other is one of the many varieties of Tydæa ——*T. C. D.*—1, Cotoneaster frigida; 2, Euonymus europæus, and white-fruited variety.——*S. T.*—1, Asplenium viride; 2, A. Trichomanes; 3, not recognised.

Naming fruit—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*S. H. B.*—Pitmaston Duchess.——*Rex*—1, Seckle; 2, Marie Louise; 3, cannot name; 4, Cox's Orange Pippin.——*M. T.*—Beurré Bosc.——*Devon*—None in a fit condition for naming: please observe our rules for naming fruit.——*A. B. C.*—1, Doyenné du Comice (fine fruit); 2, Beurré Superfin.——*T.*—Only one fruit of each sent; see rule.—*W. J. Clarke.*—There is no fee for naming fruit, but you must follow our instructions given above. 2 and 4 look like Beurré Diel and Marie Louise respectively; but we cannot name with certainty when only single unripe specimens are sent.——*E. S. Elham*—1, Glou Morceau; 2, Beurré d'Aremberg; 3 and 4, not recognised.——*J. S. C.*—1, Lord Derby; 2, Gascoigne's Scarlet Seedling; 4, Cellini.——*C. H. S.*—6, Queen Caroline; 8, Bridgwater Pippin; 9, Orange Pippin; 15, Flower of Kent.—*A. G.*—Conseiller de la Cour; 2, Beurré Bosc; 3, Glou Morceau; 4, Mannington's Pearmain.——*C. M. R.*—Royal Russet; Welford Nonsuch.——*J. Chawner.*—Beauty of Kent.——Others next week.

WOODS & FORESTS.

NOTES.

TIMBER-MEASURING INSTRUMENTS.—One could hardly suppose that the writer of the paper on measuring standing timber (p. 399) intended to convey the impression that the instruments of which he speaks are, or are ever likely to be, employed to any extent in actual valuations. They, of course, display on the part of the inventor an intelligent application of geometrical principles, and may occasionally be useful in determining the height of a single given tree or other object of which it was desirable to know the altitude; but to assume that in the practical business of ascertaining the contents of standing timber, when, as often is the case, the dimensions of hundreds of trees have to be taken in a single day, such apparatus will be anything but a hindrance and cumbersome to carry about will be contrary to the experience of most of such as have had the work to do. This, at least, would be the conclusion of foresters in the part of the country from which I write. It must be conceded, however, that the character of the timber which has to be operated upon will have something to do with its admissibility. When the bulk of the timber which has to be valued grows in or around fields or in open forest, it is pretty certain that very few contiguous trees will be of the same, or even of approximately the same, height. To use either of the meters under such conditions would occupy more time than would suffice to finish the whole valuation in the ordinary way. In the case of plantations, where the uniformity of height would be likely to be greater, the same would be true if the trees were capable of being measured by the aid of a light ladder and rod. The only conditions, therefore, under which I look upon these instruments as being of practical use are when plantations of very tall and fairly uniform trees have to be estimated. In such instances perhaps a tree here and there along the margins could be selected and the instrument used to ascertain its height, as a check upon the rod and the eye. The great thing, however, in all classes of timber measuring is simplicity, and the simpler the methods the greater is the chance of accuracy.

MEASURING-RODS. — These have to be of two kinds according to whether the timber has to be measured standing, or after it is felled. In the case of standing timber it has of course to be much longer than is necessary for felled trees. The form which it takes is very much a matter of taste; the principal thing to guard against is too much elaboration. When a rod has to be transported from place to place, *i.e.*, over greater distances than it is convenient to walk, it is perhaps better to have it in parts, but when a valuer is not too particular as to this portion of his outfit, it is generally easy to cut a rod on the spot where the work has to be done, which will answer the purpose nearly as well as one which has been purchased, or especially prepared for the purpose. There is one drawback about rods cut for use just for the time being; they are generally too heavy, as to get them of sufficient length they are too thick in diameter. A jointed Bamboo is extremely portable. A plan which I have seen adopted when the operator scarcely liked to trust to his eye alone for the girth of a tree, and yet felt it unnecessary to despatch men up the tree, like able-bodied seamen up a mast, is to fix a short rod of known length and marked distinctly in a few places transversely to the top of the rod used for measuring the height. With a little practice this may become a very fair guide as to quarter girth, and can be adapted to the class of trees about to be measured. A word about the rod for measuring when trees have been already felled. Some use tapes for taking lengths, and when the ground is fairly clear and there are plenty of hands available, it is perhaps the quickest way. When, however, I am measuring single-handed, I infinitely prefer a 5-feet rod. This is especially so in wet weather. The past week has been a very fair sample of measuring under difficulties in this respect, and I think those who recommend complicated apparatus would do well to devote a little of their time to the woods under such circumstances. I have had occasion to be at the work myself during the last few days, and I think that anything beyond the simple rod I generally use would have put the finishing touch to the not very pleasant business.

ROUGH BOOKS.—The book, of which an illustration is given in the further remarks on measuring (p. 443) would be an admirable thing in its way, if time when in the wood or field were no object. As it generally is, with the book as with other things in measuring, simplicity is the thing to aim at. In taking rough notes of measurements when outdoors, the briefer they are, so long as understood, the better and more accurate they are likely to be. When a book in which the first notes of measurements are taken is made too complicated, errors are likely to arise, as the mind, when engaged in accurately gauging the contents of a tree, cannot well at the same time be occupied with a maze of columns in a book. Taste will be sure to vary as to the actual size and form of the rough note-book which goes to the wood. One weighing a couple of ounces, and ruled plain without columns, is what I mostly use, and, considering that other things have to be carried in the hand, and that the book is sure to become soiled with use outdoors and the pages blurred by rain, it seems to me much more reasonable that the permanent record of the work should be made in a book of suitable character which is never taken outdoors.

TAPE *v.* STRING.—It appears that this cause, in which on the conclusion of arguments by counsel the verdict was given for the defendant, has to be re-heard. At least this is what I gather from diametrically opposite views having been expressed upon it by "Yorkshireman" and "Young Forester" (pp. 465-6). The readers of these pages, it is to be hoped, are not very fond of litigation, but as this cause is one which has a practical bearing upon foresters' work, it cannot be without interest. As I have personally no animus either against plaintiff or defendant, but claim to be a speaking acquaintance of both, I hope to be permitted to say a few words upon it. The term "tape" seems redolent of Chancery Lane and the Stock Exchange, whilst its humble opponent can claim no such distinction. It will at once disclose how far we are behind the times if I confess that the string is still in use here. Joking, however, apart, I think "Yorkshireman" is too sweeping in his remarks upon the string. If I read him aright, the common woodman's tape is that with which we have been familiar from childhood, usually a chain in length, marked on the front in feet and inches and on the back in links and perches. I have mentioned elsewhere that these tapes may be properly employed in taking lengths when there are spare hands to manipulate them, but I cannot say that I am so well satisfied as to their suitability in taking girths. When "Yorkshireman" speaks of the common woodman's tape as a ready reckoner, I presume he refers to the reading off of circumferences in inches without having recourse to rules. So far, so good, but is there one tape in half a dozen which is accurate enough for reading off girths without testing by means of a rule. My experience is that there are very few which do not vary in tension, and are therefore more or less incorrect. In taking lengths a few inches amount to but little, but in taking girths it is a serious matter. Then, as "Young Forester" says, there is often a difficulty in getting tapes round trees where the string would readily enough go, and if it can be got under at the expense of considerable trouble it is impossible to saw it through obstructions in the way in which it can be done with string. If I were running through a lot of timber which had, for instance, to be submitted to auction, but of the value of which it was necessary to form a rough estimate, I would as readily use a tape or strap as anything else, but if I aimed at accurate measurement, I should certainly use a string. Perhaps "Yorkshireman" would be surprised to hear that the railway company's measurers in this part of the country use string, so that, like Sam Weller's, though his knowledge may be extensive and peculiar, he is occasionally wrong in his conclusions. Speaking of the strap; with standing timber it is very useful, as using string to encircle objects horizontally is practically impossible, and a tape, unless of steel or some comparatively unyielding material, is but little better; therefore, I take it that for reliable results the forester should confine himself as much as possible to the strap for standing and the string for felled timber.

D. J. YEO.

HINTS FOR WILLOW PLANTERS.

NEVER transplant a Willow, says Mr. Scaling, if a cutting can be used, for all Willows succeed better from cuttings than they do from rooted plants. After planting, keep them clean; never allow weeds to choke or overpower them. No Willows do well in water-logged land, nor in peat bog, nor in dry, sandy soil. The best soil for an Osier plantation is a strong loam, and the most favourable position where they can be flooded at will and yet the land be well drained. In England, Willows may be planted at any time from the middle of November to the end of March. If practicable, break up the ground by a steam cultivator, which is cheaper than ordinary trenching and quite as good. This should be done early, to ensure the ground being in good condition for planting, for if cuttings be stuck into unbroken clods, failure may be expected. In planting basket Willows secure, at whatever cost, the best sorts, and free from mixture, taking care the species is suited to the soil and adapted to the market; it is false economy to plant whatever comes convenient (a mixed crop is always of small value), and a Willow plantation in suitable soil will last from fifteen to thirty years. When cuttings are planted with the view to grow into timber trees, cut to the ground, at the end of the first season, all crooked and defective shoots, for the first year's shoots seldom grow straight enough to be allowed to stand for timber trees. Protect all young plantations from ground game, for even the buds of the Bitter Willow are not proof against the attacks of rabbits or hares.

Never pollard a Willow; pollarded Willows decay, and, in that state, harbour destructive insects; better and straighter poles are obtained by cutting to the ground. Willows make good wind screens or nurse trees; and the long-leaved Sallow or Salix acuminata stand well on the seacoast or other exposed situations. Some of the varieties of this species make good poles for fencing or general farm purposes, but they are not otherwise commercially valuable. After cuttings are put into the ground let the latter be firmly trodden down around them; many cuttings die from this being only partially done. Do not plant little corners with basket Willows and expect such scraps to pay; it would be just as reasonable to plant a rood of ground with Wheat and expect to make a profit out of it. If such bits are to be planted, plant to obtain poles or timber. In this form they will pay well, but they can never pay to cultivate for basket Willows. Willows will grow on land occasionally overflowed by salt water, provided it is suitable in other respects. In collecting Willows for scientific observation or classification, avoid decision until you have grown them in a trial ground and compared them with others similarly situated, Willows being so much altered by soil, situation, and climate as to be unrecognisable even by those who have studied them for years. If this plan be adopted, much of the confusion that now exists will be avoided, and many of the so-called species will be found to be only varieties.

Banks of rivers planted with Willows are of great value in preserving the soil from being washed away, by reason of the grasp and tenacity of their fibrous roots. At the present price of cuttings and labour, the outlay for planting basket Willows, including everything, may be stated at 25s. per 1000 cuttings, which at 20,000 cuttings per acre—the ordinary quantity—would be £25, and, under very exceptional circumstances, this may be taken as the ordinary

cost of forming an Osier plantation. The importance of planting quick-growing timber trees in a country so limited in area as ours is admitted; and the Willow is not only one of the best trees for this purpose, but no wood sells more readily, nor is so difficult to obtain, nor will yield a greater return. All cuttings should be pushed from 8 inches to 10 inches into the soil, and in a slanting direction. The number of cuttings required for an imperial acre is as follows: 18 inches each way, 19,360; 24 inches, 10,890; 36 inches, 4848; 48 inches, 2722.

How timber is valued.—While there are wood agents who never undersell the trade when they do deal with consumers, and who do endeavour to get the best market price going for their timber, there are others who simply value their timber by what they think their neighbours are getting for it, and then underbid them. Example: All over this district, South Yorkshire, sellers have been quoting Larch at from 1s. 1d. to 1s. 3d. per foot, delivered to the purchaser, for some time back, and they have been systematically underbidden by wood agents about forty of fifty miles away. What these agents get for their timber will be reckoned when I state that it costs them at least ½d. per foot to fell it, from 1½d. to 3d. per foot to deliver it at the nearest station, and from 5d. to 6d. per foot to deliver it by rail in this neighbourhood to timber merchants, who get at least 1d. per foot out of it; total average cost about 8½d. to 9d. per foot, leaving the grower about 3d. per foot or less—about the price of Spruce—with discount for cash. Larch has dropped here lately, and I quoted 1s. 1d. per foot for it delivered the other day, and was underbidden the following morning by a timber merchant, who gets, he says, as much as he wants from North Yorkshire, in the Helmsley neighbourhood, for almost any price he likes to offer. I presume the Larch under such circumstances is not valued at all, but simply sold for what is offered. The consequence is that we have determined to keep our Larch, and let those *give it away* who choose to do so.—Y.

Cutting Arris rails.—According to dictionary definition, an "arris" is "the line or edge at which two bodies forming an exterior angle meet each other." I am afraid, however, that if an ordinary sawyer who had never seen an arris rail was instructed to prepare some on this basis, he would not be very clear as to how he was to set about it. Without the help of a simple diagram it is not so easy to explain the way in which these rails are cut, but as they are largely used in park and similar fencing, a word or two will not be out of place. The manner of cutting will depend a little upon the size and form of the timber from which they are to be prepared, and also whether sawn by hand or steam power. When sawn by hand power, the easiest and most expeditious way is to select small round trees of the required length and of suitable diameter, say 8 inches or 9 inches; hew them up to an eight-sided figure, and then cut the log first into halves, again into quarters, and finally each of the quarters again through the middle. This gives eight rails from a single round piece and cuts it up without waste. When required for use, the ends are simply reduced by a small axe to the size of a mortice in the post, with the broad side of the rail to receive the palings, the longest and most acute angle of the rail being of course fitted upwards, so that the wet may at once run off. When the rails have to be cut from larger timber or from planks, their form is slightly different, unless an extra cut is run. In either case the material must be sawn to a square. The simplest form of rail will then be by taking a single diagonal cut and dividing the square into two triangular rails. If the regulation arris is wanted, the only difference will be that, previously to taking the diagonal cut, one of the corners of the square must be sawn off, and then the diagonal carried from this to the opposite angle. This will give just the same form as when eight rails are cut from a single piece.—J.

Measuring timber.—"Young Forester" seems puzzled by "A. P.'s" statement that a piece of timber 12 feet long by 19 inches quarter-girth really contains 38½ cubic ft. He will know that the portion of a tree usually measured is a frustrum of a cone, and to determine the solidity of such a figure it is generally sufficient to obtain the mean area of the two parallel ends and multiply this by the perpendicular distance between them. Now the tree in question is 19 inches quarter-girth, or 76 inches full girth, which gives a diameter of 24·18 square inches; multiply the square of 24·18 by ·7854, and we will have 459·4 square inches, or 3·19 square feet as the mean area of the two parallel ends; and this in turn multiplied by the perpendicular distance (12 feet) gives 38·28 feet as the true cubical contents of the tree. By the ordinary way of measuring, the solidity of a tree is computed as if it were at a square pyramidal frustrum instead of a conical one. To refer to the previous example, a tree 12 feet long by 19 inches quarter-girth; 19 inches is taken as a side of a square mean base, and the contents obtained accordingly. Thus 19 × 19 = 361 inches, or 2·506 square feet, which is the mean area of the two parallel ends, and this multiplied by the length (12 feet) gives 30·07 feet as the cubical contents of the tree—a difference of 8 feet, or 27 per cent. This at first sight looks rather startling, but when we remember that timber is both bought and sold by the ordinary measurement, we can see that no injustice is done to anyone. If the system of measuring was altered, there would be of course a corresponding fall of prices per foot, and we should be no better off than before.—W. B. H.

SEASONABLE WORK.

Plantations may now be thinned, and where Birch, Beech, Chestnut, Alder, &c., are laid up for some time to become partly seasoned in the logs, they may at once be stripped of their bark. Where it is intended to grow timber of great length, care should be taken not to destroy the leaf-canopy. Where clean-grown timber is also required, the branches should always be cleared from the trunks of the standards within two years after the thinning; these rob the crown and produce stag-headedness. The Ash is never in better condition for working up than when felled about this season of the year. Monteath, who is no mean authority on matters of this kind, says: "The Ash should always be felled from after November 15 till the last week in January, and never before nor after that time to have good timber and to do it justice."

Coppice-cutting.—Coppice-felling will now be in full swing, but if the stools are to be left in a fitting condition to produce a good crop for the future, no cutting from the stool should take place during the prevalence of severe frosts. Wherever such is done, the bark is apt to separate from the wood as the winter advances, and thus the water is admitted and the formation of adventitious buds is checked in the spring. By continuous cutting during open weather, and laying the wood in "drifts," advantage may be taken of the frost to cut up and remove from the falls. The future crop depends so much upon the time and mode of cutting from the stool, that this is a point deserving especial attention. If cut too early the bark is apt to separate from the wood and admit water during the winter, thus checking the development of adventitious buds. Experiments have shown that the best crop of young shoots invariably follows a cutting made between the middle of February and the latter part of March. Much, however, depends upon the season and the age of the stools. The younger plantations should always be cut first. Felling is generally continued from early in November until the end of March, and by the first week in April it should cease.

Upon all moderately dry soils, which alone are fitted for the growth of the best kinds of underwood, the stools should be cut almost close to the ground. This ensures a good crop of shoots from the dormant buds, and as these spring from near the surface of the soil, they are generally erect in their growth, and at the same time they help to extend the stool. All the smaller produce should be cut with a light and keen handbill; poles up to 5 inches or 6 inches diameter with a sharp axe; and all beyond that size with the cross-cut saw. Small stools upon light soils require especial care, as the blows of a heavy, blunt axe sever the fibres of the roots, loosen the entire stool, and destroy the continuity of the dormant buds, which proceed from the medullary rays. All finished stools should be rounded off, that no water can lodge upon them; this may be done with the axe, but it is much better finished with the adze. The bark should adhere all round the edge of the surface. Hop poles should be shaved as soon as convenient after cutting, and the larger ones—here called "use poles"—should be striped or notched and covered up before spring. Allotments of coppicing and underwood for sale by public auction should now be made. We have invariably found that small lots, by inviting more competition, command relatively higher prices than larger ones. Without placing any unnecessary restrictions upon the purchaser, the vendor should protect himself by clauses sufficiently stringent to ensure good workmanship—early cutting from the stool, and removal from the wood within a reasonable time. To ensure early removal, mark out good clearance roads. In Kent they "brush" or bottom these with small fagots tightly bound up at the rate of about forty to the rod, laid transversely to the line of road. Such roads will carry heavy loads of poles and fagots during the winter, as well as the timber in the spring.

Nursery.—The cones of Larch and Scotch Fir may still be collected. The rotting seed heaps will now require to be examined, and an additional covering of earth may be placed upon them. Where small seedlings are liable to be forced out of the ground by severe frosts, a good sprinkling of the sawdust from hard woods will be found beneficial. That obtained from Fir timber contains too much turpentine to enable it to be used with safety. Either tanners' bark or sawdust may be used for such purposes. Collect leaves for the nursery; also Ash keys, Alder seeds, the berries of the Mountain Ash, and such other seeds as ripen during the month; also continue drainage and clear out all watercourses. The seeds of many of our native trees may be sown as they ripen, but the same rule does not apply to exotics.

Most deciduous trees are now fit for removal and no time should be lost before getting them into their new quarters. The gradual hardening or acclimatising of early-removed trees is highly conducive to their future progress; and this applies more especially to those which have been taken from warm nurseries. Should frosts set in, transplanting must be suspended, as all young trees receive a severe check if removed during frosts. Draining, trenching, fencing, and holing for spring planting may still proceed as weather permits, and road materials may be carted during frosts. Young plantations of Birch, Ash, &c., may now be dug with advantage to the trees, and two years' transplants, which are not making satisfactory progress, may be cut off near the ground. In dry weather hedgerows may be dug and cleaned, and gaps filled up by plashing from the old plants or putting in new ones. Where the soil is too light for the Hawthorn to grow into a strong fence, an admixture of Beech may be made with advantage. Upon poor or exhausted soils the Cherry Plum (Prunus Myrobalana) will soon form a good hedge, and its formidable spines render it a good fence against cattle. It is also useful for shelter, as its leaves come out very early in the spring and remain long after the Hawthorn is bare.

General work.—The abundance of leaves which are everywhere to be met with in plantations, rides, and in hollows where they have already drifted, will afford good opportunities for collecting and rotting to obtain leaf-mould. Too little value is generally attached to this manure by those who do not consider the large quantities of saline and mineral matters which are drawn from the subsoil by the roots of trees, and afterwards scattered upon the surface of the land by the leaves.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BERRY-BEARING SHRUBS.

Of all the berry-bearing trees and shrubs met with in English gardens, no family taken at all points can possibly surpass the Cotoneasters. Although nearly all the species are natives of warm climes, in this country they are found to be as hardy as the common Oak. Most of them are evergreen, their neat glossy foliage setting off the bright crimson fruits, which birds do not ravenously devour, to great advantage. Moreover, they are readily increased by means of seeds, cuttings, layers, grafting or budding on the Quince or Hawthorn, and will stand against north walls or in the most exposed situations throughout our sharpest winters. One of the finest groups of the well-known C. microphylla I ever saw was in the park at Birkenhead some years ago, and doubtless there are now in many parts of England groups equally fine, if not finer, whose start originated in the pleasing impression which that bright coral-studded mass made upon thousands of admirers. Loudon enumerates eleven species, mostly evergreen or sub-evergreen and worthy of general cultivation, as residents in the coldest and poorest parts of the country can grow the best, if not all, of them to perfection where the majority of berry-bearing shrubs fail. The planter may divide them into three groups: prostrate trailers or climbers, of which C. microphylla is the type; tall or upright sub-evergreens, like C. Simonsi, affinis, and frigida; or rampant ramblers like C. Wheeleri. Those most frequently met with are C. microphylla, one of the finest and fastest evergreen wall climbers we have; C. m. thymifolia, a neat compact variety of the above, also admirably adapted for training, for covering rockwork, or, where it is equally at home, for rambling over large patches of ground in half-dressed places and shrubberies. This charming shrub has always been one of my special favourites, and I now have close-growing masses of it 20 feet or more in diameter. It roots as it travels over cold, calcareous loam little better than clay, forms a rich glossy setting for golden Holly and other shrubs, is a sheet of pure white flowers in the spring, and glistens with bright coral berries throughout the autumn and winter. This, however, is not the only way in which I have used it, for it forms the finest stone wall covering we have, and some years ago, when everybody was planting Clematis Jackmanni, I threw up a few loads of loam, placed a silver-edged Holly in the centre, then planted a dozen of the Clematis, and edged them with the Thyme-leaved Cotoneaster. The Clematises, cut down in the spring just when the new growths are starting, are allowed to ramble at their own sweet will over the Holly, now some 12 feet in height; not so over the Cotoneaster, a most beautiful boundary hedge sweeping the lawn now nearly a yard high, perhaps brightest and best where it faces the north. The proper mode of growing these small-leaved trailing gems on the lawn may be explained in half a dozen words, "plant well and leave them alone." Unlike the wild rambling C. Simonsi and C. Wheeleri, they will stand pruning or spurring to an extent that will keep them in order, although, as a matter of course, much of the flower and fruit is cut away. I have said C. Simonsi will not stand spurring, neither should it be planted where it is necessary to resort to this mode of treatment, as it is semi-deciduous in the mildest seasons, and for this reason alone is unfit for training against walls which must be kept extra neat and dressy through the winter. This, nevertheless, of which I have raised thousands from seeds, is very useful, and just now extremely ornamental in the shrubberies and home game coverts where, as preservers know, pheasants do not care for dense dripping masses of evergreen foliage throughout the winter. Once planted and thoroughly established, seedlings spring up under every favourite roosting tree, and nowhere seem more at home than close to the stem of a Scotch or Austrian Fir. When planted out in groups in the pinetum or half-dressed grounds, it is equally accommodating, as it fruits profusely for years, can be cut down like a white Thorn, and springs up with renewed vigour, or the stems may be pegged down to flower and fruit until such time as the young growths from the stools are old enough for drawing down to a horizontal position.

With C. Wheeleri I have not done so much, its rampant growth rendering it simply unmanageable, even in the game covers, where it not only rambles up the fastest-growing Conifers, but fairly sets the toughest velveteen at defiance. A plant of some twelve years' growth, also on cold clay, has overrun Yews and other shrubs, and although frequently cut back to prevent an attack on a fine Douglas Fir on one side, and the blocking a road on the other, is now 30 feet across and half that number in height. But I digress. I must return to the dress grounds, for I have two or three charming friends to introduce to lovers of good things.

The first is closely related to, if not a variety of, C. microphylla, and is grown here under the name of C. buxifolia. The leaves are ovate, woolly beneath, a little larger than those of C. microphylla, and much darker. It is evergreen, well adapted for forming groups on lawns, for growing on root or rockwork, and carries its fruit throughout the winter. The flowers are pure white, very numerous, and have a wonderful charm for wasps and flies in the spring. The first especially have a great liking for it, a large mass close to my house having lured many scores on their first appearance to their end every spring.

The second, a sub-evergreen, is C. frigida, a low-growing tree from the northern regions of Nepaul. It is perfectly hardy, as one may suppose, in any situation, grows very fast when young, has rather large, glabrous leaves, woolly beneath, and commences flowering freely when about four years old. A group of trees planted at Eastnor some eighteen years ago is now about 16 feet in height, and the branches at the present time are literally weighed down with their load of bright scarlet fruit. The pure white flowers are produced very freely in May, always set well, and the fruits as well as the leaves, unless the winter is very severe, remain on the trees until the spring. Sometimes during severe snowstorms the birds, pressed by hunger, devour the pulpy part of the fruit, but leave most of the seeds to drop, where they germinate and soon grow into nice little plants.

Some years ago I saw a fair tree for smoky London growing in Kensington Gardens, not far from the Albert Memorial. It was labelled C. frigida affinis, but smoke, incessant digging, and other indignities did not suit it. Still a tree, no matter how distantly related to C. frigida, I thought worthy of better treatment, and planted a dozen. The affinity, I should think, is very close, for, with the exception of a slight difference in the leaves when young, all my trees resemble the first in every particular. When planted alone they do not grow into handsome single-stemmed specimens, but evidently on their own roots throw up a number of strong growths, which, in course of time, owing to their great load of fruit, assume a one-sided, pendulous habit. Still, as single trees or shrubs they are very beautiful, but are seen in their greatest splendour when planted in groups and left to take care of themselves.

Eastnor Castle, Ledbury. W. COLEMAN.

Flowers and trees. — This month is, on the whole, rather mild, and the few bright days we have enjoyed lately seem to have brought up what we call in this part of France l'Eté de la Saint Martin. Tropæolums, Antirrhinums, Tagetes, Petunias, and all plants generally destroyed by the slightest frost are still in flower. Leaves began to fall many weeks ago, but many of them are still on the trees, and will keep falling gently until the first frosty night sweeps them off. When that occurs all will be gone, and even the flowers will have vanished. Flowers and trees are associated here in a charming way. They are on the sloping side of a small hill, and seen from a distance over a beautiful piece of lawn they are most effective. The eye catches first the sight of a mass of tall bedding plants, circular in form, and about 130 feet in length. Fringing the lawn are Centaurea candidissima and the blue Ageratum; then we have a line of Achyranthes Commessi, which is of a bright rosy tint, much used here. These are associated with the old white Pelargonium Mdme. Vaucher; then come two rows of Anthemis nobilis of different heights in front of a nice margin of Cephalotaxus Fortunei and a line of Negundo fraxinifolium variegatum. The top of the hill is occupied by some good purple Beeches. Each year this flower bed is changed in form and colour, but, of course, the trees remain the same, and form a noble background. These tints, where red and white prevail, being beautifully blended, are, late in summer, one of the sights of this place.—J. SALLIER, *St. Germain-en-Laye.*

INDOOR GARDEN.

GREENHOUSE RHODODENDRONS.

The tube-flowered section of Rhododendrons that are generally spoken of as greenhouse varieties really do far better in an intermediate temperature at this season than in a colder structure, for the additional warmth assists the blooms, and under such conditions many of the plants are just now laden with blossoms. If asked to select three of the most useful varieties, my choice would be, Princess Royal, pink; Princess Alexandra, blush-white; and Duchess of Edinburgh, brilliant crimson; though all are well worthy of cultivation. Of these, the first two are free-growing kinds; indeed, Princess Alexandra is quite vigorous, but Duchess of Edinburgh is of a more delicate constitution, owing to which it does better grafted on one of the others than on its own roots. Owing to its vigorous style of growth one of the best stocks on which to work the weaker varieties is Princess Alexandra. We have in bloom, besides the above, Taylori, pink, with white tube; Duchess of Connaught, bright crimson, but it does not bloom so continuously as Duchess of Edinburgh; Emblem, deep pink; Duchess of Teck, yellowish buff, and Prince Leopold, salmon-red. To these must be added the typical javanicum, whose yellow blossoms entitle it to a place in any collection, however choice. As we strike most of the varieties from cuttings, a batch was propagated in this manner last summer, and they are now little plants in pots 3 inches or 4 inches in diameter. A striking feature about them is that in many cases they are bearing heads of blooms, which must have been present in the terminal buds before they were separated from the parent plant, and as soon as growth commenced after rooting the heads of bloom were then developed. In most cases I see there are two or three buds below the blossoms already commencing to push, so that nothing is lost by allowing them to flower thus early. The culture of these Rhododendrons is very simple, the principal thing to observe being thorough drainage, for without that they will not long remain in health. The best soil for them is good fibrous peat, with an admixture of silver sand and charcoal; this compost will remain in good condition for a long time, and these Rhododendrons are very impatient of having their roots often disturbed. We have a small bush of the variety Duchess of Edinburgh in an 8-inch pot, which has scarcely ever been without blooms since the commencement of the year. In grafting any of the weaker kinds the stock chosen should be young and vigorous, while for the scion a shoot

that has not quite attained its full woody texture should be selected. Side grafting, leaving the head of the stock entire, or, at all events, only slightly shortened in, is the method generally employed, and when a union is complete the top of the stock can be removed by degrees. After grafting they will require to be kept in a close frame till a union takes place, which will be seen by the terminal bud of the scion commencing to push, and if no grafting wax is used (and it is quite unnecessary), the gradual healing over of the wound may be observed. The principal insect pests to guard against in the case of these Rhododendrons are thrips, but they rarely make their appearance unless the atmosphere is very dry, when a liberal use of the syringe will dislodge them. ALPHA.

COVERING GLASS HOUSES.

THE approach of another winter makes us begin to look to the means which we possess whereby we can set at defiance that arch enemy, frost. Last winter was both long and severe, and although we may not get so protracted a visitation for some time, we ought to be fully prepared for any emergency when it does come. Last winter taught us the value of external coverings for glass houses. They obviate the necessity for employing much fire-heat, and thus their cost is saved in one season. The best plan is to have good stout roller-blinds that will answer for both summer and winter, the main point being to keep the cold from robbing the interior atmosphere of its warmth. Nothing is more wasteful than driving the boiler fires at full speed, and having the pipes so hot, that one can hardly bear one's hand on them. This can to a great extent be overcome by external coverings—a fact which I have proved over and over again. While, however, we guard against excess of fire-heat, as being not only wasteful, but injurious to plants, we must not fall into the opposite extreme and employ too little. During mild wet seasons more plants are lost from damp than from actual frost; and I would specially impress on owners of glass houses the absolute necessity of having the heating apparatus employed more by day than by night, when air can be given to let moisture pass freely off. Our plan is to open the ventilators early and close early, and to be very careful as to keeping the interior of the houses as dry as possible during weather such as we have lately experienced. It is often after excessive downpours that the most severe frosts occur, and that is just the time when the external covering should be in readiness. Failing regularly fixed roller-blinds, very much may be done with mats, bags, and, in fact, with any kind of covering. Old gardeners had to rely a good deal on such coverings to keep their plants in safety before boilers were in existence. I have myself been struck with the way in which some of the old school of gardeners have carried their bedding plants safely through severe winters in cold frames, while some of the more advanced section were losing their stock even with the aid of new and improved appliances. Straw or litter makes a useful covering for frames, but can hardly be utilised for houses unless made into such mats as the French employ, or fastened on to hurdles. It then makes both a cheap and efficient covering for either frames or houses.

Gosport. J. GROOM.

SHORT NOTES.—INDOOR.

Seedling Carnation (*C. Green, Cromer*).—A very fine sort, flower large and full, and the colour extremely bright, and not at all a common tint; it may be described as a carmine-crimson. Such fine Carnations out-of-doors at this season are indeed unusual.—ED.

Best Chrysanthemums.—"R. D." (p. 483) not only mentions all the best incurved varieties, but also the best reflexed and Japanese sorts, and it would doubtless be difficult to make better selections. But one thing is misleading, and that is, he makes Golden Queen and Emily Dale two kinds; whereas, in the National Society's catalogue they are classed as synonyms. In rule 5 (p. 11) of the National Society's rules, it is stated that anyone exhibiting such synonyms shall be disqualified. To those who are unacquainted with Chrysanthemums and their synonyms I would say, purchase one of the society's catalogues. It may on some future occasion obviate disqualification.—JOHN DOUGHTY, *Angley Park, Cranbrook, Kent.*

SAND PAINT.

I OBSERVE that Mr. Peter Henderson recommends whitelead and sand as a substitute for ordinary paint. I have never used this mixture, but at one time we used a considerable quantity of what we termed sand paint. This was made with whitening and whitelead in equal parts, with about a fourth of the whole of silver sand. Sufficient oil was added to render it workable, and this was laid on as thickly as possible. When it dried, it felt hard and gritty—almost like stone; and my experience is that it is the most durable and impervious to weather of any paint I have ever employed. About fifteen years ago we painted the end of a building with it, and I noticed the other day that, although no paint of any kind has been applied since, there is still a fair coat on the walls. Two or three coats of this sand paint would render boards quite impervious to weather influences for years. Whitelead is apt to peel off after a time, but this paint does not do so. It forms a solid body that nothing but the weather-wear of many years can affect. Another way that we have employed is to lay on the paint first, and then, before it commences to dry, sprinkle sand thickly ever it. This gives it a rather rough, stone-like appearance, which in certain situations is desirable.

The anti-corrosion paint is something in this way, oyster-shells, I am told, being ground up fine and mixed with the other ingredients—whatever they may be. Painters assure me that whitelead does not form one of the latter; if so, anti-corrosion paint has not the worth commonly attributed to it. I would prefer to lay on a thinner coat of whitelead. Painting is expensive work and consumes a lot of time, but I believe that the cheapest way is to paint annually. When a house goes two or three years without paint, there is often more to do in taking off old rotten putty, replacing the same, and cleaning, than in the actual operation of painting. Supposing two good coats of paint to be put on, when you come to the work the following year there is nothing to do but to paint; there is but little cleaning to do and no worn putty to replace. In this way one may soon run over a lot of work, especially if it is taken in hand when the weather is fairly warm and dry. A workman with cold fingers cannot get along very fast. I have been told that the best way is to use Pitch Pine, and not paint at all. I do not know if anyone has tried this experiment, but I am not sanguine of success. I rather fancy that without paint the wood would split in the hot sun.

Last winter I had Pitch Pine sills put to a frame. I did not trouble to paint them, and I found that in the course of the summer large cracks came in them. This material is, however, coming into use among market growers, for of course it is more durable. I would warn your readers, however, not to use it for frames, except for the bearers and sills; sashes made of it would be very heavy.

J. C. B.

Hardy Primroses in pots.—When potted up now and placed in a little warmth, Primrose flowers open beautifully, the colours being bright and clear. We have them in many shades of colour besides the old Golden Primrose from the woods, and all of them bear forcing well. Last year, about Christmas, requiring a large quantity of flowers, we lifted a large number of Primrose roots and filled a bed in a forcing house with them, and in a few days they were a mass of flowers. But, raised under such circumstances, the flowers are fragile, and, of course, such treatment breaks the root. Strong roots, potted now in 3-inch or 5-inch pots, will during winter be very serviceable in many forms of room decoration, and the flowers when gathered are very sweet and interesting, especially to invalids. I am thinking now only, of course, of the varieties of the common English Primrose.—E. H.

Worms in pots.—Worms are often troublesome, especially in the case of plants which have been standing out in the open air without due care having been taken to prevent worms entering through the outlet at the bottom. No plant can be kept in health long with a worm in the pot, for it speedily blocks up the drainage and the plant turns sickly, and if not relieved dies. Worms are very sensitive to concussion. Very often a sharp rap on the side of the pot will cause them to come to the top, but if they cannot be induced to come out by any other means, if the plant is turned out of the pot and a long, thin piece of wire (a knitting needle will do) is thrust through the ball in two or more directions, the worms generally come out and surrender. Where many plants are infested with worms a more expeditious remedy should be adopted, and there is nothing better than limewater, which may be made as follows: Place 6 lbs. of fresh lime in a barrel of water (36 gallons); allow it to settle and clarify; then give the plants a good soaking, and gather up the worms as they crawl out. If used in a clear state water will only carry a certain amount of lime, so there is no danger of using it too strong.—E. H.

Steaming *versus* fumigating.—In THE GARDEN (p. 484) there is an interesting communication from "J. C. D." on this subject. It would confer an obligation on myself, and probably others, if "J. C. D." would enlighten us as to the name and address of the French manufacturer who is bringing out a suitable apparatus for steaming purposes. I have evaporated tobacco juice in both tin and earthenware vessels by means of a spirit lamp, but found the process tedious, although certainly successful. My gardener tells me that while I was away in India this year he evaporated the juice very successfully in the troughs over the hot-water pipes by shutting off the steam from all but the one house operated upon. Undoubtedly my Orchid houses have been much more free from insect pests ever since this plan has been tried, and the plants have in no way suffered.—REGINALD YOUNG, *3, Linnet Lane, Wet Road, Liverpool.*

—— Like "J. C. D." (p. 484), I also have exclusively adopted the practice of "steaming" since it was recommended in THE GARDEN by M. Godefroy-Lebeuf two or three years ago, and I simply cannot understand anyone who has given it a fair trial ever reverting to "fumigation." After many experiments, my present arrangement is pretty much like that which "J. C. D." describes, and this is, no doubt, good enough for enthusiastic amateurs; but what is wanted to bring "steaming" more into vogue is the "new apparatus devised by a French manufacturer, which is a very simple and effective affair." Personally, I would feel much oblized to "J. C. D." if he would state where this apparatus can be obtained.—A. K.

Sparmannia africana.—This old inhabitant of our greenhouses is capable of rendering very useful service, either in the way of aiding the cut-flower supply, or as a pot plant for decorative purposes. It is surprising the quantity of blooms which one large plant will yield, and if picked singly and used for button-hole bouquets, or other purpose where they can be mounted on wires, few more valuable plants can be grown, the colour of the flowers being quite distinct from that of any other plant with which I am acquainted. We have some large bushes of this Sparmannia now covered with flower-heads that keep on expanding all through the winter in a warm greenhouse, where there is just enough heat to expel damp. During summer we set these plants out of doors, so that their young growth may get well ripened. Last spring we put in a quantity of cuttings, and grew them on under glass until June. They were then set out on a coal-ash bed in a sunny position, where they made fine bushy plants. They are now covered with flower-heads that promise to be very effective when fully expanded, and they may be advanced or retarded at pleasure. Those who have conservatories to keep gay throughout the winter would find that a good batch of young Sparmannias would be most welcome.—J. G. H.

Bricks of cork.—The waste cuttings of cork are now being employed for making bricks, which can be used for walls, impervious alike to heat or damp. The cork cuttings are reduced to powder in a mortar, and mixed with lime or clay; and from this composition the bricks are made in the usual way.

TREES AND SHRUBS.

THE WISTARIA.

(W. SINENSIS.)

How much a simple building may be beautified by a good climber is shown by our engraving of an old Wistaria on a modest cottage, the office of Mr. Virgo's nursery. The tree was planted by Mr. Virgo nearly fifty years ago, and, judging from its vigour—for the engraving shows only half its extent—it seems to promise endurance for perhaps another half-century. The crop of blossom was this year not a very full one, as was the case with most of the Wistarias in the district; in a year of good bloom the little house looks almost smothered with the pretty lilac bunches.

Balsam Poplar.—Seeing how distinct this is from trees generally, the wonder is that it should not be more extensively planted. Unlike the common Poplar, it does not run up to any great height, and may therefore be employed where tall growing trees are inadmissible. Another point in its favour is the strong, but very agreeable perfume which the young leaves exhale. A moderate sized specimen will load the air with perfume for many yards round. A striking instance of its value in this respect is afforded by a tree which grows on the highway in the immediate neighbourhood of a farmyard, from which pungent and very unsavoury odours assail passers-by at certain times of the year. I have remarked that the Balsam Poplar in the season of its odoriferousness quite masters the evil smells from the above mentioned place. At that time one may pass without quickening one's pace, which only those abnormally impervious to nasty smells could do at any other time. This, then, should be a disinfecting tree, and one which, unlike the much-vaunted Blue Gum, is perfectly hardy. There are, unfortunately, places where evil odours have to be borne by those who do not create them, and where such is the case I recommend the use of the Balsam Poplar.—BYFLEET.

MENZIES' SPRUCE.

(ABIES MENZIESI.)

THIS Fir was introduced from Northern California, and from the first plants having been brought home in 1831 by Douglas, its discoverer, specimens may now be found of the Abies Menziesi throughout the country of sufficient size and bulk of timber to enable us to state with some degree of precision, not only as to the hardihood and rapidity of growth of the tree in Britain, but also to form some approximate idea of its probable value as a timber tree worth growing for profit in our woodlands and plantations in different situations, soils, and altitudes.

Immediately after its introduction by Douglas in 1831, Menzies' Spruce became, probably from its association with the name of its discoverer, widely sought after, and was generally planted in pleasure-grounds throughout the country; and from its improved foliage and appearance upon those features of the Norway and American Spruce—which in many other points, however, the new acquisition closely resembled—it at once acquired an amount of popularity which shortly led to its being more generally and extensively planted, not only as an ornamental specimen in the pinetum, but in quantity in ornamental plantations and groves.

In a paper read before the Highland Society by Mr. R. Hutchison, an interesting account of this tree was given. He says that, generally speaking, it appears that Abies Menziesi is one of the hardiest of the newer Coniferæ in soil which is not too dry; in moist, damp, alluvial land, and especially if near water-courses or river-sides, or ponds, it is of a very rapid and free habit of growth, attaining greater dimensions within a given number of years in such sites than the common Spruce. In open situations, its stately, thick-branched, pyramidal head forms a handsome and striking object, which is greatly enhanced in value by the beautifully glaucous colour of the under-sides of the leaves being displayed when its branches are swayed by the wind. In Britain, Abies Menziesi blossoms in early summer (about May or June), and the cones, which are produced in numbers, and crowded together, become mature in the following winter. As compared with the common Spruce, with which, as has already been remarked, Abies Menziesi has many points of resemblance in common, it is uniformly conical, with foliage—which in the case of A. Menziesi is much denser—always luxuriantly umbrageous in the lower tiers of branches, and which in well developed specimens sweep down in green tresses to the very ground. The branches towards the upper part of the tree are rather more obliquely upright in habit in the Abies Menziesi, and longer and bolder than in the case of the common Spruce (Abies excelsa), whose tiers of branches about this part of the tree are invariably horizontal, and in length give a more gentle tapering form to the general contour or outline of the tree than the more numerous and projecting points of the lateral limbs of the Menziesi can attain. In this respect it resembles more Abies Douglasi; and indeed it may be said that in general style and appearance the Abies Menziesi is to the common Spruce what the Abies Douglasi is to the common Silver Fir (A. pectinata). In some instances it has been observed that this Fir bears a considerable resemblance in general outline and appearance to the A. Douglasi, but it is not nearly so fine a tree, nor is it so rapid in growth, nor even so hardy as the Abies Douglasi.

One peculiarity of the Abies Menziesi is its proneness to drop its leaves before the new ones are expanded, and this habit gives it a semi-deciduous appearance. This feature, when first observed, leads to an erroneous idea being formed as to its hardihood in our country, some planters supposing

Wistaria on Mr. Virgo's house, Wonersh, Surrey. Engraved for THE GARDEN from a photograph.

that it arose from unsuitability to the climate, but it has been ascertained that this is a habit quite natural and common to the Menziesi, even in its native habitats; and although the almost naked branches detract from the beauty of the tree for a short time in spring, it is no indication of tenderness of constitution or disease. In shaded situations, with a northern aspect, this peculiarity is not so striking, and probably the sudden changes from heat of the sun to the cold of spring nights foster and intensify the habit. When placed singly on a lawn, or in a rather moist soil, this deciduous tendency is greatly checked, and it is always most apparent when the tree is planted in dry sandy soil. One of the handsomest, if indeed it is not the finest specimen of Abies Menziesi is growing at Castle Menzies, near Aberfeldy, in Perthshire, and is luxuriating in a damp soil, quite adjacent to a pond, where the atmosphere around it is charged with moisture, and where its growth has been exceedingly rapid.

ORNAMENTAL TREES IN CANADA.*

I HERE wish to direct attention to certain trees, not natives of our province and but little known, but which would add greatly to the beauty of our parks and gardens.

The winter of 1884-85 was unusually severe. "The most tingling winter that we have had at Abbotsford for ten years," were the words that greeted me on my return from the south in the spring. We had, during the previous ten years, lower means for December and January, and in one case for each month a lower minimum, but that February and March of 1885 showed a much lower mean, and March a lower reading than any of the previous ten winters, and the mean of these four months was no less than 6·18° colder than the mean of the previous ten years. The average temperatures for the three months recorded in the city of Quebec is 4·2° colder than that recorded by the more sheltered observatory in Montreal. It would be, therefore, quite safe to say that the cold of the winter of 1884-85 in Montreal was greater than it is on an average in the city of Quebec.

I have, growing on my exposed hill-side at Abbotsford, about 145 varieties of trees, which are not natives of this province. Some were exposed to the cold of last winter, and were uninjured; others were injured. These test winters furnish facts of great value.

DECIDUOUS TREES.

MAPLE (Acer).—Of the Silver Maples, Weir's Cut-leaved is a curiosity, an eccentric, wayward grower, as great a contrast to the compact growth and dark, massive foliage of the Norway Maple as a German Cut-leaved Birch is to a Grape-leaved Linden. The foliage of the young growth is so slender and so deeply cut as to be scarcely recognised as a Maple. I have several trees of it, four or five of which must be 20 feet high, and I recommend it as a tree thoroughly suited to our climate. Of other varieties of this Maple, heterophyllum laciniatum—a seedling raised by Ellwanger and Barry, of Rochester—is a strong upright grower, with long, deeply-lobed leaves, but, strange to say, it is not quite hardy. When growing rapidly, it is almost sure to lose several inches of its terminal shoots. The variety Ricii has quite small leaves, and, though it has not succeeded with me like Weir's, is fairly hardy and worthy of trial.

THE NEGUNDOS suffered severely last winter. The last year's growth was mostly killed. They did not leaf out until nearly three weeks after their usual time, but then grew rampantly, and their bright, green foliage throughout the summer was very ornamental. On the other hand, the Winnipeg form of this tree, the same as the Ash-leaved Maple of Iowa and Minnesota, is noted for its perfect hardiness and rapid growth in unsuitable soils. This tree is therefore becoming a favourite, but I would offer this caution, that it is a tree which attracts flies, and therefore should not be planted too near houses.

THE NORWAY MAPLE I find to be a satisfactory tree. It is darker in foliage, more spreading, and more rapid in growth than our Sugar Maple. There is a fine young specimen in Victoria Square, and in the autumn, when the Sugar Maples surrounding it were scarlet, this was still green, and after they had lost their foliage, its was still yellow. This European Maple has also sported in an odd way. The Cut-leaved (dissectum) has foliage so regularly and deeply cut as almost to divide the leaf into three parts. It is a very slow and crooked grower, and suited to small places. I have only seen one large tree of it, one in Vienna, and that had seen the growth of generations. This tree never received the slightest winter injury with me until the winter of 1884-85, and then only in transplanted trees. Lobeli, I believe another variety of the Acer platanoides, is just as slow, though a straighter grower, and some of its leaves have so far strayed from their original type as to be scarcely recognisable by a botanist. If one were to gum half-a-dozen pieces of leaves at different angles upon the end of a stalk, it would be an approach to what some of its leaves are; most of the foliage is like that of the Cut-leaved. I have but one tree of this. It lost 4 inches of its leading shoots last winter, but as this is the only winter injury it has ever received, we may consider it hardy.

SCHWEDLER'S MAPLE has its seasons of great attractiveness. The leaves as they unfold in the spring are a brilliant crimson, and continue a brilliant crimson until full grown and a few days after. They then become a dull red and gradually change to a dark sombre green, darker than the ordinary Norway Maple. In midsummer the new growth starts with the same brilliant colours as in spring, like a lot of red Roses peeping out of the dark contrasted green. Imagine an avenue of this Maple on some prominent place leading to our mountain park, in its brilliant spring plumage; the whole city would see it, and for a few days in spring hundreds would flock to it, just as, in London, thousands go to see the Horse Chestnuts in bloom at Hampton Court. Reitenbach's is another German variety of the A. platanoides. It lacks the brilliancy of colour of Schwedler's; at times the upper side of the leaf is a sombre purple, while underneath it is pure green. My trees are small, but stood last winter without injury. Another curious variety is the Curl-leaved, or cucullatum. The leaves curl into strange forms; and in the structure of the leaf, the way in which the veins radiate is remarkable, so that it is a botanic as well as a horticultural curiosity. My Tartarian Maple (A. tataricum) was killed back an inch or two at times, but otherwise is hardy; but for some reason it has not those large clusters of blossom and seed which make this shrub Maple such a favourite in the Russian gardens.

ALDER (Alnus).—The Imperial Cut-leaved Alder is a tree which I cannot compare with any other. Its light feathery foliage and dark, dull colour give it an expression peculiar to itself. It seems quite hardy with me, now that I have it planted on moist soil. I specially recommend this as a small tree for sheltered city gardens. Snow off roofs would break it all to pieces, so give it such care as its frail, delicate constitution requires. The Cut-leaved (laciniata) is more vigorous and becomes a larger tree, not like an Alder, and well worthy of being planted.

JUNEBERRY (Amelanchier).—I have fruited four varieties of this tree. Last summer the little bushes, from 9 inches to 2 feet in height, bore an abundant crop of berries, the size of the largest Saguenay Blueberries, and richer in flavour. I think Grinnell was the finest in flavour, Green County and Gardener being also good fruits. The alpine Juneberry of Mexico, though quite hardy, does not bear as large or as fine a flavoured berry.

BIRCH (Betula).—The European Birches excel our native species in beauty, and of these I know of no finer tree than the European Cut-leaved Birch, which Scott speaks of as "the acknowledged queen of all the airy graces." I know of no tree I should prefer to plant, especially where dense shade would be an objection. The variety atropurpurea, owing to the dark purplish red of its leaves during spring and early summer, is well worth planting. The Fastigiate Birch is as upright as a Lombardy Poplar or a Funereal Cypress, and as we have no medium-sized tree of this form except it, it may be used to good advantage in ornamental planting. The variety tristis is the most slender and delicate of the Birch family that I know; the ends of its branches are nearly as slender as a piece of thread. This tree I should consider hardy enough for a sheltered city garden. Young's Weeping is a tree that might well take the place of the Kilmarnock Willow for planting in our cemeteries. Top grafted, it is just as pendulous, and more graceful, and will prove a longer-lived tree. The European Birch, when grown from seed, is obtainable at cheap rates from nurserymen. A good deal of the seed which comes to this continent is from Russia. These trees differ a good deal in habit of growth, whether grown from Scotch or Russian seed. I have planted out about eighty trees which I believe to be from Scotch seed, for, towards the middle of November, when the Canoe Birch on Yamaska Mountain, and the white Birch of the flat lands below have but a few remaining yellow leaves, these Birches of mine are still green. I therefore believe them to be Scotch, although among them I find some trees with a triangular leaf, like the B. alba verrucosa of the Russian forests, and like the native white Birch of our low lands; and others, with the round-sided leaves, like the pubescens of Ehrhart, and like our native Canoe Birch.

CATALPA.—I cannot say that I find this tree hardy, and yet I have some fine trees fully 15 feet in height. I have also ten trees planted around a two-storey summer house, from which I have counted the spires of sixteen villages, and from which I can see mountains which are 180, if not 190, miles apart. In this bleak exposure they are doing well, much better than some thirty trees which I have in a forest plantation and which are more sheltered. One specimen on my roadside bloomed beautifully last summer, though for some cause the blossom was not succeeded by those long slender pods which give the tree such a curious appearance during autumn. The young trees on the college ground at Ames seem thoroughly adapted to that climate, and I feel that by getting the Catalpa speciosa from its farthest limits northward, we may yet get a surer and a hardier tree.

YELLOW-WOOD (Cladrastis).—I have two specimens which have proved quite hardy. It is in one of the finest of the American flowering trees, and its hardiness with me should cause it to be tried in Montreal.

BEECH (Fagus).—After failing with about a dozen specimens of the Copper Beech, I find a young specimen at Verdun which has stood the cold of some six or seven winters and is doing well.

ASH (Fraxinus).—The common Ash of Northern Europe (F. excelsior) I find quite hardy, but the more curious and interesting of the Ashes are quite tender. The Gold-barked varieties were long ago condemned. The Single-leaved Ash (monophylla) and laciniata are strange-looking trees, quite unlike Ashes, but they usually lose a few inches of growth each year, and without a yearly cutting off of this dead wood, would cease to be ornamental. The variety concavæfolia variegata is remarkable for the silvery bright tint of its young growth; very curious, but not at all hardy. It can only be grown as a shrub, and needs slight protection. The kind known as scolopendrifolia is a delicate little shrub, with leaves as slender as a blade of Grass. It needs protection. The aucubæfolia is a variety of our native Ash, and of course quite hardy. Its leaves are often as richly spotted with gold as some of the finer Crotons. Like all variegated trees it loses its freshness during our hot summers, yet it is the finest variegated-leaved tree I know of for our climate.

HONEY LOCUST (Gleditschia).—I find the variety known as caspica a good grower, and just as hardy as the American ones I have. The Chinese I found quite tender, and I do not know of our having as yet a hardy variety from that country.

KENTUCKY COFFEE TREE (Gymnocladus).—My trees have killed back a few inches each year, and therefore make slow progress, and there is a tree in Montreal which stands as a record of the number of inches of injury it has received for many years back. I have another tree which seems quite hardy. There are good specimens in Mount Royal Cemetery and elsewhere, so let us grow this from hardy stock.

* Extracts from a paper read by Mr. C. Gibb before the Montreal Horticultural Society.

Tulip tree (Liriodendron).—I have a fine young specimen about 12 feet in height in a very exposed place. Last spring it did not leaf out till two weeks after its proper time, but then seemed none the worse. Smaller specimens which I had were affected in the same way. On account of the peculiar foliage and beautiful bloom of this tree, it should be tried in our sheltered city gardens.

Mulberry (Morus).—The Russian Mulberry, brought by Mennonites from near Azov, has been grown from seed, and differs much in the size of its fruit. I have seen it three-quarters of an inch long, and some trees have produced fruit still larger. The best will be sorted out and propagated from cuttings. It is not a timber tree, but only a scrub bush. The Mennonites use it largely in the west as a hedge plant, and when planted closely, as in hedge form, it produces a large amount of fruit "for pies, for sauce, and for the birds," and for a "preferred fruit" for the birds and a protection to the Cherries. A few plants I bought five years ago cost me but 1s. each, and now plants may be had for even less.

Poplars (Populus).—There is a straight-trunked variety of the Silver Poplar (Populus alba) which I had noted as growing in the Botanic Garden at Kazan, in Russia. I regret to say that I do not know of its having been imported. In the grounds of the Iowa Agricultural College there is a large collection of the Poplars of Eastern Europe. There are Populus alba, and its varieties, nivea, acerifolia, &c., from different sources. Some of these are very large and Maple-like in leaf, and decidedly snowy, but the trunks have a tendency to wabble; they are not straight as the mast of a vessel, like those I saw in Kazan. [This erect-growing Abele is probably P. alba Bolleana, now being planted largely in England.—Ed.]

White Beam tree (Pyrus Aria).—We saw large collections of this tree at Riga. They seemed to thrive there. They are, however, not doing as well as was expected at Ames, Iowa. The summer heat seems too great, but greater than it is here, so we must give them a fair trial.

Oaks (Quercus).—I find the Chestnut Oak (Q. castanea) and the Scarlet Oak (Q. coccinea) both hardy so far, that is they have passed through about five winters without injury. The latter holds its leaves into winter, and they continue brilliant in colour, when other trees have lost all their foliage. The Burr Oak of the West (Q. macrocarpa) I find just as fast a grower as our native Red Oak. I have them planted side by side in a timber plantation. The Pin Oak (Q. palustris), a straight trunked species valuable for avenue planting, also seems quite hardy.

Gingko (Salisburia).—I have one solitary tree. It grows, but is sometimes killed back a little. It is a great curiosity, and is hardy enough to warrant its being planted in the sheltered gardens of Montreal, where it has done much better than with me.

Elms (Ulmus).—I have two fine young trees of the purple-leaved English Elm. Its name, purple-leaved, is quite misleading; but for some reason it has done well, while other English and Scotch Elms have proved failures. The Camperdown Weeping Scotch Elm has been twice severely injured. The Elms of North-eastern Europe I have not tried. Neither the Manchurian nor Japanese varieties of Phellodendron are hardy with me. They might do in Montreal. The Oriental Plane is proving much hardier than I had expected.

Evergreen Trees.

Spruce and Fir (Abies and Picea).—For general planting there is no Evergreen like the Norway Spruce. It is cheap, transplants easily, grows quickly, and forms a large and beautiful tree. For wind-breaks and shelter-belts it is our best Evergreen; for hedges I prefer the native Arbor-vitæ, which makes a good hedge in less time. Engelmann's Spruce is a beautiful Evergreen, perfectly at home in our climate. A specimen I have is remarkably glaucous. In spring it is the colour of frosted silver, not green at all. Nordmann's Fir is a beauty of a different type. Its long, dark, shining, rich foliage is very striking, but it is not hardy above the snow line. I have a variety of our White Spruce (A. alba cærulea) nearly as silvery as Englemann's, but bluish. It is a dwarf and has borne its second crop of seed, though the trees are not more than 3 feet high. The Siberian Fir (P. Pichta) is remarkable for its refreshing green colour, and I may add that such specimens as I saw in Russia showed no signs of early decay, as is the case with our native Balsam. Morinda, of course, died. The Tiger's-tail Spruce of Japan (A. polita) is, I think, hardy or nearly so. It has stood the test of about five winters, but is small and often covered with snow. Its leaves are as sharp as pins. There is a dwarf form of our beautiful Hemlock (Abies canadensis macrophylla), a foreign looking, compact shrub, just the thing to adorn a well-kept lawn with.

Pine (Pinus).—Of the foreign Pines, the Scotch and Austrian are most commonly planted. They are grown from seed and may be bought cheap. They are as hardy as our native Spruce, but I find them more difficult to transplant than the Spruces. This has always been my experience on my soil. The Scotch is the faster grower, but not as rapid in growth as our White Pine. The Black Pine of Austria is a slow grower; I know their relative growth, for I have them all growing side by side in a trial timber plantation of about 1000 trees and twenty-five species. The Swiss Stone Pine (P. Cembra helvetica) is a five-leaved Pine, not rough and bristly like the Scotch and Austrian, but soft and silky, far more so than our own White Pine. It is a slower grower than any I have yet mentioned. The Manchurian Stone Pine (P. Cembra manchurica) has unusually broad leaves for a five-leaved Pine. It is a lovely grass-green in colour and seems quite hardy, a beautiful tree well worthy of trial. The Himalayan Pine (P. excelsa) I had two specimens of, which seemed hardy, but they were killed by a borer which has done no injury to any other kind I have. The Cluster Pine (P. Pinaster), though not satisfactory in the Eastern States, seems hardy so far with me. The Mugho Pine is a dwarf mountain form. It will never make a saw log, but is a dense compact little shrub, a curiosity in its way. Mine are not more than 1 foot high and have been planted five years. The silvery form of the White Pine (P. Strobus nivea) is interesting on account of its bright colour—a colour, however, not as striking as my Engelmann or cærulea Spruces. P. ponderosa I now have grown from seed from the Kootanie Valley, in British Columbia, and, coming from that region, I hope it will prove hardy.

Of other Evergreens, allow me to direct attention to a very ornamental tree or shrub, almost unknown, and yet a native of some parts of our own province. I mean the Red Cedar (Juniperus virginiana). When grown from northern seed, it is of course quite hardy, and some of its glaucous forms highly ornamental, and quite unlike anything else we grow. Peabody's Golden Arbor-vitæ, a variety of our own so-called White Cedar, is very bright in colour. The beautiful Retinospora plumosa aurea I find hardy, that is, hardy enough to be highly ornamental. It may look blue in winter, especially when not covered with snow, but in spring it forgets its past troubles. It is of dense habit of growth, feathery, and its outer branches tipped with lively yellow, which colour it maintains throughout the season. In spring it has a sparkling brightness. What great contrasts in colour we find among Evergreens!

In conclusion, let me impress upon your attention the peculiar beauties of some of these hardy European trees—trees in many ways quite unlike our own. The beauty and variety of our native forest trees have caused us to plant them too exclusively; and far more varied and beautiful would be our parks and streets and gardens to-day, had we planted, in greater quantity, some of the more beautiful and suitable trees of the Old World.

Propagating Maples.—I am anxious to know how to propagate some of the varieties of Japanese Maples, of which I possess good plants.—J. Ardew.

*** These shrubs, to a great extent, are increased both by grafting and budding. Most of the vigorous growing kinds are budded, and those of more slender habit, such as the beautiful Japanese varieties, are grafted on allied species. Budding is done towards the end of the summer in the same way as Roses are, and, like them, if the bark does not run freely, a good shower or a soaking of water at the roots will frequently remedy this. If young vigorous plants are budded, they may with advantage be somewhat shortened back when it is done. As before stated, they may be layered, but it is not always possible to do this, though it is generally employed for the increase of Acer palmatum, which in its turn is used as a stock on which to graft its many varieties that are now becoming so popular. For grafting these small Japanese Maples the stocks should be established in pots, and the plants kept close under glass till a union takes place. Side-grafting is the method generally employed, and it may be done at almost any time, provided stock and scion are in good condition, though perhaps the most suitable season is when the young growth is about three parts ripened. If one possesses plants of any of the varieties large enough to layer without injury, they can then of course be increased in this way.—Ed.

Pernettyas in flower and fruit.—Among a collection of the newer varieties of Pernettya here there are a few plants heavily laden with berries, and at the same time flowering most profusely. The contrast between the pure white blossoms and the dark green foliage is still further heightened when laden with fruit, for the darkest-berried forms are those that are thus flowering. Possibly by means of selection an autumn-flowering race might be established, which would assist in the embellishment of our gardens during the dullest season of the year.—H. P.

Elæagnus longipes.—On account of the ornamental appearance of this, both when in flower and fruit, it has deservedly become one of the most popular species of the genus. It is, moreover, perfectly hardy, in this country at any rate. Where allowed sufficient light and space, the plant soon forms a good-sized bush, and produces an abundance of long-stalked oval red-speckled fruits, which might be turned to account for preserving. Mr. Gibbs, in a paper in the report for 1883 of the Montreal Horticultural and Fruit Growers' Association of the Province of Quebec, entitled "Hasty Notes on Trees and Shrubs of Northern Europe and Asia," thus speaks of it: "E. longipes, from Japan, we saw at Kew. It is a shrub 6 feet high, bearing large quantities of spotted red berries, like oblong Cranberries. At Verrières, in the garden of M. Henri Vilmorin, we again saw this plant bearing heavily; fruit red, a nice acid fully equal to that of Cranberries, and as free from seed. It seems a very abundant bearer, and well worthy of introduction as a fruit-bearing plant—a plant likely to yield quite as much of a fruit, as good and as saleable, as the Cranberry."—G.

Abies Pattoniana and Hookeriana.—These two Conifers are often confused in nurseries and gardens, but although somewhat alike in habit, they are totally distinct when examined together. The leaves of the former are green on the upper side and whitish beneath, while A. Hookeriana has a uniform glaucous colour all over. The leaves also have no proper upper surface, being rounded and densely set on the branches. Both species are exceedingly hardy, and, like the Abies Albertiana, luxuriate in soil naturally composed of loam and peat. As these Conifers have a great tendency to branch on the surface of the ground, instead of cutting them off I would recommend them to be treated as layers. By doing so a great advantage will be gained by inducing in them an upright growth. The way I find the layering of these plants to succeed best is to bare all the lower branches of their leaves and small side-shoots, leaving 8 inches or 10 inches at the point undone; then twist a very fine copper wire tightly round the lower portion cleared, and peg the branch down in a mixture of loam and peat, previously prepared and placed round the plant, covering the surface afterwards with a coating of Sphagnum Moss, and placing stones on the surface to prevent the Moss from being blown about, as well as to assist to retain the moisture round the layers. If the layering practice is carried on for a few years, the plants will soon begin to assume an upright habit. I have never succeeded in striking either of these species of Abies by cuttings.—J. M.

Holly berries.—In answer to "Veronica's" note about Hollies, I may say that the green-leaved Hollies here rarely fruit, but a large silver-variegated tree is covered with berries every year. I have observed the same fact in another garden near here.—Northumbria.

FLOWER GARDEN.

CHRYSANTHEMUMS AND THEIR CULTURE.*

Of Chrysanthemums we have two British species, viz., C. segetum, the Corn Marigold, and C. Leucanthemum, the great Ox-eye Daisy, both of which bear very pretty flowers. C. Leucanthemum grows abundantly and luxuriantly on the hedgerows and railway slopes in Cheshire, and flowers from June to August. C. segetum is not so plentiful in this district as the preceding. It formerly was very abundant about Bowdon, but an improved system of farming has, so far as I have been able to ascertain, completely eradicated it. I am informed that in Cornwall C. segetum is the greatest pest with which the farmer has to deal. Some ten or twelve years since there were several exhibitions of British flowers held every year in Whitefield. At these exhibitions, even in the depth of winter, there were always flowers of C. segetum to be seen and admired. Mr. James Percival, president of the Manchester Botanists' Association, informs me that the Whitefield growers, by persistent selection and good cultivation, had brought the flowers of these Chrysanthemums to such a high state of perfection, that they beat all other exhibits, Cypripedium Calceolus included, though by most persons the latter is considered to be our rarest and choicest British plant. When a variety is raised which produces really good flowers, it is perpetuated by means of cuttings.

Annuals.—Amongst annual Chrysanthemums the best is C. carinatum, a native of North Africa; it is a useful plant, either in a cut state or for making a display in the flower garden. C. Burridgeanum, a compact-growing variety, bears large yellow flowers. The white and yellow forms of C. Dunnetti are very showy. C. inodorum fl.-pl. is useful in a cut state. Of this there are generally many forms to be obtained from a packet of seed, and if perchance there should be a really good double form, it should be preserved by means of cuttings. C. coronarium, or Crown Daisy, is a fine annual plant, which grows about 3 feet high. The cultivation of these Chrysanthemums is of a very simple description. The seed should be sown in April in rich, well prepared soil, and in the situation in which the plants are to flower. When they have attained a height of 2 inches or 3 inches, if they have come up too thickly, they should be thinned to 12 inches or 18 inches apart.

Amongst herbaceous Chrysanthemums C. lacustre, the Marsh Ox-eye Daisy, is a strong robust grower, which increases rapidly under favourable conditions. It grows about 2 feet high, and bears flowers that much resemble those of the Ox-eye Daisy of our pastures, but they are in every way considerably larger. It flowers profusely for a lengthened period, and is, in my opinion, the handsomest of the herbaceous varieties. C. maximum is a useful, tall-growing variety that flowers later in the season than the preceding, but its flowers are not nearly so large. Chrysanthemum, or rather Pyrethrum, uliginosum is a tall-growing and profuse-flowering plant which in some situations attains a height of 7 feet or 8 feet. It flowers abundantly from the latter part of September for six or seven weeks, unless cut down by severe frost. This variety is very effective in autumn when mixed with Rhododendrons or similar plants. C. frutescens, commonly called Paris Daisy, or Marguerite, is extensively cultivated on the Continent for bedding purposes; here it is chiefly grown in pots for decorating conservatories, and its pretty white flowers, which are freely produced, are very acceptable in a cut state.

The Chinese Chrysanthemum was originally introduced into this country about the year 1764, but it was soon afterwards lost, and was re-introduced in 1795. In the *Botanical Magazine* for 1796 there is a coloured figure of C. sinense or indicum. The Chrysanthemum is the favourite flower of the Chinese, and is carried with them wherever they emigrate. Our Japanese forms of it were introduced by Fortune about the year 1860, and three years after this date it was figured in the *Botanical Magazine*. Both forms are very popular in this country, and deservedly so; their flowers are varied in size, form, and fragrance, and are of every conceivable shade of colour, except blue; they are produced, too, naturally at a season of the year when other out-door flowers are scarce. They are easily propagated by means of cuttings, layers, division of the old plants, and also from seed, which may be obtained in our seed shops. The latter method of propagation is chiefly adopted with the view of obtaining new varieties, and these superior to existing kinds are difficult to obtain. The late Mr. John Salter, of Hammersmith, estimated that there was only one seedling Chrysanthemum out of every 2000 raised that was worth naming. There are probably 1500 or 1600 varieties in cultivation, and many of these have two or three synonyms, so that there is close upon 2000 names to select from. Several of the principal nurserymen have adopted the plan, and an excellent one it is, of giving the synonyms after the correct name. The following selection, which is fairly representative of the different forms of flowers, is found generally to give satisfaction, viz.: *Incurved*—Alfred Salter, Beauty, Blonde Beauty, Barbara, Baron Beust, Beverley, Empress of India, Fingal, Golden Queen of England, Lord Alcester, Guernsey Nugget, Hero of Stoke Newington, John Salter, Mr. Cobay, Jardin des Plantes, Mr. Bunn, Mrs. Heal, Novelty, Princess Teck, Prince Alfred, Queen of England, Refulgence, Venus, and Jeanne d'Arc. *Japanese*—Brize du Matin, Baron de Prailly, Criterion, Comtesse de Beauregard, Ethel, Elaine, Fair Maid of Guernsey, James Salter, La Incomparable, Lord Beaconsfield, Lady Selborne, Mdlle. Moulise, Mdme. C. Audiguier, M. Astorg, M. Henri Jacotot, Margot, Mdme. de Sevin, Mdlle. Lacroix, Bend Or, Soleil Levant, The Sultan, Fabias de Maderanaz, Meg Merrilies, and Triomphe du Nord. *Reflexed*—Ariadne, Cullingfordi, Chevalier Domage, Christine, Dr. Sharpe, Progne, Golden Christine, Julie Lagravère, King of Crimsons, Gazelle, Felicity, and Orange Annie Salter. *Pompons*—Adonis, Fanny, Crimson Perfection, President, Mdlle. Marthé, Golden Mdlle. Marthé, St. Michael, White Trevenna, Sœur Melanie, and the yellow, lilac, and white varieties of Cedo Nulli. The two beautiful large Anemone-centred varieties, Lady Margaret and Fleur de Marie, are deserving of a place in the most select collection.

Of late-flowering kinds we have Ethel, Fair Maid of Guernsey, Thunberg, Hero of Stoke Newington, Fulton, Meg Merrilies, Princess Teck, Nuit d'Automne, Mdlle. Lacroix, and Comte de Germiny. This year, however, we had one plant of Mdlle. Lacroix in flower in the middle of October, while others of the same variety and treated in the same way have not yet expanded their flowers. There has been a very marked improvement in the cultivation of Chrysanthemums during the last few years, one of the most notable features of which is the reduction of their height; most cultivators now manage their plants so as to keep them much dwarfer than formerly, and it has been proved beyond doubt that equally good flowers can be produced by such plants. It is a matter of surprise to many that the early flowering varieties are not more extensively grown than they are for the decoration of the outdoor garden in autumn. An orange-yellow variety named Précocité begins to flower early in August and continues for three months to be one of the brightest ornaments of the garden, and is invaluable for cutting. Illustration, light pink, changing to white; Nanum, creamy blush; Bob, maroon-red; Anastasia, purple; Early Blush, Virginia, white; Frederick Pélé, crimson—these all succeed fairly well under herbaceous border culture. The different varieties of Cedo Nulli and Madame C. Desgrange do very well if planted in a sunny situation against a wall or building.

As to the best time for propagating the Chrysanthemum for pot culture, a considerable difference of opinion exists. We have put in cuttings from the first week in December until the second week in June. The earliest rooted plants invariably produced the largest flowers. They also grew stronger and higher, and were more liable to become unsightly through the loss of the lower leaves than those rooted at a later period. February I consider to be the best month in which to propagate for ordinary decorative purposes. Plants propagated then usually grow from 18 inches to between 3 feet to 4 feet high, according to the variety, treatment received, and strength of the cuttings employed. Suckers that spring from the base of the old plant should be used for cuttings, preference being given to such as have travelled some distance from the old stem. They should be 3 inches or 4 inches long, and the leaves and buds should be removed from the portion inserted in the soil. Place each cutting in a small pot of sandy loam and leaf-mould in a cold pit or frame as near as possible to the glass, in order to keep them short-jointed and sturdy. Frost must be excluded from them, but they should not on any account be subjected to a close, high temperature; otherwise they become drawn up weakly, and from such growth good flowers cannot be expected. They should be kept close until rooted, just giving sufficient ventilation to prevent damping off. When rooted they may be exposed on every favourable opportunity to the full influence of the atmosphere. As soon as the pots are well filled with roots, care must be taken never to allow them to become pot-bound; they should be transferred to pots 5 inches or 6 inches in diameter, and from these into their flowering-pots, which should not exceed 8 inches or 10 inches in diameter. Place the strongest growers in the larger-sized pots. In order to cause the plants to become bushy we pinch out their growing points twice in the course of the season. The last pinching should be performed between the first and the last week in June, so as to have a succession of flowers. The alternative plan is to allow the plants to grow without check from the cutting state until the first week in June, and then cut them down to within 6 inches or 8 inches of the top of the pot. The objections to this method are that the plants receive a severe check; some of them do not push sufficient shoots to form a good plant, and the wood having become hard, the buds are a considerable time in "breaking." If the season happens to be cold and sunless the wood does not ripen, and the result is a scarcity of good flowers. Plants grown by the former method usually produce more shoots than are required. When this is the case they should be reduced to seven or eight, selecting those that are of about equal strength. When requisite a neat stake should be placed to each shoot, to which it must be secured. Cuttings made of the last pinchings and grown in 6-inch pots make useful little plants for vase or room decoration. Dwarf plants are serviceable for forming the front rows of groups, as they screen the pots and stems of taller plants. To obtain these, plant out a sufficient number of old plants in a sunny situation as soon as all danger from frost is over. When the flower-buds appear plunge as many small pots filled with suitable compost as may be required round each plant; with a sharp knife make an incision—similar to that which is made in layering Carnations—a few inches below the bud, then press the cut parts into the soil and secure them there with a hooked peg. In about a month the layers will be rooted, when they may be removed from the parent plants and placed in the shade for a few days to recover from the check sustained by removal. The compost should consist of a rich fibrous loam of a light rather than a heavy description, cut from a pasture field that has been laid down and well manured for a number of years. September is the best month for obtaining and stacking such loam, which should not exceed 3 inches in thickness. To every eight barrowloads of loam add one of lime rubbish broken small, also 16 lbs. of bone meal, and about the same weight of soot

* Read by Mr. Neild, Wythenshawe, Northenden, before the Manchester Horticultural Improvement Society, November 17, 1886.

will enrich the soil and make it unpalatable to worms. In potting the soil must be well rammed into the pot before the plant is placed in position, which should be sufficiently low to allow of a mulching being applied in August. Firm potting is an important item in the successful culture of this plant; it prevents over-luxuriance. The wood and leaves produced by this system of potting are not so gross and sappy as that which is grown in less firm soil, but it is much firmer and shorter jointed, and being less pithy will ripen under less favourable conditions. Well-ripened comparatively weak wood produces much better flowers than that which is unripened, however strong it may be. It is not a good plan to pot all the plants indiscriminately at once; it is better to examine them every week and repot only those that require it. The compost should be in a comparatively dry condition when used, otherwise it shrinks and cracks if permitted to become dry after being rammed into the pots in a wet state. As soon as all danger of spring frost is over the pots should be partially plunged in a bed of coal ashes in an open, sunny situation, out of the shade of trees or buildings, and sheltered from strong winds. If large flowers are desired—and we consider one large, well formed bloom preferable to a number of inferior ones—all side shoots and buds, except the centre or crown bud, must be removed as soon as they appear. If there be any doubt as to whether or not the crown bud is blind, it will be advisable to leave a shoot immediately below it, so as to have a chance of obtaining a flower from a later bud.

Pompons and any of the large-flowered varieties required for cut-flower purposes should be treated in a similar way to those grown to produce large specimen flowers, except that the first bud should be removed, and three of the side shoots nearest the bud retained. On these all the buds may be allowed to remain. The plants should be taken under glass the latter part of September or early in October, according to the state of the weather. If left out later they are liable to be injured by frost and mildew; to the latter they are very subject if left out after the dates mentioned. They may be put in Peach houses or vineries from which the fruit has been gathered, or in any other house that may be vacant, if provided with the means of excluding severe frost. Chrysanthemums are voracious feeders; therefore they should frequently be supplied with weak stimulants from the time when they become established in their flowering-pots until the flowers have attained full size; its use may then be discontinued. As regards the best kinds of manure to give them, I find those that contain the largest percentage of ammonia are most beneficial. Sulphate of ammonia is perhaps the best for the purpose. It is a strong fertiliser and requires to be used with discretion, as an overdose might ruin all to which it is applied. One hundredweight per statute acre is considered a liberal allowance for land under farm cultivation. That would amount to only about 1·25th of an ounce per square foot, so that plants in pots from 8 inches to 10 inches in diameter will each require only a very small quantity. Chrysanthemums will bear stronger applications without apparent injury, but I consider that it is better to apply it at the strength mentioned, and repeat it once a week if necessary. It should be used in a liquid state, as it is more likely to permeate the whole body of soil in that condition than if applied in crystals.

Greenfly is their most common enemy. A sharp look-out should be kept for the first appearance of this insect, and as soon as discovered means should be taken for its destruction. One or two applications of tobacco-powder or a solution of tobacco-juice will destroy it, and these can most readily be applied to the plants when in their summer quarters; whereas, if attacked after removal indoors fumigation with tobacco-paper will be the most effectual method of dealing with it. When plants are attacked by aphides in large numbers, they cause great injury by extracting the juices that should have been devoted to the development of the flowers.

The Marguerite Daisy fly (Phytomyza affinis) is a destructive pest, which appears to be rapidly increasing. The presence of this insect may be readily discovered by the leaves becoming discoloured where attacked. The fly usually appears in spring, and lays its eggs on the undersides of the leaves beneath the skin. When hatched the grubs begin to feed on the sap and interior cells of the leaf. Various insecticides have been tried for the destruction of this insect, but none of them are of any value; if applied sufficiently strong to destroy the grub they are almost certain to injure the plant. The most effectual way of destroying the grubs is to carefully examine the plants and pick off any leaves seriously damaged. The insect, in those that have been but slightly injured, may be dispatched by pressing it between the thumb and the finger. The affected leaves and stems of plants, after being cut down, should be burnt instead of being thrown to the rubbish-heap. Any grubs that have attained full size will undergo their transformations under such conditions, and will doubtless prove a source of trouble and annoyance in the future. Chrysanthemums are also sometimes attacked by the larvæ of Mania typica, which cause great damage by eating through the flower-stem immediately below the bud, thus rendering it abortive. This species only eats half the thickness of the leaves they are consuming. The most effectual method of exterminating it is by careful hand-picking. Earwigs are considered to be very destructive to the Chrysanthemum. From experiments that I have recently made with these insects, I have come to the conclusion that they do not commit so much damage as is generally imputed to them. Their food consists chiefly of decaying vegetable matter, but they are not, strictly speaking, vegetarians. My observations lead me to believe that they cause little or no injury to the buds or flowers, to which they go for the purpose either of feeding upon some other insect that infests the plants or to escape notice. In some parts of the country they are much more numerous than in others. If considered necessary they may be trapped in small flower-pots partially filled with dry Sphagnum Moss, in short lengths of Bean or Sunflower stalks, or in any other hollow object that will provide a retreat for them. Whatever is employed should be examined every morning and the insects destroyed.

Tunica Saxifraga. Engraved for The Garden from a photograph.

Mildew is very injurious to Chrysanthemums, and spreads quickly if not prevented. It may be removed by one or two applications of sulphide of potassium. The best way of preventing an attack is to maintain an abundant circulation of air amongst the plants, which should stand clear of each other, and on a fine evening, about once a week, syringe the undersides of the leaves with a weak solution of sulphide of potassium of about a quarter of an ounce to two gallons of water. After the plants have flowered they should be cut down, and put in a cold pit or frame where they can be protected from severe frost. If there is not sufficient convenience for protecting the old plants a number of cuttings required may be put in at once, and when the time for propagation arrives in spring their tops may be taken off and rooted. In this way the stock may be retained in good condition, and occupy less space than if allowed to remain in the flowering pots.

Sweet-scented Flag.—"Veronica's" list of sweet-smelling-leaved plants given recently in The Garden did not include the sweet-scented Flag, but being an aquatic perhaps he did not think it desirable to mention it. It is not, however, an uninteresting plant, for if its leaves are crushed in the hand they emit a peculiar odour not at all unpleasant. Once planted in a pond or lake in a depth of 2 feet or so of water, it requires no further attention.—J. C. C.

White Everlasting Pea.—Can any reader of The Garden say if the white Everlasting Pea comes true from seed? I ask this question because a friend of mine sowed a quantity of seed which germinated well, but of the progeny only about one-third came white. Near to the white was a plant of the common red kind, and I thought that my friend might by mistake have mixed some of the seeds of this with the white sort. I found, however, that he had carefully cleared the coloured one away before gathering the seed from the white variety. Assuming that no mistake was made, it is evident either that the two varieties were cross-fertilised when in bloom, or that some of the white ones reverted to the typical form, for I suppose that the white is a sport from the pink kind. I think it more likely to be a case of reversion, as all the pink-flowered seedlings were identical in colour. There was not the slightest difference between them and the ordinary pink-flowered kind. Had they intercrossed, one would naturally think that some would have come paler in colour than others. If any of your readers have any experience in raising the white Everlasting Pea from seeds, they would oblige by stating whether the results are the same as in the above-mentioned instance.—J. C. B.

TUNICA SAXIFRAGA.

This little plant is not often seen in gardens, perhaps because its place and use are not so obvious as those of more showy things; but rightly employed it is a pretty and useful plant. It does well in bare, poor ground and is very handy for carpeting over bulbs. Where the Meadow Saffrons are grown in borders (their right place being of course in grass), there can be no better plant to cover the space they leave bare before and after flowering. The bushy, rather wiry nature of the Tunica flower-stems gives just the support needed by the Colchicums, whose heavy flower-cups, lacking the friendly support of their natural ally, fall over before their beauty is over and present a miserable appearance, lying flat upon the ground.

Verbenas and red spider.—Watering with soot water will not destroy red spider on "B.'s" plants. Possibly he misunderstood his instructions, which were probably to sprinkle the Verbenas overhead with soot water, or, better still, dip them in it. This, if it does not kill the spiders, renders the leaves and stems too bitter for the pests, and they decamp. But tobacco water, in the ratio of one of juice to three or six of water, according to the strength of the material delivered,

is a more potent and thorough dip for red spider and other insects, and is equally safe if tested before using it extensively. Concoct your mixture, thoroughly incorporate it with the water, dip a few plants and leave for a couple of days and examine them. Should the insects be dead and the plants safe, dip the whole and the pests will be got rid of; but should the pests not be dead, strengthen the dip by adding more tobacco liquor. Should the test plants be injured in leaf or shootlet, water down the dip to safe proportions. All this may seem excessive care to take about such a small matter; and were tobacco liquors of uniform strength, Verbenas or other plants always endowed with the same power of enduring dips, the matter might be reduced to mathematical certainty. But while both these vital factors to the solution of our problem vary widely, there is no safe way of proceeding but by experiment. Dips are also far safer than fumigation, for thrips and spider—and they are mostly associated on Verbenas—will bear almost any amount of smoke with impunity, the leaves and shoots being apt to be burned up before these pests will succumb. Neither will soot water at the roots free Verbenas from rust, if by that he means a sort of canker apart from the effects of red spider and other pests. During the winter clean water is best, as the object is not to stimulate the plants into fresh growth, but to preserve that already made until warm weather or the season of propagation comes. During the season of free growth slight dressings of soot are a useful manure for Verbenas, but, if overdone, they partially burn their roots and may become a fruitful source of canker, *alias* rust. From 45° to 50° is a safe temperature for Verbenas in a state of rest in winter, though the largest collection ever handled by the writer was wintered in cold pits under mat coverings, and at a temperature of about 40°.—Hortus.

—— Verbenas will keep well through the winter in any light, airy greenhouse from which frost can be excluded. "B." should keep them well up to the glass, give as much air as the outdoor temperature will admit; give only sufficient water at the root to prevent flagging, and an occasional dust of sulphur as a preventive of mildew. With respect to red spider and other enemies, put a wineglassful of paraffin and an ounce or two of soft soap in a pail of warm water, mix all well together, and thoroughly incorporate the paraffin with the water by frequent syringings; dip the Verbenas in the mixture. Some varieties keep much better than others, and it is as well to discard at once any that appear weakly and delicate, reserving only those of dwarf, bushy habit and of vigorous constitution. The Verbena has always been a favourite of mine, and I am pleased to say I have discovered a new bedder that is likely to prove an acquisition. Amongst a batch of seedlings it arrested my attention three seasons ago. It was saved and propagated, and has quite answered our expectations. It is pure white and scented. The truss is good and thrown well up above the foliage. It has been very effective in our flower garden this summer. I would strongly advise all who grow Verbenas to select any seedlings that are out of the common, either in matter of colour, freedom, or vigour, the last-named quality being indispensable. Verbenas succeed best in a fairly holding soil—a sandy loam, and if the weather is hot and dry when they are first put out, a slight mulching and good soaking of water are necessary; they should be pegged down as soon as possible, in order that the surface may be quickly covered with growth, and this little extra attention at starting will be amply repaid. One sometimes hears the remark made that the strike of Verbenas has not been good owing to the scarcity of young, tender growths, but this can always be remedied by the application of a thorough soaking of weak manure-water early in August; we secure in September by this means hundreds of good cuttings from a very small bed.—E. B.

Japanese Anemones and Tritomas.—These associate well together, *i.e.*, the variety Honorine Jobert. Much has been said lately about both these plants, but nothing respecting them when massed together. The Torch Lilies, conspicuous as they are, are rendered more so when intermingled with the Anemones, and, on the other hand, the whiteness of the Anemones is enhanced by being intermixed with such brilliant neighbours. Three years ago we had to divide some large plants of Tritomas, but we have found that they do not like division; this is the first year in which they have flowered again, although they started into growth nicely soon after they had been divided. We possess also the red form of the Anemone in various tints, but we find the white sort is always preferred for decorations and vases indoors.—J. Sallier, *St. Germain-en-Laye.*

Gladiolus Colvillei de Versailles.—Bulbs of this plant came to me last spring, along with some other early-flowering sorts, and I concluded it would flower at the same time as the others; but it did not do so—in fact, it was the middle of October before a blossom opened. However, the flowers are well worth waiting for, they are so very pretty. No doubt this variety is known to some, but for the information of such as do not know it, I may say that it is an enlarged form of The Bride, which is well known to be an early-flowering white variety; the one under notice, however, has a beautiful white-pink stripe running down the centre of the three lower petals. The top petals are pure white, while the throat of the flower is pink—colours which contrast pleasingly with those of the other parts of the flower. It is more vigorous than The Bride, and, if it did but flower at the same time, it would be invaluable; but, as it flowers so late, when winds and rain prevail, a good deal of its beauty is lost.—J. C. C.

Planting out Arums in summer.—Mr. Muir (p. 445) does well to recall this practice, at one time more common than it is now. Towards the end of May or early in June the Arum Lilies used to be divided and planted in rich soil; some of the strongest flowered in the open in the late autumn, and the whole were potted up several at times in full flower towards the middle or end of October. By the way, this fine old plant used also to be very successfully employed for the furnishing of shallow tanks in the conservatory. One of the first and finest plants ever seen by the writer was grown in a vinery tank placed over two flue furnaces; it was grown in a 12-inch pot, but the roots overflowed the pot in all directions, and at times used to almost fill the tank. When they encroached too much on the water, a great proportion of the overflow roots was cleared out; more were speedily forthcoming, and the plant did not seem the worse for these severe root-prunnings. Two features about these Arum Lilies in the warm tank impressed themselves on my mind; the first, that the plant was never without leaves and seldom without bloom, either fully expanded or partially grown.—Hortus.

Aster ibericus.—On sending a better specimen of M. Max Leichtlin's Aster ibericus to Kew, I received a letter giving an opinion that it could not be A. Amellus var. ibericus of De Candolle and Boissier. It may perhaps be a variety of hybrid origin, accidentally raised in cultivation. I am sending a plant to be grown at Kew, and regret that I have not more to distribute at present, but it is very slow of increase, seldom making more than one stalk from a plant one or two years old. Hybrid Asters from accidental seed are often found in gardens, and are worth notice because I am convinced that many of the best Asters in cultivation have originated in this way.—C. Wolley Dod, *Edge Hall.*

Primula capitata major.—I quite agree with my friend Mr. Wolley Dod that caution should be used in adding to the names of plants, and in the case of Primula capitata major, to which he alluded (p. 474) some time back, I brought to the notice of the floral committee some flowers of this Primrose, and without leaving the chair said it was only a fine form of Primula capitata, but as the plants developed themselves they seemed to be, horticulturally speaking, new, and as leaves, heads, and flowers were all so much larger than the type, I proposed the addition of major; the strong stem of one measured was 20 inches high, and I doubt this being the tallest. From some experience with Himalayan Primroses, among them P. capitata (see report of the Primula Conference), I do not fear the plant degenerating in this country. Several experienced hardy plant growers who saw the flowers exhibited were of my opinion as to its being a new and valuable plant.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Iris susiana in full growth in November.—Mr. West's note of the unprecedentedly early blooming of Iris stylosa in Surrey induces me to record the early growth of susiana. I am also anxious to learn how to treat it for the best. The whole of our dozen or so of plants are throwing up young leaves and stems, and I fear that the unseasonable growth will tend to the destruction of this magnificent, but never over-hardy, variety by frost. Would a wisp of Bracken wrapped round them insure their safety? or would it be better to box or pot them up and winter under glass? After a good deal of trouble we have obtained a pretty good stock of this fine sort, and should not like to lose it. Last summer we had some fine blooms, and next season we expected many but for this unseasonable growth.—D. T. F.

Moss-covered stones.—When pieces of stone, especially sandstone, are used about a garden for the shelter or general good of plants, they will be found in some situations to be completely coated with bright green Moss. Having, at Oakwood, a long mound in full view of the cottage windows, on which mound it was desirable to put some stone to prevent the soil washing away from the plants, I collected Moss-covered pieces of stone and sunk them about half their depth in the soil. The Moss, though dried up in summer, has become again bright green, so that in place of bare stones we have quite a pretty object to look upon at a time when flowers are almost over. It is possible that this hint may be useful to some of your readers. —George F. Wilson, *Heatherbank, Weybridge Heath.*

NOTES.

Winter colour in the garden.—There is a story told in the studios now and then of a French artist who never studied from Nature, because, as he remarked, she was "too green and too badly lighted." Now, the time of winter, when Nature is all greys and browns, ought to have satisfied at least one of the above conditions, but there is, after all, no hope for the last. If Nature is not always beautiful to us, she will never try to please us at all; she, at any rate, can well afford to await the coming of admirers like a queen. The colours in the garden on these fine sunny November days are very rich and precious—not glaring, like those of the rosy summer-time, it is true, but as is the russet Apple or the red-brown Pear to the rosy cloud, or the snowy whiteness of their blossoming, so now are the winter tints most lovely in the garden. Even the stones, so dry and harsh in summer, are now moist and embroidered with velvety Moss or soft grey Lichen, and Saxifrage or Sempervivum, unnoticed in flowery summer, are now a study in themselves of rich, warm olive-greens and reds and browns. Here and there are brighter glints and gleams of Chrysanthemums, yellow, red, crimson, and brown. There is Veitch's Creeper, with its many-footed wreaths of bronzy red leaflets still slowly creeping up the old grey walls. If you do not know how this plant really walks up a bit of sunny wall, step over to the first bit you see, and you will think its curious method of progression but little short of a miracle. Tufts of flowering Ivy of a golden green are covered with flies, as if the summer time had not yet left us, and there are Violets and Primroses enough in blossom to remind one of spring. But somehow one always feels a tinge of melancholy on these soft, warm November

days, for there is ever present the conviction that they are too good to last—an unseasonable luxury for which we shall have to pay too dearly.

Colchicum Bivonæ.—So far as I know at present, this seems to be the very latest of all the autumnal species of Colchicum. I say autumnal, because I hold that what we call Bulbocodium vernum now is only the Colchicum vernum of Besler's "Hortus Eystettensis," a Colchicum which flowers in early spring instead of in late autumn. I saw a good group of the above C. Bivonæ (Guss.) flowering freely in a friend's garden on November 19, and, as he informs me, he obtained roots under the name of C. lusitanicum of Brotero, this last being, as I suppose, a synonym, but, as I apprehend, it is by no means common in gardens generally. Perhaps Mr. Ewbank or some other lover of hardy bulbs will tell us more of this robust and hardy plant. Its flowers are borne well above the soil, and are of a soft lilac-purple or rose colour faintly tessellated, as is so generally the case with these flowers. It would appear naturally to affect dry localities in the warmer parts of Portugal, Italy, near Naples, Sicily, Greece, and in the island of Crete. As a plant for a high, dry, and sheltered position on rockwork in full sunshine, this late blossoming bulb seems worthy of more attention than it has hitherto received.

Corbularia minor.—The first Narcissus to flower with us opened its eyes to the sunshine of November 21, but Canon Ellacombe tells me that one of the varieties of N. Tazetta, called the Scilly White, has blossomed with him in the open air at Bitton. It opened its first flowers on November 1, and, accidental though it may be, the very fact that it is possible for Narcissi to flower thus early suggests many potentialities in the management of our bulbs. I think it was Loudon who recommended the keeping of bulbs dormant or at rest for one season, in order to make them more precocious the next, but I am not sure if any well directed experiments in this way have ever been tried. The little Hooped Petticoat Daffodil now flowering with us is in a greenhouse wherein it has been grown ever since the late Rev. H. Harpur Crewe made his journey to Spain along with Mr. George Maw. He was the most generous of collectors, and sent me something like a tithe of his lucky finds in Leon and the Escurial. It would not be so very difficult to get such early Daffodils as is N. pallidus præcox to bloom in November, or at the latest by Christmas Day, by growing them, ripening them off, and resting them by keeping them dry in the pots in a greenhouse climate. So treated, it would be easy to have them a little earlier every season, and if well and judiciously nourished when in full vigour of growth and flowering, the bulbs would increase in size and strength instead of deteriorating, as they do when starved and neglected. There is a good opening for anyone who will treat some of the earlier blooming Daffodils from Portugal, Italy, and other warmer lands than ours with the care we give ungrudgingly to Amaryllises or Nerines. As it is, we do not obtain a tithe of the beauty and grace of which Narcissi in pots are capable of giving.

Cultural variability of white Daffodils.—I believe those who originated the idea that white Daffodils will not grow healthily and well in the Chiswick garden of the Royal Horticultural Society have not as yet proved their case. The fact is, they used to grow well there in the days of Salisbury, Haworth, and Herbert, a fact, however, which does not absolutely prove that they will do so now. My own impression is that they will do so, and certainly we may "go further and fare worse" in the selection of neutral territory on which to hold a tournament. I have more faith in a common-sense plan of deep digging and early planting in August than in any scientific investigation whatever. Nutrition nowadays seems to be at the bottom of everything really important in plant culture, and if Mr. Barron does not tell us that the atmosphere at Chiswick is too impure for white Daffodil culture, I would venture to go bail that all other details of soil and culture are or will be well provided. Miss White grows white Daffodils so well, and is such a great authority upon them, that I feel a little taken aback when she mentions growers in the matter. As she wisely observes, there is no competition in the matter so far as growers are concerned, but, as I imagine, no one can deny that any one soil and climate is equally fair and equal in its effects upon any one Daffodil from any number of growers. This is the point, of course, and I hold that Chiswick is the best place for a trial of Daffodils of any and all kinds, if you take all the facts of the case into fair and impartial consideration. Mr. Barron is a past master in trials of this kind, and that he is not Daffodil-mad is, as I take it, a good many points in his favour as an arbitrator in such a delicate matter as this appears to be. I am glad to see that Miss White (p. 474) admits that soils different and places apart do really alter or obliterate the characteristics of white Daffodils. I have upheld this view of the question for some time. I, of course, grant freely that Chiswick may not be the very best place for white Daffodils *per se*, but, considering all things, I believe Chiswick to be the best place obtainable near London.

Bulb growth.—There is a little mystery about bulb growth since, but few of us seem to have any clear and practical knowledge of how the little seedling bulbs get down into the earth, although most of us know that the natural tendency of Crocus, Lilies, and many other full-grown bulbs is not to go down, but to come up to the surface as soon as ever they can. When the seeds of Crocus and most other Irids fall on the surface of the ground, those which fall accidentally into cracks or depressions of the surface have so far the advantage, and these seeds germinate first, the germinal bud or embryo being, moreover, actually pushed lower down into the earth by its normal growth force. There are, however, other agencies at work. I forget the exact details, but in Darwin's work on earthworms he shows how the surface of a field actually becomes raised above a dressing of limestones, and possibly the earthworm also helps to cover up bulbs in the garden by throwing up the soil. In vol. viii. of the "Journal of the Horticultural Society of London," pp. 117, 118, there are a figure and description of Crocus bulb development by Thilo Irmisch, but he, like Mr. Maw, does not allude to the down-thrusting power of the seed on the young germinating point which ultimately becomes the bulb. The main point seems to be this, young seedling bulbs work downwards into the soil on which the seeds naturally fall, and the question I would put to all practical observers of the fact is, how is this done? Only the other day I had to throw a thick top-dressing of earth on to our lines of old Crocus, as the tops of their bulbs were showing above the surface of the soil, and these bulbs were planted 5 inches deep only three years ago. The way the bulbs of white Lilies come to the surface is well known. Veronica.

Imperishable labels.—I send you one of the labels manufactured at Stratford-on-Avon, and which has been exposed to all weathers on a wall facing the west for sixteen years. As you will see, it is in as good condition now as when it first left the mould in which it was cast, and for that matter, if left in the same position, it would evidently last an indefinite time, and as it only cost a penny, no one can say it was dear. On a previous occasion I suggested that nurserymen should send out with their trees this or some other imperishable label, the purchaser, of course, paying for them, and for fruit trees and Roses I see no difficulty why such an arrangement should not be carried out. If a label that only cost a penny will last out the life of a tree, surely it is worth an effort to secure it. For dwarf Roses we have such labels attached to an iron support rising about 9 inches out of the ground, and although they are not legible at any great distance from them, their imperishable nature renders them very suitable for outdoor subjects. For pyramid and cordon fruit trees we use the same kind of iron support, to which the label is attached by a crook at the end, and I am perfectly satisfied with them, as I get a label, iron support and all for the sum of 2½d., and it ensures the identity of the tree for an indefinite time.—J. C. C.

*** The label to which these remarks apply is a little oval one with raised letters, perfectly legible, and apparently indestructible. A hole at the top enables it to be fastened to the wall.—Ed.

Rose Garden.

ROSE STOCKS.

It is refreshing in these times of general compromise to read such a slashing article as that by "T. W. G." (pp. 437, 438). Whatever opposition or enthusiasm it may evoke, no one can fail to admire its thoroughness. It is virtually a peremptory notice to the Manetti to quit, begone, bag and baggage, out of field and garden. It is as easy to do this as to call up spirits from the vasty deep. Will the latter come, or the Manetti begone? That is the all-important question for rosarians to settle, the hard nut for them to crack this winter. As is generally the case, something like a calm has succeeded or followed "T. W. G.'s" sledge-hammer blows on the Manetti. True, "J. C. C." mildly remonstrates on page 453, but he finds less fault with the Manetti than with its removal. Work it where it is to grow, and it will prove anything but worthless. Not a few other stocks would be much improved and sooner converted into charming Rose bushes could this rule be generally applied. Unfortunately, it is impracticable unless every rosarian grew his own stocks and had patience to wait until these could be grown, worked, and developed into Rose trees where first planted. But while the trade is expected to rush up plants and provide them at the cheapest possible rate for the public, Roses must be transplanted, and also transported almost so soon as worked, and the stock that will not bear either or both with comparative impunity must give place to a better one. But is the Manetti really so bad, and the Brier so very good as "T. W. G." affirms? These are questions that can hardly be answered by any one man, however gifted or well qualified to hold and forcibly express an opinion.

While admiring outspoken thoroughness either of praise or blame as much as most rosarians, such sweeping condemnation of one stock and unqualified praise of another is not the likeliest method to beget implicit confidence. People also have a lingering affection for any bridge that has carried them safely over, and there can be little doubt that the Manetti has given a wonderful impulse to Rose culture, and possibly carried Roses into hundreds and thousands of gardens where they could hardly have entered without it. It is also still such a potent factor in Rose culture that it must not be dismissed in disgrace so soon as one loud blast of denunciation has been uttered against it. The use of the Manetti Rose as a stock, its rapid rise to fame and fortune, are matters almost of yesterday, and it will be passing strange should its fall be as rapid as its rise. It almost annihilates time in the raising of Roses, and promised rosarians deliverance from most of their troubles, if not a sort of processional series of triumphs and unbroken prosperity. Rooting

like a weed, growing vigorously as a Willow by the watercourse, taking on all sorts of foreign buds, as to the manner born of the most generous foster-mother that had yet been found, the Manetti became the stock of the period and promised to remain the most popular stock for posterity.

It is hardly an exaggeration to write that Manettis were propagated and planted by the million. How are your Manettis (Briers)? is becoming the question among rosarians as common as, how are your Mangolds or bullocks? among farmers. No inspection of great trade grounds was considered complete until the eyes, fatigued by running along lines or through breaks of glowing beauty of any length or depth, cooled themselves in the broad breaks or wide fields of Manettis. This was as refreshing as a series of headers to a robust swimmer on a sultry day.

The Manetti was written up as the stock for all sorts, classes, and forms of dwarf Roses. Roses in pots, or in the open, Teas or Perpetuals, all must be manetticised before perfection could be reached. This popular stock revealed the mystic art of making weak Roses strong, and strong ones still more vigorous and beautiful.

No stock could foster growth so rapidly; yards were thrown off from this rootstock faster than feet, or even inches, from some other; such, for example, as some Brier own-root Roses, and in such speed there was great profit. There was not only popularity, but more money in Manettis than any other stock, and hence, doubtless, to a great extent its legitimate extension and great commercial success. Not that it was ever quite all gold that glittered in regard to this stock; for early in its history its evanescent character was whispered abroad; but longevity is not everything, retorted its devotees, and, further, they were ready with a plan that rendered the length of life of the stock of small moment. Here is any reasonable amount of vigour. Let us take advantage of it as it flies. By working Manettis low on the root-stock and, in fact, burying the point of union, the Rose is liberally fed by the foreign stock, while it is also, as it were, making a double lot of hay while the sun shines—that is, while its foreign supplies of food last by rooting itself in the ground; and then before the stock perished, or rather, in many cases, the Rose tired of its foster mother's supplies, the bud or graft had developed into an own-rooted independent Rose. This simple means of counteracting the high death rate of Roses worked on the Manetti was promulgated and practised very soon after its general introduction, and I cannot see that thus worked Manetti stocks have proved "the root of all evil," nor the conspicuous failures that "T. W. G." has indicated.

I am, however, fain to admit that they have not seldom been found wanting in permanency, and almost as much may be said of Briers and other stocks. So unsatisfactory are transplanted Roses from certain trade grounds, that not a few rosarians prefer buds in the summer to huge plants in the autumn, and I am not sure that some would not refuse a thousand Roses on fat-rooted Briers as a gift rather than go to the trouble and expense of planting them, as "T. W. G." assures us he would their number of Manettis.

"T. W. G." while praising the Brier seems anxious to have as infinitessimal an amount of it as possible. Hence he advocates working his Roses on the roots of the Brier with the view doubtless of allowing them to root for themselves, as well as feast at the Brier's table so long as the latter lasts. It may be admitted that the latter will provide roots for the Roses longer than the Manetti stocks without counselling the wholesale dismissal of the latter. For after all a very important question seems lost sight of by "T. W. G." in his able and semi-exhaustive article. It may be stated thus: practically the durability of the stock itself, or of the union between the stock or scion, may in the case of the Manetti be of far less moment than it seems at first sight; say, for instance, the stock perishes, or the connection between it and the scion at the end of two or three years.

This may mean the destruction of the Rose, or its resuscitation into a higher, because more independent, life; for surely "T. W. G." cannot mean that Roses that have been assisted to root for themselves on Manetti stocks are shorter lived than those that have been similarly assisted by Brier, Polyantha, or any other rootstock, or that have been struck from cuttings. No; once a Rose or other plant has formed roots for itself its longevity can hardly be affected by such accidental circumstances, as whether the roots were formed from the crown of a stock or in sand or other compost in the usual way. And if not, there is then still a mission for Manetti stocks in the future as in the past in sustaining and augmenting the vigour of Rose or graft, while these are forwarding their intention to become own-root Roses. If, as seems probable, the most important function of dwarf Rose stocks in the future is simply to shorten the period and add to the vigour of their own rooting, then for such a purpose commend me to free-growing, easily-worked Manetti to the difficult-to-work-down-among-the-roots-and-the-mud Brier stocks. But this may be a matter of taste. But as experience shows that the longevity of our Roses is hardly affected by their mode of rooting, and as they root outside the stock as rapidly, if not more so, on the Manetti as on any other stock, and as the latter can be grown into workable form sooner than any other, there surely then is still a brilliant future before the Manetti as the foster mother of own-root Roses. As to the latter, I agree with "J. C. C." that these should be the Roses of the future, and hence I welcome and wish to retain every means at our command, including Manetti stocks, of increasing their numbers with the utmost possible rapidity.

D. T. F.

Roses in November.—It is not often that a collection of open-air Roses is exhibited at a Chrysanthemum show, but at Bath, on November 11, Messrs. Cooling had a really good show of blooms. Of these, the best—*i.e.*, the largest and freshest—were A. K. Williams, Captain Christy, Madame G. Schwartz, Gloire de Dijon, Countess of Oxford, Baroness Rothschild, Bartholemy Jobert, Hippolyte Jamain, Clothilde, Duke of Wellington, Fisher Holmes, Mabel Morrison, and Madame Gabriel Luizet. The last-named was at one time considered to be of no value for affording successional or autumnal blooms, but for the past two seasons it has agreeably surprised those who cultivate it.—W. I.

Rose Cramoisie Superieure.—We have two long borders of this Rose; the first was planted fifteen years ago and partially renewed; the second is only ten years old. We consider Cramoisie Supérieure to be one of our best Roses, these borders furnishing us with flowers all the year round. They were planted in some mixed soil, in which loam formed the greatest part, and they have had yearly a good dressing of cow manure mixed with Parisian street-sweepings. This town product is very much used about here; when well rotted there is no better manure for Vines and Asparagus. In autumn high frames are put up round the Roses, and later on they receive a large shelving bed for protection. All the winter through some thick straw mats (*paillassons*) cover the lights at night, according to the French custom. During the daytime they get as much air as the temperature will allow. As they flower so freely and quickly after pruning, we manage to prune one part while the other flowers in such a way that last year our blooming season began in January and since that time we never have been without blooms. Cuttings of this Rose made in August last strike freely in a sandy soil, protected with hand-lights at first, shading, and after a while giving air according to the state of the weather.—J. Sallier, *St. Germain-en-Laye.*

SHORT NOTE—ROSES.

Cheshunt Hybrid Rose.—This is a robust and persistent blooming Rose, which for cutting has but few equals. If it has a fault it lies in its colour, which I cannot praise quite so highly as Mr. Muir. But even in colour it is an advance on most of its predecessors.—D. T. F.

Miniature Roses.—These are much more effective when planted out in good soil in the open than I supposed them to be. For several years I grew them in pots, and, although interesting when so grown, they did not give so many flowers as I expected. I therefore planted them out two years ago, and from their behaviour this season I am very glad I did so; thus treated, they have proved such perpetual flowerers, that in that respect they have surpassed all other Roses in the garden. In the middle of October, the variety named Mignonette was heavily laden with large clusters of rosy pink flowers. The white variety, Paquerette, has been equally well covered with blooms of the purest white, and, owing to their being in such large clusters, they are certainly very pretty. Since the plants have been out of doors, I find that mildew does not attack them. These Roses evidently like a light rich soil; their roots are not so large as those of other Roses; consequently they cannot grapple with a coarse heavy medium. I may add that I have never pruned these varieties further than to take off just the tops of the shoots which have flowered and to cut out dead wood.—J. C. C.

GARDEN FLORA.

PLATE 572.

ADENOCARPUS DECORTICANS.*

This beautiful free-flowering and perfectly hardy shrub is a native of the mountains of Granada, in Spain, where it was discovered by the French botanist, Boissier, growing as an undergrowth in woods of Pinus Pinsapo. It was first brought into cultivation by Messrs. Thibaut and Keteleer, of Sceaux, near Paris, from whom I received my plant of it in 1883, shortly after a coloured plate of it appeared in the *Revue Horticole*, which first introduced it to my notice, but did but scant justice to its abundant blooming qualities, having been evidently drawn from a small or imperfectly developed specimen of this handsome shrub. It is most easily propagated by seed, which, however, in this country sets but shyly, my specimen bush having this year only perfected half-a-dozen pods, each of which contained only a single seed. It thrives best in comparatively poor peaty sandy soil, and as it does not bear transplanting well, it should be grown in a pot till planted out where it is intended to remain permanently. The general aspect of the plant when in flower much resembles that of the common Gorse, but it is entirely destitute of thorns. It stood the exceedingly severe winter of 1879-80 in the neighbourhood of Paris quite uninjured, so may be considered to be quite hardy.

W. E. Gumbleton.

Comparative hardiness of Platycerium grande.—At the late Colonial and Indian Exhibition were some very good specimens in pots and on wood of Platycerium alcicorne and a superb example on cork of P. grande, the most magnificent of its section, kindly lent for the occasion by Sir George Macleay, of Pendell Court. P. alcicorne is generally grown in a cool, or intermediate house, where in most cases it succeeds admirably; therefore no fear was entertained on its account. But the same could not be said of its companion, P. grande, which, although given in most of our leading Fern publications as indigenous to Australia, is from a much higher temperature than that in which it has recently been placed. In both cases, however, the results have been practically the same; by the side of P. alcicorne P. grande has produced a handsome shield-like sterile frond, and also developed two magnificent fertile fronds, which for size, colour, and texture can bear comparison with the best plants of the same kind grown in heat. What the

* Drawn from a plant in Mr. W. E. Gumbleton's garden, Belgrove, Queenstown, Cork, May 20, 1886.

ADENOCARPUS DECORTICANS

lowest temperature in which it would stand unin jured is, it would be interesting to know; all we can at present say is that it has stood the frequent changes to which it has been exposed well, and this success may be the means of inducing some of us to try the effect of cool treatment on this grand Fern.—S.

WORK DONE IN WEEK ENDING NOV. 23.

NOVEMBER 17 TO 23.

THE weather having greatly improved—only one showery day—we have had a busy time of it, cleaning up after the rain and wind storms, rolling roads and walks, and our soil being of a light, sandy nature, we have been able to continue trenching and clearing off all exhausted crops in the kitchen garden, together with Pea sticks and Bean rods. We are now getting to look a bit tidy in this department, and our next want is frost, to enable us to wheel manure on to the various vacant plots, as also to mulch Asparagus and Strawberry plots. Roses we are already lifting, trenching and manuring the ground, and replanting, after cutting back the long, thong-like roots and any Brier suckers that may be on them. Every alternate year this lifting is done, and the labour is well spent by a long season and a rich profusion of flowers. Before we adopted this practice, mulch and feed as liberally as we knew how, the Roses never did satisfactorily. The first drought or spell of hot weather caused them to become a prey to spider and mildew; now we are seldom troubled with either, and if we do not get show flowers, we certainly do get good flowers in plenty from May to December. Souvenir de la Malmaison we have at the present date in abundance, and in a wonderful state of perfection. Root-pruning—on one side of the tree only—a few strong-growing Pears; only those grafted on the Pear stock require this operation in our light soil, and at very rare intervals indeed. Frequently the pruning of roots on the one side of the tree has the desired effect of inducing fruitfulness; consequently the other side is not done. But should wood-growth be excessive next summer, then, of course, the other side of the tree will be pruned next autumn. Apples we serve exactly the same. Apricots and Peaches on walls are annually root-pruned, if such it may be termed, though it hardly amounts to that. Our borders are wide and are cropped with vegetables, and are annually heavily manured and trenched each year to within 5 feet of the wall to which the trees are trained; this 5 feet is never dug, but is sacred to the roots of the fruit trees, being well top-dressed twice a year, but all roots that during the summer make their way and feed on the new material in the trenched part of the border are cut clean off at the annual trenching. The plan answers admirably, as we never fail in having good crops of fine fruit. The new-made roots in the newly broken ground are, I think, the main supporters at fruit-swelling time, and the cutting back of them keeps the trees in full fruitfulness by a check in growth, and, as it were, enforces a great amount of root formation in the permanent borders, which, being hard, rooting goes on slowly—indeed, I may say under difficulties; but the resistance they meet with causes lateral extension of them till they become perfect frills of roots, and these are far more to be desired than strong, sappy roots, the bulk of which perish during the winter. Began to prune arched cordon Pears and Apples. It is but little they need, as summer pinching prevents the necessity of that; still it is necessary to go over the trees to cut close back any small shoots that may have been left, as well as to shorten any old spurs that may be getting too long or gnarled. An excellent plan to prevent the trees ever getting into this condition is to cut back to within a couple of buds of the main stem a few of the longest spurs on each tree annually. With all fruit trees that bear best on the spur system this is our invariable rule. The foregoing, together with leaf-carting and preparing stable litter for hotbeds, forms the sum total of our outside work for the week. Indoors, there has been a considerable amount of labour spent on Chrysanthemums and other flowering plants, shifting them from one house to another in order to prepare for forcing early Vines, early Peaches, and Figs, as these houses having to be closed up, damp would soon make short work of the flowers. A dry, airy atmosphere free from frost is the best suited for Chrysanthemums, Carnations, and Pelargoniums now in flower; hence we have given them quarters in second Peach house and an intermediate vinery. Bouvardias, Primulas, and shrubby Begonias enjoy warmth, and for the present our Strawberry house is given over to these, and will be for some weeks to come, as we prefer to start our first two or three batches of Strawberry plants in pits that are filled with Oak leaves. Our first fifty plants have now been put in; neither our stove house nor variety of stove plants are of very formidable proportions, but what we have we strive to make the best use of. At present, Calanthes and Poinsettias are the predominant plants, and we have intermixed, or rather made a setting for them with Ferns, principally of Adiantum cuneatum, pubescens, formosum, and farleyense. The present night temperature averages 65°, and from 5° to 10° higher by day; no syringing is done other than to walls and floors early in the afternoon. Violets and Calceolarias in cold frames have all been surface-stirred to prevent the formation of Moss, which is the precursor of damping off, or of mildew on the plants. Air is freely given whenever the atmosphere is at all drying, and when rainy and mild, a little is always kept on by tilting up the lights at back. Put the first lot of Roman Hyacinths in warmth. Potted up roots of Solomon's Seal for forcing, also potted roots of Tarragon and Mint, and put a frame over Parsley on a south border, which will be kept closed up in sharp frost or snowy weather. Began closely packing together with leaves the general stock of Strawberry plants in pots; all we can make room for in cold pits we do, and those thus stored are the plants intended for earliest forcing.

HANTS.

FRUITS UNDER GLASS.

THE ORCHARD HOUSE.

JUST now houses that are made to yield the greatest amount of pleasure and profit will most likely be gay with Chrysanthemums, and the legitimate occupants will be resting in the open air. If well plunged to the rims in coal ashes, tan, or that excellent, but to us expensive, material, Cocoa-nut fibre, and a good covering of horse litter or Fern is cast amongst them, they will not require further attention until the time comes for taking them under glass for another year's forcing. A few start the early batch in December, but the majority leave them out of doors until the end of the year, and although they may be a month later at the outset, with a judicious selection of sorts of Peaches and Nectarines, they pull up time, and have ripe fruit as early as it is worth eating. Where in large gardens pot trees are forced to give the earliest fruit, and at the same time spare good old-established varieties like Royal George and a score of others equally good, the best extra early sorts, well established in their pots, should now be in their places. If properly thinned immediately after the past season's crop was gathered, they will only require careful washing with warm soft soapy water, and placing on inverted pots to favour the introduction of fermenting material and its frequent renovation without disturbing them. Light and fresh air being such important factors, overcrowding is the first thing to be guarded against, for, no matter how well all forcing details may be attended to, neither colour nor quality can be secured where this class of trees are forced dead against Nature, when the sun, seldom seen for days or weeks together, never rises more than a few degrees above the horizon. The next question is the distance from the glass. If strong shoots are shortened before the trees are taken in, 12 inches to 18 inches should be allowed for summer growth; if, on the other hand, this operation is deferred until the flower-buds are safe and swelling freely, allowance must be made for cutting back. Each pot should be well scrubbed, and the apertures for it should have several examined to see that worms have not been at work amongst the crocks. A neat sod of free calcareous turf, placed Grass side on the inverted pots or pedestals for intercepting liquid and keeping the roots at home, will complete the housing. Meantime, well-worked fermenting Oak leaves should be in readiness for introducing loosely amongst the pots when the time arrives for starting. Precocious trees that have been forced for several years, and whose roots have never felt the want of water, will commence swelling their buds without the aid of fire-heat; others, taken in for the first time, may require a little coaxing; but on no account should fire-heat be applied when the minimum can be maintained at 50° without it. The best time to apply fire-heat, when needful, is early morning with plenty of air, and moisture from the syringe should also be applied when the temperature is rising. Direct syringing is not, however, often necessary when the atmosphere is kept moist by the proper use of fermenting material.

Later houses.—These during the time the trees are out of doors should be thoroughly cleansed and painted, but the trees themselves will be best left unwashed until they are wanted. Then, although they may look and be free from the larvæ of insects, it is always a good plan to cleanse with soapy water. A half-worn paint-brush, drawn outwards over the shoots lying on the left hand, is a suitable instrument for dislodging filth and scale; and where the latter has been troublesome a second washing will be found preferable to the use of paint or strong insecticides. When Peach trees have been some years in pots, they make a quantity of short, spur-like shoots thickly clothed with flower-buds, the terminal and perhaps one at the base being the only wood-buds. These the practical gardener may find it necessary to thin out to make room for the succeeding year's growth, but he never shortens them. Strong shoots he keeps in check by summer pinching, and prunes back to triple buds when the trees are dormant. The amateur may follow in his wake, but unless he is thoroughly up, all shortening may be deferred without detriment to his trees until the buds break, when mistakes by which whole shoots are often destroyed will be avoided.

Potting and top-dressing.—If the potting of fruit-bearing trees has been overlooked or neglected, they may still be reduced and repotted in fresh compost, but they will not be safe subjects for forcing. They will, however, if reduced and even washed, commence making new roots immediately and carry good crops in the ordinary orchard house next season. Upon the principle that an empty house is better than a bad tenant, I have dashed the balls of declining trees in a tub of water until not a particle of soil remained on them, trimmed the roots previous to repotting in rather dry compost, and they have not only recovered, but borne good fruit the following year. This driving to extremes is not recommended, but is introduced to show how accommodating the Peach is, and how grateful for a new pasture. Newly purchased trees are often potted from November up to April. The first and last are better than mid-winter, but there is nothing like going to the nursery one's-self, choosing, and potting up at leaf-fall. The compost for potting purposes need not be extra rich, but it should be prepared a few weeks before it is wanted, and used in a semi-dry state. It will then stand any amount of ramming; small rootlets will ramify in every direction, and there will be no possibility of its holding too much water in suspension. For top-dressing it may be a mixture of highly concentrated stimulants, including rich calcareous loam, manure from well-fed animals, bone dust, charcoal, or wood ashes. If these are well mixed and kept covered with fresh stable litter, the mass will improve in quality and keep for a considerable time.

VINERIES.

Pot Vines.—Where the earliest new Grapes are still obtained from Vines in pots, the latter will

now be in position, if already they have not been started. Like Peaches, and all other fruits which enjoy moist bottom-heat from fermenting materials, the first step after cleansing the house should be their arrangement on solid pedestals, which will hold them steady throughout the season. Inverted pots, glazed drain pipes, or dry bricks built up to the required height answer well, the latter perhaps as well as anything, as warmth rises and water descends freely through the chinks. On the tops of these sods of turf should be placed for the Vines to stand upon, but before they are placed the crock roots may be set at liberty by a considerable enlargement of the aperture with a hammer. This will not only remove a barrier to good living, but it will favour copious watering when the fruit is swelling. Beyond this breaking of the bottoms of the pots and rich top-dressing the roots must not be disturbed, as such a course, in my experience, leads to certain failure. Over-anxious forcers have before this day turned their fruiting canes out into troughs filled with rich compost, but the latter has become sour, the balls dry, and the roots have perished. The proper course, then, is to leave the Vines in their pots, be they large or small, and the tighter the roots are coiled the more freely will they show, set, and swell their fruit. When forcing is commenced a good body of Oak leaves cast loosely into the pit, and perhaps a little above the tops of the pedestals, will keep up a continuous ascent of gentle warmth and vapour under which the buds will swell and break kindly; firing in mild weather will be reduced to a minimum, and incessant syringing, which often does more harm than good, to a great extent will be dispensed with. The walls, paths, and other surfaces must, of course, be damped with tepid water, and the fermenting materials frequently turned and renovated, but these operations can be performed without jeopardising the half dormant roots by getting them too wet before the buds break. Once in full leaf, this danger will have passed away. Up to this stage root watering should be conducted with great care, as the best of Vines are often ruined by the constant trickling of water from the can and the syringe, when the blame is cast upon the nurseryman who grew them.

The early vinery.—The modern system of manufacturing and fruiting planted canes within two years fortunately has rendered pot culture almost obsolete. Whether this sharp running of yearlings and two-year-olds will result in the formation of old timber, men now have not time to pause to inquire. Grapes they must have quickly and in quantity to make up for low prices, and if the Vines cannot live to grow into veterans they must fruit and go out as biennials. This system high-feeding growers for market now make one of their specialities. A few private growers are following in their wake, but, like all other produce, there are Grapes and Grapes, and the question arises, are Grapes that are fed and forced up with rich animal manure as good as others from older Vines grown in sound sweet borders? I venture to think they are not, but with the million, size and bulk now take precedence of colour and flavour. When strong young canes are forced for the first time they should not be raised above a horizontal position until all the buds are well on the move. Old ones may be tied to the wires as soon as they are pruned, and, although very little warmth be applied, the buds about their usual time will commence swelling. If confined to internal borders, they should be well watered with water at a temperature of 90° and top-dressed before the house is closed. Then, although here the syringe is less dangerous than amongst pot Vines, a good ridge of fermenting material will be found a powerful aid and save a great deal of trouble. The roots of Vines having the run of external borders will require protection from the elements as soon as the house is closed. The materials used may consist of long stable litter, dry Fern, or a good layer of Oak leaves, with shutters or tarpaulin to secure them from wind and bad weather. Fermentation, it must be understood, is not to take place in these materials—at least for the present—but when the Vines have started, mild warmth from a good layer of fresh, dry Oak or Chestnut leaves is a great help, not only in the production of fresh surface roots, but also in drawing them up through the top-dressing. Many people are averse to external surface warmth because the roots they say perish, and the soil becomes wet and sour. If rank, raw stable manure is used and allowed to get very hot, then very cold cases of poisoning may be frequent, but no one in his senses would think of applying such crude matter to the delicate roots of a tree whose home is on the warm volcanic slopes of sub-tropical countries, remove it suddenly, and then condemn a system which he has done his best to abuse. Manure is a fine thing in its place, but it is out of place on a Vine border, except as a mulch when protection from drought and feeding in summer becomes necessary. Well-harvested leaves, on the other hand, are dry, light, and warm. They draw superfluous moisture as well as roots upwards, and feed the latter when the strain of the crop is upon the Vines. Leave them alone until the crop is ripe, then remove them piecemeal, but on no account expose the roots to sudden chills until the last layer gives way to the autumnal top-dressing of fresh compost.

Figs.

Good forced Figs are not only an acquisition to the dessert, but in many places where a few years ago they were unknown they are now as regularly looked for as Peaches or Grapes. The majority of growers obtain their earliest fruit from trees well established in pots or tubs, but suitable varieties planted out in internal borders of limited area answer equally well; whilst the trees are less liable to sudden checks, which so often prove fatal. In order to have ripe fruit in April, pot trees should be in their places by the first week in December. Like Peaches and Vines, a firm, steady base should be provided for each pot to stand upon, otherwise they will be constantly sinking away from the light, and frequent renovation of the bed will soon become impracticable. When small trees are forced in low span-roofed pits, it may be necessary to place them within the influence of the bottom-heat pipes, when a sod of rich light turf will form a suitable base, but trees from which quantity as well as quality is expected should be something more than toys, and old enough to bristle with short fruitful pieces of spur-wood. The best trees I ever saw were grown by that excellent gardener, the late Daniel Judd, at Hawkstone. They were perfect pyramids, about 8 feet in height, and carried two good crops annually. Each tree stood on a pedestal 2 feet in height, hot-water pipes ran round the house, but bottom-heat was obtained entirely from a bountiful supply of Oak leaves. The manufacture of trees of this size is a work of years, and when once formed, they are worthy of all the attention that can be devoted to them. It is not necessary, neither is it wise, to pot them every year, but all the old mulching and top-dressing, together with the roots which have escaped over the rims, should be removed when the second crop is over at the wane of summer. Fresh compost placed about them at once, and proper attention with water, ensures a wig of fresh roots ready for their work in November or December. Where trees of this class exist, if not already done, they should now be well, but very carefully washed with soapy water, and, although the balls have never been dust-dry, moderate supplies of tepid water must be repeatedly given until they are brought back to growing order. When placed in position, each tree should have plenty of room to develop the coming year's growth, as well as to admit of getting in amongst them. Well-worked leaves in a mild fermenting state, thrown in rather loosely at first and in sufficient quantity to hide the bottoms of the pots, will soon produce gentle excitement of the roots, and, although invisible, the continuous supply of moisture will tell upon the embryo Figs also. Although this warm vapour will greatly reduce the necessity for continuous winter syringing, the Fig being so terribly subject to insects, tepid water may be applied to the trees and walls when the day temperature begins to rise, and again when the maximum is reached between twelve and one in fair winter weather. As days increase in length after the turn of the year and the trees get into full leaf, the second syringing may be a little later, but always in time for the foliage to get dry before nightfall. Notwithstanding the fact that the Fig will stand any amount of tropical heat when the fruit is swelling, it is not well to hurry it through the early stages; therefore, let forcing be commenced at a minimum of 50°, and 5° to 10° more by day when the weather is mild for the season. The sun being so weak and seldom seen in December, its influence cannot be depended upon; but when it does touch a sharp-angled roof a few more degrees at mid-day will give strength and favour the outlet of vitiated air.

Succession houses containing trees growing in internal borders may now be taken in hand as opportunity serves. A month or more may elapse before they are started, but every day will bring its work, and where labour must be sharply organised to make both ends meet, pruning should be kept well in advance when cleansing and tying can be performed on wet days. Where trees are trained upon modern principles, *i.e.*, the main branches in a horizontal position and the intermediate or fruit-bearing shoots, always from the top side, slightly on the rise, all the alternate shoots from which the second crop was gathered may require cutting back to a single eye. Those left and well furnished with embryo Figs will give the first crop; whilst the summer shoots which start from the back buds so left will produce the second on green wood. Old-fashioned trees whose name is legion have a gnarled and twisted appearance, and in order to secure a good point wherever it is wanted not unfrequently contain a great deal more distorted wood than is absolutely necessary. These it is hardly possible to reduce to modern lines, but considerable progress might be made by root-pruning to check growth and cutting a great number of long, straggling pieces back to dormant buds. The quantity from the first gathering may be reduced, but the quality will be improved by the inlet of sunlight and air, and the summer shoots will more than balance the account by producing a heavy crop after midsummer. In days gone by the roots of Figs were allowed too much freedom, and fagots of gross wood were allowed to grow into a tangled mass to carry off the superfluous sap. A few Figs near the exposed points ripened, but the greater part of the crop never reached maturity and dropped off after the leaves fell. All this is now changed by annual root-pruning, and the Fig at one time unmanageable is now as tractable and reliable as any other fruit tree.

Young stock.—If propagation is contemplated, short-jointed and well-ripened pieces of wood with good points should be selected from the early prunings. If taken off with a heel and divested of all their lower buds, to prevent the growth of suckers, they may be potted at once and set aside safe from frost until the 1st of January, when they must be plunged in bottom heat and treated precisely the same as Vine eyes. Young trees struck last year and intended to make another growth before they fruit may be set aside in a dry, cold house also safe from frost until the turn of the year, or they may be shaken out and potted at once. Clean, well-crocked pots 8 inches across will be quite large enough, and, provided they are well watered or soaked before the old balls are broken, they will not require more water until they are taken in for starting. Pot Figs enjoy good living and make good trees in small pots in a short time under high pressure. The compost which suits them best is light, rich, turfy loam, or heavier loam corrected with charred wood and refuse from the rubbish-yard fires, old lime rubble, and a small quantity of old cow manure. These should be thoroughly incorporated some time before the compost is required for use, and after trimming back the straggling roots the trees must

be firmly rammed with the potting-stick Bottom heat is an important aid to quick growth, but where this cannot be given, the young trees will make fair progress on the kerbs of early vineries. If pyramids are wanted, each tree must be staked as soon as it is potted and the most promising shoot tied up to form a straight leader. These leaders will require pinching from time to time as growth proceeds to induce the formation of side shoots. Bushes can be formed by judicious summer-pinching and frequent pressing downwards of the young growths to give them a horizontal position. The varieties of Figs are now numerous, but until they are thoroughly proved satisfactory results will be obtained from Brown Turkey, White Marseilles, Osborn's Prolific, and Negro Largo. W. Coleman.

Eastnor Castle, Ledbury.

Kitchen Garden.

FORCING ASPARAGUS AND SEAKALE.

Asparagus started now in a bed of from 75° to 80° should be fit to cut by the beginning of the new year. To obtain a steady temperature a mixture of tree leaves and stable manure is better than all manure, as less turning and mixing will be necessary to sweeten the fermenting material before the bed is made up. If forced in a frame—an excellent plan—the bed should be from 9 inches to 12 inches wider on all sides than the frame, and the inclination from back to front should be from 9 inches to 12 inches, according to the width of the bed. If about equal portions of leaves and manure are used, the Asparagus roots may be placed on the bed as soon as the heat rises, as there is no danger of overheating. At this season the bed should be about 4 feet high at back, and about from 9 inches to 12 inches lower than that in front. The Asparagus roots must be lifted carefully without injuring the crowns or lacerating the roots, and should, of course, be of sufficient strength to produce good-sized heads. Young plants, four years old, will force well, and start away quickly on the application of heat, the tops coming well together, and as the roots suffer from exposure, the bed should be ready to receive them as they are taken up. Where it is necessary to keep a regular supply of forced Asparagus in winter, the rows of plants must be covered now with litter to keep out frost. Make the surface of the forcing bed level and firm by treading, then put in 2 inches of light rich soil, and on this place the roots as near together as can be done; the closer the crowns are placed together the more the frame will produce.

After the frame is filled with roots cover with light rich soil 2 inches in depth and water with tepid water to settle all down. The frame should be covered with mats till the young Asparagus heads are peeping through the soil, when air and light will be necessary to give flavour and colour. Those who prefer white or blanched Asparagus must place a greater depth of soil on the crowns. It is a disputed point, and one I am not called upon to discuss here as to which is the best, the blanched or the green. I suspect it is a matter of taste. There are other ways of forcing Asparagus; indeed, from this time onward to the spring it is one of the most manageable plants to force. It is chiefly a question of procuring plenty of strong roots. Given a steady, regular, genial temperature, Asparagus can be forced anywhere. It may be forced in pots, boxes, or baskets, in a Pine stove, or Cucumber house, or a vinery at work. The roots may be started first in a Mushroom house in the dark, and be moved to the light, when the young succulent heads push through the soil to give the finishing touches as regards flavour and colour. Beds of Asparagus are sometimes forced as they stand in the open ground, and in this way they may, after a season's rest, be utilised again. Simply covering the beds over with frames without any artificial heat will bring on the produce much earlier in spring. Keeping the summer's warmth in the ground, and attracting the sunshine in the spring, will make three weeks' or a month's difference, especially if the spring be a backward one.

Seakale-forcing may go on briskly now. There are many ways of doing this. The old-fashioned plan was to cover with pots and a mixture of leaves and manure. This plan is not much followed now, as it takes much less labour to transfer the roots to the heating apparatus than to bring the heating medium to the roots. In many gardens the Mushroom house offers every facility for forcing Seakale, Rhubarb, Chicory, and many other things—in fact, the Mushroom house is a very valuable structure when made the most of, and might with advantage be made much larger than it is in most gardens. When forced in a bed in the Mushroom house or in a pot, the Seakale roots should be planted about 2 inches or 3 inches apart, according to the size of the crowns, but it is rare for all the crowns to start up together. The temperature should not be much below 55°, nor yet much above 60°, and light must be altogether excluded. When the roots are lifted, all the small side shoots should be cut off and the tap root shortened; the thongs or cuttings to be preserved in sand till March, and then planted to raise plants to force next year. Seakale roots may be forced in pots or boxes. Plant five strong roots in a 10-inch pot and cover with another pot of similar size, and envelop in an old sack or a mat. Any number of pots may be filled at the same time and brought on under the stage in a forcing house; they must be deeply covered, or the roots may be planted in a deep box with a close lid to shut down. The boxes can be moved anywhere. E. Hobday.

White Elephant Potato.—In the spring of 1884 I planted two tubers of this Potato, the produce of which was lifted at the end of summer, and stored for planting the following spring, none being made use of. They were planted in March 1885, and lifted at the end of August. A bushel was made use of, and the remainder stored for planting again, which was done in March this year. The crop was taken up in the third week in August, and amounted to no less than 112 bushels, or about three tons of very fine Potatoes and of excellent quality. I may add that no special preparation was made for them; they were planted with the general crop. From the time of planting the two tubers and digging the three tons was about two and a half years.—D. Uphill, *Moreton, Dorchester.*

GRAVEL AS A SEED BED.

Mr. G. F. Wilson, of Heatherbank, to whom all readers of The Garden are largely indebted, calls attention to gravel as a seed bed and as a protection from frost. As to the first, those responsible for the good keeping of many yards or miles of walks or roads are only too familiar; whether it be the hardness, the colour, the mechanical texture, the very sterility of gravel, or the porosity of gravel that foster the germination of seeds, or some hitherto hidden chemical properties, seems uncertain; but the fact of a gravel bed fostering germination to the uttermost is only too patent to all who have to battle with crops of weeds on gravel. Most cultivators have also had many proofs of the abnormally active and perfect germination and rapid growth of garden plants on gravel surfaces, such as those that Mr. George Wilson refers to. But the powers of gravel as a frost-resister have, so far as I am aware, been now mooted for the first time by Mr. Wilson; that these are very considerable seems also established by the fact that sifted gravel holds a great deal of air in its numerous interstices, and also by Mr. Wilson's experiments. Having admitted so much, it may seem almost an ungracious act of temerity to call a halt before going into gravel or fine-sifted stones largely as a protector against frost. We are all familiar with the use of sand for this purpose. Doubtless Mr. Wilson would say that his inch stones would be more effective almost in the ratio of their excess of size over sand grains, and doubtless, area against area, a heap of small stones would contain more air than a heap of sand.

But then we have other materials besides sand, coal ashes, charcoal dust, pounded coke, cocoa fibre refuse, sawdust, spent Hops, &c. Several of these may be scarce or costly, and so impracticable on any large scale. But several of them are cheap and plentiful, even more so than gravel. Neither do I understand Mr. Wilson as being so sure that gravel is best, as to counsel the discarding of any other proved protector in its favour. Quite otherwise; he suggests the trying of gravel of different degrees of coarseness by way of experiment, and such experiments cannot fail to prove useful. Still, on the good old principle of speaking well of the bridge that carries one over, I wish to testify to the great efficiency of coal ashes as a protection for bulbs and other plants against frost. From 4 inches to 6 inches of coal ashes are invulnerable to frost in our climate. It is more efficient when the fine residuum in the form of dust is sifted out. Coal ash is plentiful, cheap, light, everywhere present or procurable. Its lightness constitutes a double or treble merit; thus it is easily applied and removed, and also lifted up or pushed aside by leaf or stem should the bulbs or plants commence growth under their frost-protectors, as they not seldom do; it holds as much or more air, and will exclude as much or more cold as gravel or small stones. Coal ashes, as well as spent tan, Hops, coke, and sawdust, also prove antagonistic, if not perfect antidotes, to slugs, snails, grubs, and other pests, while stones or gravel, especially in a damp state, may be defined as neutral. Only those conversant with the ravages of slugs among Lilies and other bulbs will be able thoroughly to appreciate the superlative practical importance of combining powerful protection with discomfort or death to the slugs. There is one more thing to be urged in favour of coal ashes: they combine a maximum power of resistance to cold with a minimum measure of compression or injury to the surface covered. Cover a surface with sawdust, tan, or spent Hops, the chances are we get substances into the soil that may injure our roots; cover it with gravel or stones, they may sodden or sour the soil; but use ashes, and the surface under them will be found almost as mellow and sweet as before.

Hence, I would confidently advise all young cultivators to stick to coal ashes, as if not the best, the next to the best protector within easy reach of cultivators. D. T. Fish.

Garden Destroyers.

THE EUCHARIS MITE.

It has been frequently stated of late in The Garden and elsewhere that there is no cure for this destructive little pest, but the result of an experiment made by me this season proves this to be a mistake. As is well known, the mite does not confine its ravages to the Eucharis alone; there are other plants which it favours with its attention, notably the Vallota, and it was with a bulb of this that the experiment in question was made. This bulb, which is the eximia variety, came from a private garden, and seeing after a time that it was not doing well, I turned it out of the pot and found that all the roots were destroyed. Examination revealed the presence of the mite in considerable numbers. I carefully cut away all diseased parts, washed the bulb and placed, it in gentle bottom-heat to encourage the production of new roots. For a time this seemed to have the desired effect; new leaves formed, but then they turned yellow, and I found that the mites were as numerous as before. It then occurred to me that the new remedy for mildew, *i.e.*, sulphide of potassium, might kill them, and having just previously dissolved 3 oz. in half a pint of water, I dipped the bulb in it and then laid it in the soil again. Several days afterwards I found on examination no traces of the mite, but thinking that some might appear later on I looked again in the course of a fortnight and found one or two. I again dipped the bulb in the same solution, and since then it has grown away with considerable vigour, looking as healthy as any bulb in the place.

As will be remarked, the solution used is very much stronger than any insecticide hitherto recommended, and it is, of course, the extra strength that has effected the cure. Whether this strength, which is equal to 3 lbs. of sulphide to the gallon, would be injurious to Eucharis bulbs I cannot say, but I know that it has no effect on Vallotas, and it is worth knowing how to get rid of the mite on them. This is the only instance with me of the mite having appeared on Vallotas, and not a bulb of my own raising has suffered, which shows how careful those who have a clean stock should be when adding to their collection. Had I not been fortunate in discovering the pest and taken prompt measures in separating the infested plants from the healthy ones, I should have had much labour and vexation later on, for I believe the mite increases with great rapidity. I did not intend to make this experiment public just yet, thinking that I might have the opportunity of again testing the efficacy of the remedy, but as I saw it stated quite recently in THE GARDEN that the only thing to do with infested Eucharis is to throw them away, I give the result of my experience at once, as it may be the means of saving some collections from the rubbish heap. One thing is certain, *i.e.*, that sulphide of potassium at a certain strength will annihilate the mite; the next thing to find out is whether it will injure Eucharis bulbs, which are, of course, more tender than those of the Vallota.

I would advise those having infected bulbs to use the sulphide at varying strengths on a few bulbs, as that is the only way of ascertaioing what they will bear without injury. In any case, it will not do to rely on one dipping. There are sure to be some left, and, however few these may be, they will multiply sufficiently in the course of a year or two to hinder growth. When the bulbs are cleansed, they ought not to be potted, but be laid in in light soil right away from the house in which they are growing, and if the pots have been plunged in tan or cocoa fibre, I should be inclined to clear it out, or at least the topmost portion where some of the insects are likely to be. J. C. B.

CLOUDS OF APHIDES.

THE immediate cause of the sudden appearance of clouds of insects in certain localities is not very apparent, but it may be surmised that the predominance or scarceness of their natural foes has much control over the phenomenon; added to which must be taken into account the effects of weather and temperature. On October 5, Mansfield, on the borders of Sherwood Forest, was visited by a cloud of aphides, which swarmed in the town and over the country round, across an area of many miles. The town was visited "literally by millions—everyone, as they walked along, waving their handkerchiefs or newspapers before their faces to avoid inhaling the insects. . . . Wet paint was covered by a mass of these black aphides." This swarm continued with decreasing numbers throughout five days, and heavy rain during part of this time did not seem much to affect them. On the road to Nottingham these insects were noticed as engaged in singular gyrations and undulatory dances above the tops of the Spruce Firs, there forming dense pyramidal columns. A similar cloud, but less remarkable as to numbers, was observed about the same time at Birmingham; which, however, as it must have been at least 40 miles distant, can be scarcely considered as a part of this same swarm. Possibly similar causes operated to produce the like phenomenon in both places. These insects proved on examination to be Aphis persicæ of Morren, A. rapæ of Curtis, and A. vastator of Smee. It is a veritable pest in some years, doing considerable damage to Turnip, Mangold, and other crops, and in our gardens injuring our Peach trees. This present notice of its swarming is, however, by no means unprecedented. In September and October, 1834, Morren noted an immense swarm all over Belgium, and states his belief that it came across from England. He says they obscured the light of day, and covered the walls of the houses so as partially to conceal them. Gilbert White notes that in August, 1785, the people of Selborne were surprised by a swarm of "smother flies." Those who were walking in the streets found themselves covered with these insects, which blackened both hedges and vegetables. White thought these might be emigrations from the Hop gardens of Kent and Sussex, and from those near Farnham. If so, the species differs from the insects above noticed.—G. B. BUCKTON, in *Nature*.

Begonia insects (*Miss G.*).—Your Begonia roots are attacked by the grubs of the black Vine weevil, or some very nearly allied species. The only practical way of dislodging them is to unpot the plants and pick the grubs out of the roots. Any insecticide which would kill them so far below the surface would injure the plants. The parent weevils are very destructive to the foliage of many plants, gnawing great holes and notches in the leaves. The best way of destroying this insect is by killing the weevils. This should be done at night, for it is then that they feed. During the day they hide themselves away, so that they are very difficult to find. When the leaves of a plant are attacked, place it on a white sheet, and at night enter the house suddenly with a bright light. This generally startles them, and they fall, feigning death; if they do not, even after a smart shake of the plant, search it well.—G. S. S.

LOBELIA CAVANILLESI.

THIS showy species was introduced from Mexico about fifty years ago, but afterwards lost to our gardens. The only way to grow it with success is to cultivate it in the open air, either in pots or

Lobelia Cavanillesi.

planted out. It may even be treated as an annual. Plants of it sown in February began to develop flowers in abundance at the beginning of August, and have even produced ripe seeds, a circumstance which scarcely ever happens in the case of Lobelia cardinalis or fulgens. Plants of it, if wintered in a greenhouse, will of course begin to bloom earlier, and probably also more abundantly, than seedlings. One of the principal merits belonging to this Lobelia is the beautiful colouring of the flowers, the tube being brilliant scarlet with orange-yellow tips. For re-introducing this species we are indebted to Messrs. Haage and Schmidt, of Erfurt. It will prove to be a welcome addition to Lobelias now cultivated in gardens, and some good hybrids may be expected from it. It is equally desirable when grown as a pot plant for market or for decorative purposes, or when planted out in groups or beds. Its lively green and slender foliage contrasts admirably with its beautiful, bright red and yellow-coloured flowers.

NEW POMPON JACOBÆA.

(SENECIO ELEGANS POMPONIUS.)

THIS new handsome Pompon-flowered variety of dwarf Jacobæa is being distributed by Messrs. Haage and Schmidt, of Erfurt. It is very regular in habit, and the flowers are short-petalled, small, and beautifully imbricated, rivalling even the prettiest of the Pompon Chrysanthemums. This variety is perfectly constant, and produces without any exception very double flowers, while the older varieties bear sometimes double, semi-double, and single flowers on the same plant. It is well adapted for borders, or for the formation of carpet beds; the colour, being bright purple, is very effective.

FRUIT GARDEN.

THE FRUIT GARDEN IN AUTUMN.

THERE are certain general principles that underlie the whole business of gardening, and which more or less influence all we do. In the matter of pruning, for instance, we should firmly grasp the fact that the leaves are the lungs of trees. This every pruner should know, and indeed every man who is employed about a garden, whether for pleasure or profit, for most assuredly such knowledge is valuable. If the leaves were constantly picked off a plant, debility would set in, and death would soon follow. It is plain, therefore, the leaves should have the first consideration. The sun is the chief factor in fruit culture; through its agency, assisted by the atmosphere, the work of separating the true sap from the surplus water which the roots send up is performed. If we have a piece of land to dig and more men are placed upon it than have room, the work will be badly and expensively performed. This is just what takes place when a trained, or for that matter, any fruit tree is allowed to become crowded with wood. It is easy to tell by its growth and foliage when a tree has its roots deep in the earth beyond the influence of solar warmth. Long-jointed, soft, watery wood and soft, spongy leaves which hang on till detached by frost are indications which cannot be mistaken of the evils of deep-rooting.

The pruning of wall trees where the summer pruning has been properly attended to will consist mainly in the removal or shortening back of the snags left from the summer pruning. Occasionally an old spur will require removal, as it is in the nature of things that the old should give place to the new; and by this gradual removal the bearing wood of the tree may be kept in a constant state of usefulness. The most important part of the pruner's work is to so regulate the growth of the tree that the sunshine and air can penetrate every part of it. One good, leathery leaf firmly built up under the conditions I have named is of more value in bringing forth a plump, fertile bud than three or four weakly things that, from their overcrowded condition, cannot produce or render any assistance in the organisation of vigorous blossoms. As a rule Pear trees are so trained, that the spur system of pruning is the only one applicable to them; but stone fruits—the Plum, Apricot, &c.—are often treated on a different principle, and Peaches and Nectarines form a distinct class by themselves so far as regards their pruning and training. The best way of pruning the Plum and Apricot when trained to a wall is to encourage the production of natural spurs, and to this end as much young wood as space can be found for without overcrowding should be laid in every summer. The artificial spurs are created by the knife when the young shoots are shortened back in summer, but the natural spurs spring from the young wood without any aid from the knife, and the only way to obtain these is to lay in plenty of young wood. Wherever there is room to lay in a young branch in summer, and if it is not overshadowed by foliage the sun will ripen it, and probably little spurs will form which will develop blossoms and fruit, and these nestling close to the wall escape spring frosts and come to maturity. With the view of making room for the young wood, an old spur or an exhausted branch may with advantage be cut out, always supposing that the work be done in a temperate and tentative manner. One of the greatest evils in fruit culture on walls, especially where the fan system of training is adopted, is the overcrowding of the branches; there is less danger

with horizontal training, though often in the case of Pear trees more room may be given with advantage. A foot between the branches of Pears on a lofty wall is hardly enough when the trees get old and the spurs spread out. When every bit of wall surface is covered up with wood and foliage the rays of the sun cannot reach the wall behind, and a good deal of its ripening, nourishing influence is lost. This is especially important in the case of Peaches and Apricots, where maturity of the wood is everything.

Winter dressing for insects.—Gishurst compound, dissolved in rain water at the rate of 5 ozs. to the gallon, makes an excellent wash at this season for all fruit trees, whether insects are present or not. If the trees have during the past year been free from insects, it may be syringed over them when the pruning and training are finished. Its benefits are considerable as a preventive, and it cleanses the bark from all impurities; when the trees are infested with scale or any other kind of insect, a brush should be used for all the thick branches, and in bad cases the trees should be unfastened from the wall so that all parts of the tree can be got at. This dressing now, if effectually done, will save much time in the spring and early summer, when, perhaps, there will be many other matters pressing upon us, and it is always better to prevent than to cure. Paraffin oil, at the rate of a wineglassful to a gallon of the mixture, will tend to make it more effectual, but in order to keep the oil well blended the mixture should be frequently shaken or stirred, as the density of the oil being less than that of water it will float on the surface unless frequently agitated. The simplest and best way of doing this is to syringe each alternate syringeful of the mixture back into the pot. E. Hobday.

Grapes at Longleat.—Some time ago I called at Longleat to see the Grapes grown there. One vinery—a span roofed one—is 200 feet long and 30 feet wide, and is divided into three compartments, in which there is plenty of heating power, efficient ventilation, and large tanks. The latter are heated, so that during the growing season a plentiful supply of water is given the roots at a temperature of 80°. One compartment is planted with Black Hamburghs, consisting of four Vines, two on either side, the whole carrying at least 300 bunches, some of which were very fine, each bunch probably averaging 3 lbs. The next division contained Muscats. This, like the previous one, has but four Vines, carrying 360 bunches, each of which would average 3½ lbs. The last division contains two Lady Downes, two Alicantes, and one Mrs. Pince, viz., five permanent Vines. Lady Downes was carrying 150 bunches, each of which would average 1¾ lbs. The Alicantes carried 120 bunches, each averaging 3½ lbs. They were swelled and black as Sloes. Mrs. Pince had not done quite so well as the others, amongst which the Muscats are the best.—A. Evans.

Market Pears.—"R. D." gives (p. 471) a list of good market Pears and the prices which they realised during the present season, but he does not mention the market in which the prices quoted were obtained, and I must say that Pears at the prices named make one anxious to know a little more about them than can be gleaned from the information given. I have no wish to question the accuracy of "R. D.'s" statement, but I feel sure he has been unintentionally led into error by giving second-hand information instead of what is always so valuable, viz., a record of bare facts. For instance, he says Calebasse Pears of inferior quality, but large in size, realise 24s. per bushel, and Williams' Bon Chrétien 20s. per bushel. Well, I can safely say, that fruit worth that money ought not to be sent any distance in bushels at all, but packed in single-layer boxes. Large fruit is very liable to bruise and to lose 20 per cent. of its value by a rough shaking. I only hope that "R. D.'s" informant was correct, for if so, he could hardly have any cause to complain about glutted markets or low prices, and of one thing I am fully convinced, viz., that in the southern counties we could very successfully compete with the foreigner in growing first-class market Pears that would quite equal imported ones. I had myself very fine crops of Pears this year on bush and pyramid trees, but I must own that nothing like the prices given above were obtainable for them. —J. Groom, *Gosport.*

DOES FRUIT-GROWING PAY?

With this year's experience before us it would at first sight appear that the reply to this question must be in the negative, but I am disposed to affirm that fruit-growing does pay, *i.e.*, provided it is carried out in no half-hearted manner. For many years past much less attention has been paid to fruit culture in the provinces than was the case, say, about half a century back, and if this somewhat unfortunate season has the effect of still further impeding progress it will be, to say the least about it, matter for regret. All around large towns, and especially in the home counties within easy distance of London, immense quantities of all kinds of fruit trees have been planted during the past twenty-five years, and if the railway companies could be prevailed upon to carry something like half of what is grown at a much cheaper rate than they now do into some of the worst supplied country districts, we should hear much less about losses having been sustained.

New double Jacobæa (Senecio elegans pomponius). See p. 502.

According to present accounts, the London markets are too well supplied with fruit, and, as a consequence, prices are very low indeed, though, if I am rightly informed, the consumers on the whole do not get the full benefit of this abundance. The more important provincial towns are also fairly well supplied with all kinds of fruit in season, but the case is very different in numerous smaller towns, few of which are overdone with any kind of garden or orchard produce. At the present time Apples are very scarce, and 4s. per bushel and upwards, according to quality, can be had for them, and it is only when they are exceptionally plentiful that they do not realise good prices. Here we are in the midst of a fertile district, and one in which Apples and nearly all other hardy fruits thrive remarkably well, and yet we have to depend upon growers from a distance, notably America, to keep up the supply. Notwithstanding this, there are no signs of our orchards being increased or improved; on the contrary, there is every prospect of a still further decadence both in the quality and quantity of the crops grown.

At one time nearly every farmhouse had an orchard near it, but when these have become worn out, as all orchards will do unless exceptionally well treated, they are either allowed to fall or are grubbed up, and one looks in vain for young trees to take their place. Many farmers do not even grow sufficient Apples for their own table; and it is this want of energy, enterprise, or whatever it may be termed, that has led to so many of them failing. Some seem to think that landlords ought to plant new orchards, and there is much to be said in favour of this view, but, according to my experience, if the trees were planted by the landlords, tenants in many instances would also expect them to protect them from cattle. In some few cases we see an attempt made to renovate an orchard, but such efforts are usually attended with failure. Nor is this to be wondered at, seeing that the trees are frequently planted on land that has been occupied by orchard trees probably for fifty years previously. It is useless to plant a tree in a small hole, even if filled with perfectly fresh compost, as the latter will only sustain vigour for a short time. No; this is not what is needed. A young orchard should be planted on a perfectly fresh site, the soil should be deeply worked and well manured, and it may be cropped till such time as the trees cover most of the ground, then Grass may be allowed to grow. An orchard thus treated would produce Potatoes and other roots without impoverishing the trees or thereby inducing them to strike root down into an unkindly subsoil. One of the best orchards in Kent was also for many years a Hop garden, and I could point to various other instances where the ground was made more profitable than ordinary farm land up to the time the fruit trees required the space. Even after an orchard has been grassed over, the farmer finds it of great service in various ways, especially if it adjoins the homestead, as it ought to do.

Some hesitate to plant fruit trees, thinking that, in their time, they would not prove remunerative, and if this were really an indisputable fact, landlords ought to do the planting. But that is not so, unless indeed they purchase dried-up trees that have been to more than one market, and plant these on old orchard ground. If good trees, not necessarily the dearest that can be obtained, are purchased, and at once planted on good ground, these, if allowed to grow naturally, or with only sufficient pruning to form good heads, will soon arrive at a bearing state. Starvelings will commence to fruit at once, but it is far better for a tree to make vigorous growth before it fruits heavily. Orchard trees are very different from closely-pruned miniature specimens seen in gardens; these require root-pruning, both to check gross ness and to cause them to be fruitful. Although I have confined my remarks to Apples, it by no means follows that these only are suitable for orchards. Pears, Plums, Damsons, Cherries, Filberts, and bush fruits are all well adapted for culture in orchards, and with plenty of variety there is much greater certainty that one or other kind will pay the rent, if no more. I have termed this a somewhat unfortunate season, not because there have been many failures, but quite the reverse, there having been too many Pears, Plums, and bush fruits, notably Gooseberries, to be profitable. It is when crops are light that prices are best, but, as before hinted, the time may come when the facilities for distributing orchard produce in less favoured localities may be more equable, and then fruits will pay well even in times of abundance. It is to be regretted that something could not be done with the many tons of Plums that have been either spoiled, or as good as given away in Plum-growing districts, especially at Pershore, in Worcestershire. Damsons, I believe, are extensively bought up for dyeing purposes, and we all know that surplus supplies of Apples can be made into good wholesome cider. Filberts, whether grown scientically, as in Kent, or roughly, that is to say, without pruning, as in Somersetshire, Dorsetshire, and other western counties, rarely fail to be profitable, and some seasons they are more remunerative than any kind of fruit, yet we never hear of many being planted

hereabouts. Walnuts, again, used to be planted near farmhouses and gentlemen's places, but in very few cases do we see any young trees springing up to take the places of the giants now decaying. Not much planting now-a-days for our heirs in the case of Walnuts, and it is just the same with Mulberries. The latter are now to be seen only in old places, and in many instances these are past their prime and splitting up; yet they never fail to bear well, and their juicy, acid fruits are much liked by some. Instead of being content to sit down and wait for everything to be sent us from a distance, including foreign parts, we ought to be up and doing and learn to be more self-dependent, as in the "good old time" when railways and steamships were not such important factors in all undertakings as they now are.

Somerset. W. I.

STORING APPLES AND PEARS.

Many complain that their Apples and Pears are keeping badly. Well; we have a good deal yet to learn in the matter of storing fruit. I have seen fruit rooms built specially for storage in which the fruit kept so badly that they were given up as failures, and some ordinary shed or outhouse substituted. My impression is that for storing late-keeping fruit the system of open shelves is about the worst that could be devised, as spread out in that way the fruit parts with its moisture too rapidly, and when ripe the fruit is by no means so juicy as it ought to be. Rather than store on shelves I would store in bins or tubs, or even in large heaps on the floor. In Kent many of the fruit growers, who are also Hop growers, utilise the Hop kilns for storing late-keeping Apples in winter, and such sorts as Northern Greening, Wellington, and others that come in after Christmas are put into large heaps on the floor and covered with straw, out of which they come in spring with scarcely any loss of weight, and very few decay. I may also mention another case—that of a cottager who had a much larger quantity of Apples than he had means of storing, and, owing to the low prices offered at the time, he resolved to try and keep them through the winter. He therefore purchased some empty casks, packed them full of Apples, and then set them in a shed. When severe frost set in he covered them over with protecting material, and he was so well repaid in spring by the increased price obtained for them, that he resolved in future to store all his fruit that would keep for any length of time rather than part with it for about half its real value. I am, therefore, sure that many owners of gardens who find a difficulty in storing their fruit will do well to try the barrel plan for late hard Apples and Pears. One of the most important points to bear in mind is not to gather too soon; if left until the main bulk of the crop is ready to come off easily, maggot-eaten and specked fruits will have dropped prematurely, and at gathering-time there will be nothing but sound fruit, which, when gathered and put in a heap for a week or ten days and then stored in barrels, keep well. Late Pears will keep well on the trees if covered with fish nets quite a month after the majority of growers have gathered their stock. We have just gathered our Winter Nelis Pears. They hung on the trees until most of the leaves had dropped; we put them into boxes and stored them in an underground cellar, in which they never fail to keep well into the spring. Premature ripening is brought on by premature gathering, a fact deserving of consideration. J. Groom.

Gosport.

Outdoor Grapes.—Mr. Cornhill's remarks on "Grapes in the Open Air" (p. 469) interested me greatly. I feel convinced, from experience obtained here, that Grapes may be profitably grown out of doors on any well-sheltered wall south of a line drawn, say, from the Bristol Channel to the mouth of the Thames. On my cottage here last year I had excellent bunches on an old Black Hamburgh that has evidently, from the thickness of its stem and style of training, done good service before it was placed in its present position. I send a few bunches for your inspection of this year's produce. The Vine from which they were cut has its roots under a well-worn Grass plot, and they never receive the slightest attention. Not a bunch upon it ripened previous to last year, when I stopped and thinned out the shoots and cut away some of the bunches and thinned the berries. As regards mildew, I only had to sulphur once; therefore, the result is, I think, very encouraging. If outdoor Vines were properly planted and received a tithe of the attention which those under glass get, there is no doubt that good Grapes would be produced. It is only the hardiest varieties of Vine that should be grown out of doors, but I should be inclined to grow Black Hamburgh, as it is superior in flavour and size and appearance to the Black Cluster. Given a wall with a south aspect, and, most important of all, proper treatment, especially in keeping mildew off, and very good Grapes for autumn use could be grown outdoors—at least in the southern parts of this country.—F. Thirlby, *Broadlands, Romsey, Hants.*

*** We thank Mr. Thirlby very heartily. The Grapes are well flavoured, though not rich. The berries are smaller than those of Vines in greenhouses, but not too small for table. The bunches are neat and the colour good.—Ed.

YOUNG *V.* OLD BUSH FRUITS.

One amongst the many errors committed in private gardens is that of allowing fruit bushes to stand year after year after they have become so old and decrepit, as not to pay for the space which they occupy. For several years past I have made a comparison of the produce of young and old bushes, and I find that young ones invariably produce the finest fruit; and, whether for private use or market supply, there can be no doubt that young bushes are those to which we should trust. Many think that it takes years to get up a stock of fruitful bushes, but such is not the case. If good strong bushes that have been headed back once or twice in nursery rows are planted, they will bear some fruit the first season, and a really good crop the second. Much, of course, depends on the mode of pruning adopted, and whether the culture is good or indifferent. Bush fruits are such voracious feeders, that they make growth just in proportion to the food they get. In bygone days, too, people used to cut their bushes so hard back year after year, that it took a long time to get anything like a bush large enough to bear a crop. Now, however, the rule is the less pruning the better; in fact, I know a gardener who gets good crops of Gooseberries, without fail, by planting young bushes every year, and destroying an equal number that have got too large. He never prunes, and yet better shaped or more fruitful bushes than he has it would be difficult to find. I have tried the same plan with Black Currants, and found it to answer admirably. I have had as good crops from three-year-old bushes as are usually got from bushes much older, and in size of berry the young bushes have it all their own way. In the case of Strawberries few would think of keeping beds of them longer than three or four years, and I feel sure that the sooner the custom of annually grubbing up any fruit bushes that show signs of failing, and planting an equal number of young ones on fresh soil, the better it will be for the fruit supply. Young bushes are very easily raised, and are so cheap as to debar no one from having the best sorts in cultivation, and how people can go on year after year propagating and growing second-rate kinds passes comprehension. Now is the time to make new plantations, or add to and improve old ones, and in doing so take care to give a good supply of rotten manure. There need be no fear of making bush fruits over-luxuriant.

Hants. J. G.

SHORT NOTE.—FRUIT.

Root-pruning.—If "Anti-Radix" will read again what I said in reference to this subject, he will find that it was as follows: "With stone fruits, however, considerable caution is needed, as gumming not seldom follows the cut of the knife on their roots; and for Peaches and Nectarines especially careful lifting and replanting are often preferable to root-pruning as generally understood by the phrase—that is more or less cutting in," and to every word of this I adhere.—Radix.

WHAT TO CUT IN VINE-PRUNING.

I have been studying the philosophy of Vine-pruning in another paper, where it is stated, as the result of certain reliable experiments, that in Vine shoots "the production of starch increases gradually from the leaves at the base of a young shoot to the middle, and as gradually diminishes from the middle towards the point, starch being absent from the very young leaves near the apex. These facts supply a reason for pruning, for the young leaves above the bunches not producing starch, but on the contrary consuming it, in so far deprive the berries of their sugar." According to the same authority, the best store leaves are the first that are formed behind the bunch. In these starch is produced. "This starch is subsequently dissolved, converted into sugar and other substances fit for the food of plants, and transmitted to the growing points or to the store places where it is again converted into starch," that is to say, the "starch and other substances" are transmitted to the bunch and the young leaves beyond, but the fewer young leaves or growing points there are beyond the bunch the better for the fruit. Now, how does this theory affect those cultivators who, on an entirely opposite principle, encourage the young points beyond the bunch to extend as much as possible and lose both space and crop in providing room for the same. Their practice must be wholly wrong. It will be remembered by your readers that I have at different times stated in The Garden that the successful finishing of a crop of Grapes depended on the first formed leaves, that it was not even necessary to leave a leaf or a joint before the bunch, provided the leaves behind were taken care of; and although I came to this conclusion from observation of what actually happened under a Vine so treated, and not from any theory regarding the sap and circulation, still what I wrote agrees with the view I have just quoted. The words I used, some years ago now, were as follows: "It is the old or first leaves on the shoot that do the most work (in maturing the bunch), and if they be lost mere extension beyond the bunch will be of little advantage." This view was, of course, disputed at the time by the advocates of unlimited lateral extension, but I still hold that it is the correct one, and I am inclined to believe that the physiologist quoted is also correct in assuming further that the production of young leaves beyond the bunch is an evil. One thing is certain and confirmed by general experience, viz., that young Vines that have been cut back and allowed to make a long leading rod the following season invariably produce small berries on any few bunches that may be left on at the base of the young rod; whereas on Vines that are stopped short the berries fill up much better. Of course what happens on a main Vine rod happens also on the lateral shoots, only in a different degree. The general practical conclusions to be derived from these facts are, first, that it is wrong to permit much young growth beyond the bunch; second, that it is of the utmost importance to keep the first formed leaves behind the bunch in good health; and third, that there is no need to give Vines so much room as some recommend in order to accommodate young lateral growth, thereby losing cropping space. S. W.

New stocks for Apples.—Mr. W. Morgan, Pukekohe, East Auckland, New Zealand, writes: "How is it that nurserymen in Great Britain do not adopt blight-proof varieties of Apples for stocks, and thus effectually prevent Apple trees from being blighted at the roots? In this colony of New Zealand the Winter Majetin and Northern Spy are now generally used as stocks, both for grafting and budding, the latter being the common mode of working Apples. These two varieties are not subject to attacks of the woolly aphis, and both being robust growers, they make excellent stocks, though their manner of growth is very distinct. The Majetin throws out roots which extend a great length from the tree, while the roots of the Spy are one mass of rootlets and small fibres. Of course the Spy is found to be the best for dwarf trees, though some nurserymen prefer it to the Majetin for all kinds of Apple trees, and use it exclusively. Stocks are raised with very little trouble indeed, simply by planting bits of roots in a similar manner to raising White Thorns. When the roots have struck and young plants are about 6 inches high, they are earthed up, the shoots sending out rootlets, and growing vigorously if the land is rich. Some

of these would be fit to bud the following summer; but generally they are planted out when a year old, and then they make excellent stocks either for budding or grafting. In using these stocks the great advantage is that the bottoms and roots of the trees worked upon them remain free from the aphis. And it is not a difficult matter to keep the tops clean so long as the roots are not affected. Years ago, before the introduction of these blight proof varieties, so bad was the woolly aphis in many districts, that Apple growers almost gave up in despair; but now the extent of Apple plantations is very great.—*Gardeners' Chronicle.*

LATE-KEEPING PEARS.

Although large fruits are just now fashionable, there are, nevertheless, some really good medium-sized ones that are indispensable, owing to their great excellence, and from the fact of their coming into use at a time when their larger rivals are not in the field. Of Pears, so many are ripe in October and the early part of November, that it takes something exceptionally good in the way of fruits of medium size to prevent their being quite overshadowed by larger sorts at that time; but fruits that will keep until December, or into the new year, have less to contend with, and are more fairly dealt with. Several of our old favourites are therefore still popular late in the year, and amongst sorts specially deserving of good culture may be mentioned the following: Winter Nellis—This, in my estimation, is one of the very best Pears in cultivation. It is of medium growth, and well deserves a south wall, when it proves to be a regular cropper. We cover our latest Pears with fish nets, and let them hang on the trees as late as possible. If the trees are liberally supplied with water at the root, they continue to swell up as long as the leaves keep fresh and green. It is surprising how much rain it takes to saturate the soil about the base of wall trees, and, as the roots naturally hug the wall, it is a good plan to give copious supplies close to the base, where the wall itself keeps off the rain. Easter Beurré is perhaps without a rival for very late keeping. In south Hampshire it attains very good perfection as a bush or pyramid tree, but of course it well deserves a wall. It is surprising that the monopoly for this variety has so long been held by foreign growers, as in the south of England, on warm, well-drained land near the coast, this kind proves far more profitable and useful than Peaches or Plums that come in while other fruits are plentiful; whereas, in the season when fruits of Easter Beurré are fit for table, there is but little variety in the shape of dessert fruits available; and, moreover, many fail to grow Peaches satisfactorily that could hardly fail with Pears. Josephine de Malines is another late-keeping sort of undoubted merit: and, although only of medium size, its quality is so good as to make it a valuable addition to the fruit store, from the fact of its keeping well into the spring. It succeeds well as a bush or espalier in the open, being very hardy; and, like most of the late kinds of Pears, it should not be gathered before severe frost renders it unsafe to leave it out longer, as it continues to swell up very late if assisted with mulchings and waterings of liquid manure. Passe Crassane, a grand Pear if well grown, is decidedly worthy of a wall. In this locality no artificial drainage is required, the subsoil being gravel; but in cold, wet soils it is of the highest importance to drain well for such kinds as this. Beurré Rance, one of the finest of late-keeping Pears, requires a warm soil and situation. Root-pruning, or root-lifting and mulching, to keep the roots near the surface, are amongst the best means for promoting fertility and overcoming the tendency to crack that this Pear has in cold, wet soils or situations. Bellissime d'Hiver is a baking or stewing Pear of great excellence, and one that is very prolific as a bush, pyramid, or cordon. It is most useful when home-grown fruit is at its lowest ebb.

Gosport. J. Groom.

Assorting Apples.—Apple growers do not give sufficient attention, when storing winter Apples in their fruit rooms for future use through winter and into spring, to making a distinction between those which show near signs of ripeness and those which are evidently long keepers, in the same varieties. Take, for instance, say, a pile of twenty bushels of Rhode Island Greenings. Some of these begin already to show a shade of yellow colour, and they are gradually softening and will be soon fit for use. These should be placed where they will be easily accessible, to be used first. Other specimens will be still quite green, with that peculiar cast of surface indicating that they are the longest keepers. These should be deposited where they will remain for some months to come. If these two kinds of Greenings are placed promiscuously together, a part will begin to decay, and imparting this condition to others, will injure the keeping quality of those which otherwise will remain sound a long time. Some practice will be required to select in advance the earliest ripening from the longest keepers, and this skill will be materially aided by observing for a few years the results of such selections as the specimens become fit for use. The same attention may be given to other sorts. Where the winter Apples are kept on shelves, in shallow drawers, or in flat boxes placed in piles, as we have recommended on former occasions, this selection may be assisted every time an examination is made during winter. By giving this attention to our winter Apples, we find no difficulty in keeping selected portions several weeks longer than by common promiscuous management, and sound specimens of such sorts as the Baldwin have been secured in good condition till the middle of June. *Country Gentleman.*

FIGS AT HOME.

From a paper by Dr. Eisen, on Fig culture in California, we learn that in the best Fig-growing countries there are three crops a year. When the leaves die in the autumn, a Fig comes from the axil, on the last year's wood, next year. Then Figs come out from the axil of the new leaf, and later in the season Figs come from the ends of the growing shoots. These do not always ripen. The intermediate ones are the best, and furnish the chief Fig crop. "When Figs are ripe, or sufficiently ripe to be dried and cured, they in some varieties drop to the ground, but in others hang on to the tree, and must be cut off. When this time arrives in Smyrna, the Figs are picked and put one by one, without touching each other, on matting, or even on the ground covered with cut Grass or straw. The Figs are on this exposed to the sun for ten or twelve days or less, according to the weather. To begin with, they are turned every day, so as to be equally exposed to sun and air, and if dew is expected they are covered over with matting during the night-time. What is needed during the drying season is, not an excessive heat, but steady sunshine and dry winds. When sufficiently dry the skin feels dry, but the inside should yet be perfectly soft and pliable. The ripe and sufficiently-cured Figs are now picked out, and the others left to remain until ready. It will thus be seen that Figs are not dried haphazard on roofs or the ground, and then dumped into boxes and shipped. When Figs in Smyrna are dried sufficiently, they are by the Fig raisers assorted in three different sizes, then placed in sacks made of camel's hair. The merchant who has furnished the Fig-raiser with his year's supply takes the crop out of his hands. The Figs are again assorted, and are then ready to be packed.

"In packing, Smyrna excels both Portugal and Spain. We all admire the way in which the Smyrna Figs are packed. When the dried Figs reach the packing houses, they are assorted by women and then packed by men. While packing, the hands of the packers are constantly kept moist by sea water, which prevents the sugar sticking to them. There are two ways of packing: In the first, the Figs are flattened out in such a way that the eye of the fruit is placed very nearly in the centre, and the stem very nearly opposite the same. The Figs are now packed in layers in boxes in such a way that the front margin of every Fig just sufficiently covers the stalk end of the Fig next in front. The Figs are packed in straight rows the same in the bottom, middle, and on the top. To keep every row separate, and to prevent one row overlapping the other, I am satisfied that they use a small frame of iron, with partitions running longitudinally and vertically. The Figs must first be packed in this frame and slightly pressed. The frame is now withdrawn from the box, and a heavy pressure is applied, which causes the surface to flatten out and become smooth.

"The Fig itself is something more than a seed vessel of a flower. The fleshy part is a thickened, hollow receptacle, closed, except at the very narrow opening called the eye, situated at the top of the Fig. This receptacle on its inner side contains numerous minute flowers, crowded together and covering the whole of the surface of the cavity. These flowers are male and female, or staminate and pistillate. The female flowers occupy by far the largest room and all the lower part of the cavity. The male flowers, again, the more or less narrow zone immediately surrounding the eye of the Fig. In the cultivated or edible Fig the male flowers are generally wanting, or rather replaced by barren scale-like leaflets. In the different crops the proportion between the male and female flowers is quite different. The Figs of the first crop are those which carry the most male flowers. The second crop carry few, and the third or last crop carry none but female flowers. As I said, except in the wild or Capri Fig, the male flowers are seldom developed. In the Figs grown in California, and which I have had opportunity to investigate, the male flowers were always replaced by scales; this has also been previously found to be the case in Italy, and Prof. Arcangeli states that, according to his observations, the two most generally cultivated Figs around Pisa—the Fico verdino and the F. piombinese—never have any perfect seeds developed; while the F. biancolino, which is considered a semi-wild variety, has, among numerous imperfect seeds, some which are easily germinated."—*Gardeners' Monthly.*

Cherry Bigarreau Leona Quesnil.—This Cherry, raised by M. Tyman, seems likely to prove an acquisition. A coloured plate of it in the *Bulletin d'Arboriculture* represents it as being a very high-coloured fruit, described by M. Rodigas to be of excellent quality. It comes to a good size; the ground colour is yellow, strongly marked with bright red on the sunny side. Its habit is vigorous, and it is remarkably productive, naturally assuming a pyramidal form. Its fruit is in season the beginning of July. If any reader of The Garden should happen to belong to the Belgian Cercle d'Arboriculture, he may obtain grafts from the raiser, who has announced his intention of distributing them gratis to members of that society.—J. C. B.

LAWNS IN WINTER.

We all enjoy a velvety sward in summer, and a clean, neat lawn is very desirable throughout the winter months. It is now impossible to have the Grass so close and carpet-like as it was in the months when it was growing close and fast; the fresh verdant hue has left it; but, for all that, lawns may still be made and kept attractive and pleasing. During the time when leaves are falling it is impossible to have lawns clean for any length of time, as if cleaned one day they are just as bad the next, and sweeping at such a time is almost superfluous work. In fact, constant sweeping of the leaves very often spoils the surface of the lawn, thinning the Grass, making it very muddy, and disfiguring it for the whole of the winter; whereas, if the rough of the leaves was only raked off once a-week or so with a wooden rake, and sweeping deferred until the whole of them were down, the surface would be almost as close and firm in December as it was in September. I recommend the leaves to be raked off, because if left all on until the whole has fallen, they may become so thick on the ground as to blanch the Grass, and this must be avoided. Lawns certainly appear to be littery when the leaves are lying on them, but that is only for a short time; and if the walks are kept clean, the leafy condition of the Grass may surely be excused—at least for three weeks or a month—when the leaves are dropping. Thus treated, a fine lawn throughout the whole of the winter and spring will be the result; whereas the constant "brush-harrowing" just now or recently disfigures the Grass to such an extent, that it will fail to appear to advantage until well into the spring. Worms draw a great many leaves partially into the surface of the lawns at this season. If these are swept when wet they simply stick to the ground, but if brushed off when quite dry they may all be cleared off easily. As soon as the leaves are all down a thorough cleaning should be

given. All leaves under bushes, for a considerable distance under the branches, should be raked out, and the ground from end to end should be swept perfectly clean, but this should only be done when the surface is moderately dry, or as dry as it can be at this season. After the whole of the ground has been brushed the roller should be taken over the surface several times, and as soon as rain comes after this the Grass will assume a very pleasing appearance. J. Muir.

Maryam.

ORCHIDS.

PREPARING FOR WINTER.

We have now reached the end of November, a time when no ray of light should be intercepted, whether the recipients of it are in the coolest or the warmest house. Time cannot be better utilised than in cleaning, not only the plants, but also the wood and glass, operations which require to be done much more frequently near London than in the country. I stated some time ago that the successful culture of Orchids depended to a great extent on atmospheric conditions, especially as regards moisture. No greater mistake can be made by young cultivators than that of keeping up an atmosphere during winter saturated with moisture. The temperature of the East India house may now range from 60° to 65° as a minimum. It is at this season that the lovely Moth Orchids, by injudicious treatment, get into an unhealthy state, from which they do not speedily recover. In the garden of Mr. J. Partington, Heaton House, Cheshunt, is a house containing some remarkably well-grown plants of the genus Phalænopsis, none of which seem as if they had lost a leaf for many years. A single stem of P. grandiflora had thirteen leaves, some of them 13 inches long by 3 inches across, and accompanied by a strong flower-stem showing forty-one flowers. P. amabilis had nine leaves, and a flower-spike showing fifty-three flowers. Other species had leaves a foot long and 5 inches and 6 inches across. The atmosphere in which these remarkable plants grow is not at all moist, the temperature being kept at from 60° to 65° at night. This and the next three months may be termed their period of rest, but they also produce flowers which continue longer in beauty in the drier atmosphere than they would in a wet one. Angræcum sesquipedale is also pushing flower-spikes, and the drier atmosphere seems to suit this genus quite as well as it does the Phalænopsis; they are making fresh roots very freely, and must not lack for water at the roots. Aeranthes leonis is now well established; the leaves are glossy green in colour, and the plants seem to do best in the warmest house, and in baskets better than in pots. We pot them in clean Sphagnum without any admixture of peat. Cypripedium Spicerianum is not only the most distinct and pretty species in cultivation, but it grows freely and gives great satisfaction; when grown in baskets the flowers have a tendency to hang over the sides, and are very pretty. One may safely predict that it will be the parent of many fine hybrids. We have C. Dominiana always in flower in this house; it is now as fully furnished with flowers as it was at midsummer; this is a valuable characteristic of this hybrid form. It certainly does best all the year round in this house. All flower-spikes pushing from the axils of the leaves or otherwise must be carefully watched for slugs and other depredators. Slugs and small snails are very active in all the houses at this season of the year.

The Cattleya house temperature should not be allowed to fall below 55°, although the minimum may be as low as 50° when the nights are very cold. We have cleaned and re-arranged all the plants, placing them as near as we can to the glass roof. Most of the Pleiones are out of flower; we pot all of them that require repotting, an operation which may be done once in two years. They succeed in pans or pots placed close to the glass roof. The commonest species and varieties are the prettiest. P. lagenaria, P. Wallichiana, and the loveliest of all, the pure white and crimson P. maculata, we grow in quantity; P. humilis flowers later, and will do in a cooler house; P. birmannica we do not yet possess, but it is distinct and beautiful. I saw plenty of it the other day in Mr. Dorman's garden at Lawrie Park, Sydenham; it flowers with P. maculata; the peduncles are two-flowered, the colour of which is a soft rosy lilac, the lips being very pale lilac with a yellow centre. Except Cymbidium Lowianum, no other of the occupants of this house need be repotted now. Root-action cannot be in a very active state for a long period, and when that is sluggish the plants are better left in the pots in which they were growing. Sobralias do best with a good season of rest; they may now be kept dry at the roots, unless, as is not improbable, some of them are still making young growths; in that case they may be supplied with water about once in ten days, less or more according to the size of the pots in which they are growing. I alluded in The Garden (p. 350) to Cattleya Warneri as requiring water about once in two or three weeks. Some growers complain that this species is very shy as regards producing flower-sheaths, and that is so if it does not have a good season of rest at the right time, *i.e.*, after the flowering period is over in July, August, and September. About the end of October signs of growth appear, when the compost must be kept moderately moist, but not wet; let it dry before watering. The Cattleya house has been very interesting during this dull season. All through November we have had Vanda cærulea in bloom, every plant bearing either one or two spikes. With these, too, we have had Lælia autumnalis and L. elegans in grand condition; while at the other end we had a groundwork of Pleiones arranged amongst small plants of Maiden-hair Ferns, and overhead long-branched spikes of Oncidium tigrinum and O. crispum. The sweet perfume of the flowers of the former add immensely to its value. Moreover, we have now the elegant Cymbidium Mastersi, bearing pure white flowers, which continue a long time in perfection at this season. As soon as the flowers of Oncidium tigrinum are over, the plants are placed in a rather dry, cool house to rest, and they get no water whatsoever. The cool-house minimum now ranges from 45° to 50°, with 10° higher by day, and is a pleasant place in which to spend an hour at this season. We have about 600 Odontoglossums, and out of that number some of them are always in flower, many opening for the first time. We have not potted any of the occupants of this house during the past autumn, nor will we do so until a convenient opportunity occurs after the new year. We have found this plan to answer very well in the past. I ought perhaps to add that, on looking over some of the best collections near London, I found that the Odontoglossums were being re-potted during the months of October and November. All I can say to this is, I have found by recent experience that the early spring months are best for this work, winter being even preferable to the autumn. Of course, it may often happen that we have to do such work when it is most convenient, whether it be in autumn, winter, or spring. Odontoglossum nebulosum is doing remarkably well this year suspended near the glass. It is making strong growths, which do not damp off. The distinct-looking O. Edwardi seems to delight in the coolest part of this house; it likes plenty of water at the roots. The right state of moisture is ascertained by keeping up a carpet of green Moss over the surface of the compost. This is what most Odontoglossums like all the year round. I ought to add, that even in this house excessive moisture is injurious. In dull, cold weather it may not be necessary to damp the paths and stages more than once in a day, or it may even be omitted altogether. Except during severe frost, this house is not altogether shut up, air being admitted at what we call the hit-and-miss ventilators, which are placed in a row in the front wall exactly opposite the hot-water pipes. The air has, therefore, to pass amongst the pipes before it gradually filters up amongst the plants. J. Douglas.

ORCHID CULTURE IN THE MIDLANDS.

A densely packed meeting of the members of the Birmingham and Midland Counties Gardeners' Mutual Improvement Association took place at their rooms in Paradise Street on Wednesday evening last, the chief item on the programme being a paper on the cultivation of the Cattleya, by that well-known local Orchid grower, Mr. E. Cooper, gardener at Highbury. Mr. Cooper, being fortunately in a position to practise what he preaches, having charge of one of the most extensive collections in the midland counties, was listened to with marked attention. He commenced by pointing out the dates on which the various older and well-known varieties were introduced, and, particularising them, he passed on and referred to the excellent work done in the way of hybridising by the veteran Orchid grower, Mr. Dominy, especially in connection with C. exoniensis. Touching the commencement of his own career as a gardener and orchidist, he said the impression made on his mind by a first glimpse of C. crispa superba, twenty-five years ago in the gardens of Lord Laconfield at Petworth, would never be entirely effaced. At Dale Park subsequently his affection for and knowledge of Orchids wonderfully increased, for there the then unusual circumstance of a house entirely devoted to them was discovered, and in it the various occupants were grown exceedingly well. From Dale Park he went to Dangstein, where he was more fortunate still, for in that establishment he fortunately found a house entirely occupied with Cattleya and Lælia, two subjects which were cultivated in first-class style by the then head gardener, Mr. Vair. Alluding to his own cultivation of the Cattleya since entering the service of his present employer, the Right Hon. J. Chamberlain, M.P., he said, twelve years ago, to the best of his belief, there were only three Cattleyas in the plant stove. Mr. Chamberlain, however, soon began to add to this meagre collection, and has continued making additional purchases at such a rate, as to place him, Mr. Cooper, in charge now of one of the most important collections in the midlands. Touching the method of cultivation pursued at Highbury, Mr. Cooper said the majority were grown in pots, pans, or baskets in the orthodox mixture of peat, Sphagnum, and potsherds. Some few, however, were found which it was imperatively necessary to cultivate on blocks. Laying great stress on cleanliness as being absolutely essential to the well-being of the plants, and sounding also a warning note on the necessity of efficient drainage, he gave a few plain and intelligent instructions as to the treatment of newly-imported Orchids, especial stress being laid on their isolation till all doubts as to their cleanliness and freedom from insects were removed. Allusion being here made to the sun and light-loving proclivities belonging to C. citrina, Dowiana, gigas, &c., he described the cultivation of these varieties, and then gave a few seasonable hints on watering, touched upon the irreparable injuries inflicted on Cattleyas in general by the indiscriminate use of the syringe. Ventilation was next alluded to, the benefits found to accrue from the admission of air properly warmed even in the coldest weather being adverted to, closing the houses only for a few hours daily during the growing season. Evaporation in the shape of pans containing weak liquid manure standing about the compartment, but not on the hot-water pipes, seemed, he said, to be very beneficial to the plants. Temperature was next dealt with, his opinions on the matter coinciding with those of the majority of Orchid-growers. A slight shade during June, July, and August was advocated in the hottest part of the day, Mr. Cooper not being able at Highbury to discard it entirely, like Messrs. Backhouse at York. Respecting insect pests, he warned growers particularly against tolerating the ravages of the Cattleya fly, which in the grub state played such havoc with the young growths, advocating the entire cutting away of the part affected, by which means he had entirely rid his collection of the pest. For thrips, greenfly, &c., the usual remedy of fumigation was advised, *i.e.*, three mild smokings at intervals of about twelve hours in preference to one strong dose, as being less likely to injure

the delicate foliage. A few words of advice to those members who by force of circumstances were compelled to grow Orchids in mixed houses concluded his address, and the usual vote of thanks brought one of the most interesting meetings at present held by this society—which now numbers upwards of 230 members—to a close.

Mr. W. B. Latham, curator, Birmingham Botanic Gardens, occupied the chair as president of the society.

J. H. H.

Masdevallia tovarensis.—At Lythe Hill, Haslemere, the residence of Mr. J. Stewart Hodgson, there is a plant of this in a 9-inch pan with no fewer than ninety-nine spikes, a good percentage of which is each carrying four blooms. The foliage, which is perfectly free from spot or blemish, is deep green, thus setting off the delicate white flowers to advantage. During summer it is grown in the cool Odontoglossum house, but it is wintered in the Cattleya house. It is potted in coarse fibrous peat and Sphagnum Moss, with a liberal addition of charcoal, and the plant is elevated a little more than the other varieties with which it is associated.

Lælia amanda.—This is a rare and handsome species; the slender pseudo-bulbs bear a pair of leaves some 6 inches or 9 inches long; the flowers, which measure 5 inches across, are borne in pairs; sepals and petals soft rose colour, lip deep rose beautifully streaked and lined with rich purple. We recently saw it in flower in Mr. Measures' garden at Streatham.

Cymbidium affine.—This is a valuable winter-flowering Orchid. In growth it somewhat resembles C. Mastersi, whilst the raceme bears numerous very fragrant flowers, about the shape and size of those of the last-named species; sepals and petals ivory-white, lip white, profusely dotted and spotted with purple. It is flowering with Mr. Measures at Streatham.

Pilumna nobilis.—This handsome plant, known also under the names of P. fragrans grandiflora and Trichopilia fragrans nobilis, is now flowering abundantly with Mr. Bull; it bears four or five of its fragrant blossoms on a spike; the whole of the flower is snowy white, saving an eye-like spot of yellow at the base. It is one of the most desirable of winter-blooming Orchids, and thrives admirably under cool treatment, such as is accorded to Odontoglossum crispum.

Trichosma suavis.—This Orchid in growth somewhat resembles a Cœlogyne, but its pseudo-bulbs are not thick; it, therefore, must never be kept thoroughly dry, and as its native habitat is the Khasia Hills, it does not require a high temperature at any time; the racemes are terminal, and bear several fragrant flowers, the sepals and petals of which are creamy white, lip three-lobed, the side lobes white, streaked with dull crimson; middle lobe yellow, bordered with crimson. It is usually considered a spring-blooming plant, but we saw it this week flowering profusely in Mr. Bull's nursery at Chelsea.

Choice Masdevallias.—There is a remarkable collection of this genus in Mr. Measures' garden at The Woodlands, Streatham. All are grown very cool and kept well supplied with water. We noted on a recent visit the following kinds blooming profusely: M. Chelsoni, the flowers of which resemble those of M. Veitchi, but are less brilliant in colour and smaller in size; M. Chimæra, of which there are many forms; the rare and curious M. Schlimi, the flowers of which are borne several together upon a long erect scape and are dull purple with yellow tails. Another curious and distinct species now blooming here is M. polysticta, which belongs to the racemose-flowered group. The flowers are white, sometimes pale lilac, freckled, dotted, and spotted with purple, the tails being greenish yellow. M. amabilis, although not one of the largest, is remarkably floriferous, and this and M. ignea and M. Veitchi add materially to the display, and contrast beautifully with the paler Odontoglossums.

Cypripediums in flower.—The Lady's Slipper Orchids contain many species which produce their blooms in winter, and as the species and varieties are now so numerous, beautiful effects are produced when grouped together, as in Mr. Bull's nursery at Chelsea. Amongst the principal kinds now in flower we noted C. Lawrenceanum, with its handsome leaves and large, bold flowers, the dorsal sepal broad and pure white streaked with bands of shining purple, and large lip of purplish brown; the old C. insigne in many forms, and the old, but beautiful C. venustum in several varieties; C. Harrisianum, with its varnished blooms, is a very desirable bloomer for winter; whilst the brilliant flowers of C. Sedeni and C. cardinale are welcome at any season, as also are the exquisite and chaste blooms of C. Spicerianum; whilst C. selligerum is both handsome and interesting, as being the result of a cross between C. barbatum and C. lævigatum. As these Cypripediums are very easily cultivated, and the blooms last many weeks in full perfection, it is no wonder they have become extremely popular with lovers of Orchids.

Cœlogyne Gardneriana.—This old and little-known species is now flowering beautifully with Mr. Measures at The Woodlands, Streatham. It has flask-shaped pseudo-bulbs and broadly lanceolate dark green leaves. The racemes are drooping, and bear numerous flowers, which are arranged in a somewhat two-ranked fashion. The flowers are pure white, saving a faint tinge of lemon-colour in the lip. It is a native of Northern India, and requires a slightly warmer temperature than that of an Odontoglossum house.

NOTES OF THE WEEK.

Pancratium guianense.—There is not a more beautiful species than this in cultivation, whilst its dwarf habit renders it available for those having but limited space for the accommodation of the plants. It produces short and broad leaves, and the scape rises just above them, bearing nine to ten erect flowers, which are pure white; the slender tube is about 9 inches long, and the sepals are about half the length of the tube, pendent, and beautifully undulated; the corona is somewhat small and the stamens are very long. It is in flower in Mr. Bull's nursery, Chelsea.

Tillandsia Lindeni.—This lovely Bromeliad is now flowering in considerable numbers in Mr. Bull's nursery, the large azure-blue flowers and rosy bracts being very conspicuous. This family of plants should become popular, as, independent of their great value as decorative objects in the stove, they are invaluable as ornaments for indoor decoration, inasmuch as they withstand uninjured the variations of temperature, and any dust or dirt which may accumulate upon their foliage is easily removed.

Azalea rosæflora.—This extremely handsome and dwarf-growing Japanese Azalea is now flowering. The blooms in the bud stage resemble in shape the buds of Niphetos Rose, but when open are very double and reflexed; they are rosy red in colour, and are so persistent that they do not fall, but usually die on the plant—a peculiarity which enhances their value when cut. It is sometimes found under the names of A. Rollissoni and A. balsamæflora.

Epiphyllum truncatum violaceum.—This good old-fashioned plant is now flowering plentifully in many gardens, and we cannot understand why plants like this, which produce such striking effects in the dull and foggy winter days, should ever be allowed to drop out of cultivation. Epiphyllums are easily grown, requiring but little attention, and can be brought into bloom at almost any time in winter by a little regulation of temperature either to force or retard them.

Winter-blooming Carnations.—These plants need no recommendation; everyone knows Carnations, and everyone loves them, and the tree or winter-flowering kinds are invaluable for button-holes and bouquets at a season when flowers are always scarce, and always in demand. We recently saw a very fine lot in Mr. Bull's establishment at Chelsea just coming into bloom, amongst which we noted the following kinds as specially good: La Perle, white, flaked and streaked with rose; Mdme. Sainte Hyacinthe, salmon flaked carmine; The Colonel, deep crimson; Bernhard Voigt, yellow flaked with crimson; Jean Magne, carmine self; White Swan, pure white; Mrs. Hawtrey, soft yellow, large and fine; Mdme. Schwaller, pink flaked carmine; Soligne, salmon flaked cerise; Henriette Magne, rose-pink flaked dark rose; Rufus, bright scarlet; Andalusia, primrose yellow, fringed petals; Sir G. Wolseley, buff, flaked puce; King of the Belgians, bright rose; Charles Mercier, purple self. These and many other kinds are just coming into bloom, and the beauty of their flowers is quite indescribable.

The Neilgherry Lily.—The New Plant and Bulb Company, Colchester, send us flowers of Lilium neilgherrense, which they say is now flowering in the open air with them, and they think it much hardier than is generally supposed. The plants have withstood several frosts, and are still in good condition. This Lily much resembles the commoner L. longiflorum both in growth and flower, but the blooms, instead of being white, are of a yellowish white.

Aralia papyrifera in flower.—There are two specimens of Aralia papyrifera now in flower in the conservatory at the Royal Botanic Society's Gardens, Regent's Park, of a size and vigour I think seldom seen; the leaves are over 40 inches in diameter, with petioles 30 inches long. It is a good example of how plants will grow when planted out, instead of cramped in tubs and pots. I have seen the plant growing in the open both in the south of France and Italy, specially in Mr. Hanbury's magnificent garden at Mortola, near San Remo, but never came across such noble specimens as ours.—W. Sowerby.

Gardeners' Royal Benevolent Institution.—We learn that at a meeting of the committee of this institution, held on the 18th inst., Mr. Harry J. Veitch, of Chelsea, was unanimously elected treasurer of this institution, in the room of Mr. Edward Tidswell, who has resigned that office on account of serious ill health. At the same meeting it was also determined to make an addition of ten pensioners to the list in January next, six of whom will be admitted without election, under Rule No. 6, they or their husbands having been subscribers for fifteen clear years. An election will take place for four pensioners out of a body of seventeen selected and approved candidates. The voting papers will be issued on or about the 16th December.

At the Potato Centenary on December 2 and 3, to which we have already referred, the following subjects for conferences have been proposed: First day, Morning: (1) historic consideration of the question, Whence came the Potato to England? (2) the Incas and their cultivation of the Potato; (3) distinct wild species of the Potato as at present recognised; (4) the production of varieties by cultivation. Afternoon: (5) the Potato disease; (*a*) historic sketch, (*b*) our present knowledge of the disease. Second day, Morning: (1) proposed methods of preventing the disease; (2) methods of using partly diseased Potatoes; (3) methods for storing and preserving Potatoes. Afternoon: conference of cultivators on rates for transport of Potatoes.

Pelargonium Col. Holden.—I send you a truss of bloom of this zonal Pelargonium, a variety which neither "W. I. M." nor any of your correspondents have mentioned in their recent notes in The Garden on winter-flowering Pelargoniums. I find it a most profuse bloomer at this season; cuttings struck in July, and now in pots varying from 3 inches to 5 inches in diameter, are carrying from three to seven trusses of blooms each, while the old plants, cut back at the same time and in 5-inch pots, are carrying as many as nine trusses each. The blooms of this variety last a long time, either on the plant or when cut and in water. I need not say how useful Pelargoniums of this class are, blooming as they do at this dull season, and how effective they are for decorating either conservatories or rooms.—Robt. Goodall, *Goldsboro' Hall, Knaresboro'*.

*** A very fine sort, judging by the truss sent. The colour is brilliant, a sort of carmine-crimson.—Ed.

Escallonia pterocladon.—I send you flowers of this Escallonia which seems to be rare. Its small, very dark green foliage and white flowers make it well worth growing, especially as so few shrubs are in blossom at this time of year. The frost has as yet

spared the pretty little flowers of Parochetus communis. They are almost hidden in its pretty Clover like foliage. We find the flowers of Eupatorium odoratissimum very useful at this time of year for cuttings.—C. M. Owen, *Knockmullan, Gorey.*

*** The Escallonia is a pretty shrub and very valuable at this season. It resembles E. rubra, but is smaller and the flowers are white. It is quite hardy about London. The little sky-blue Parochetus is seldom seen, but a prettier plant could not be found in flower in November.—Ed.

Winter-blooming Pelargoniums.—These are just now producing a brilliant display in Mr. Coulthurst's garden at Streatham Lodge, where a house is set apart for them during winter. These plants were struck about midsummer, and grown in pots in cold frames, but not allowed to produce any blooms until about the beginning of October, when they were removed to the flowering house, which is kept at a comfortable temperature. Amongst the numerous good kinds grown here we noted the following as being the most desirable: In the white-flowered section were Queen of the Belgians, Niphetos, and Duchesse de Cars; in purplish-pinks the best were Eurydice, Jean Ill, and Mrs. Stratt; of salmons, Fanny Catlin, Lizard, Gustav Gower, and Queen Ann appeared the best. The finest scarlets were Atala, Metes, Ferdinand Kauffer, West Brighton Gem, Ellen Terry, Henry Irving, and Barry Sullivan; rose-coloured flowers were represented by Queen Matilda, Lucy Bosworth, Edith George, and Queen Elizabeth. Amongst double forms the following were exceptionally fine: F. V. Raspail, large pips, very double and bright scarlet, a decided improvement upon Wonderful for market growing; Charles Darwin, rich purple-magenta; Charles Lalande, deep crimson; Mad. François Desbois, deep pink sulfused with purple; Mr. H. Cannell, fine market kind, surpassing Wonderful in floriferousness; and Madame Leon Dalloy, blush white.

Societies and Exhibitions.

NATIONAL CHYSANTHEMUM SOCIETY.

A meeting of the floral committee of this society met at the Royal Aquarium, Westminster, on Wednesday last, and a large number of new varieties of Chrysanthemums was submitted to them. There was a dense murky fog at the time, so that it was impossible to judge the exact colours of the flowers. However, by the aid of the electric light the committee managed to get through their work. First-class certificates were awarded to the following: To Mr. Winkworth, Childwell Hall, Liverpool, for *R. Brocklebank*, a fine sport from Meg Merrilies; to Mr. Sullivan, Downshire House, Roehampton, for a seedling Japanese sort named *D. B. Chapman*, flowers large, narrow florets of deep lilac; to Mr. W. E. Boyce, Highgate, for *Rubra perfecta*, a small reflexed sort of a deep and rich maroon-crimson; to Mr. Mizen, Mitcham, for Miss Norman Davis, a fine large incurved; to Mr. R. Owen, Floral Nurseries, Maidenhead, for Osiris, a pretty Pompon of a beautiful deep peach-pink colour; to Messrs. Cannell, Swanley, for l'Or du Japon, a large Japanese, of a peculiar buff shade; for Mrs. W. Holmes, an Anemone-flowered sort, large and finely shaped, and of a pale pink; and for *Marigold*, a bold-looking single sort, with a large centre and bright amaranth florets. The new sorts commended included *Syringa*, a large and fine pale pink Japanese sort from Mr. Martin, Dartford; *Charles Hulle*, a reflexed sort of perfect shape, and of a deep pink, shown by Mr. Ware, Tottenham, who also sent *Iona*, another reflexed seedling of a singular shade of reddish yellow. Mr. Owen's Cloth of Gold Marguerite was also commended. It is an improvement on the typical kind.

Among other noteworthy kinds shown was a sport from Golden Queen of England, from Mr. Rogers, Ashford, but was considered not sufficiently distinct. A sport from Striatum was shown by Mr. Smale, Torquay, but also not distinct enough. Messrs. Veitch showed R. Bottomley, which the committee considered too much like Pelican. Messrs. Cannell, of Swanley, showed a large collection, which contained many beautiful sorts, chief among them being several single and semi-double sorts charming in colour, beautiful and informal in shape. These, however, do not seem to be appreciated much by the committee, because perhaps they do not conform to the inflexible points laid down as the criteria of perfect Chrysanthemums, but the time will come when single Chrysanthemums will rival the doubles as surely as single Dahlias have become as popular as the show and fancy kinds. The Swanley singles comprise sorts of all shades of colour, and particularly beautiful were those named Crushed Strawberry, a soft peach colour, and Ethlyn Goldring, of a pleasing chestnut-red shading to yellow, with peculiarly twisted florets. Other kinds shown by Messrs. Cannell included Domination, white Japanese; Mrs. W. A. Harris, a pale blush Japanese; Mrs. Wheeler: H. Cannell, in the way of Thunberg and grandiflorum, but of a pale straw yellow; Lady Cave, a lovely reflexed white; James George, in the way of the beautiful Cullingfordi; and Mrs. Cannell, one of the purest of whites in the Japanese section. Messrs. Laing, of Forest Hill, showed half-a-dozen new sorts, including D. B. Chapman, La Gracieuse, l'Or du Japon, Mrs. Holmes, and Mdme. Murel. Mr. R. Owen showed several new sorts, including Mr. Glover, white reflexed; Lord Palmerston, incurved, of a deep pink colour. A beautiful new golden sport from Ethel, named Mrs. Jones, was shown in an excellent way by Mr. Ware. It is one of the best pale yellow Japanese sorts we have, and will sure to become popular. New sorts were also shown by Mr. Boyce, Mr. Stevens, Putney, and others. At the close of the meeting it was proposed to make a rule: "That certificates be given to the best blooms of such varieties as may be shown at more than one of the society's exhibitions." There will be a mid-winter show held on January 12 and 13.

CHISWICK CHRYSANTHEMUM SHOW.

Among the Chrysanthemum shows in the neighbourhood of London was one held the other day at Chiswick, where in the Vestry Hall there was a very bright and attractive display. A group sent from the gardens of Chiswick House (Marquis of Bute's) was admirable in every respect—a glow of colour—such flowers as the following showing in true form:—

Incurved and reflexed sorts.—Guernsey Nugget, White Venus, Golden Queen of England, Julie Lagravère, Jardin des Plantes, Marquis of Lorne, Pink Christine, Golden Christine, Fingal, George Glenny, Dr. Sharpe, Progne, St. Patrick, Mr. Bunn, Refulgence, Lady Talfourd, &c.

Japanese.—Cossack, Sultan, Peter the Great, River Fleuri, Comtesse de Beauregard, Roseum pictum, Baron de Prailly, Master C. Hubert, Fair Maid of Guernsey, Diamond, Source d'Or, Fulgore, La Nymphe, Bend Or, Red Dragon, Ethel, &c.

Pompon sorts.—Jean Hachette, Dick Turpin, Model of Perfection, President, Margaret du Coi, Pearl, Marabout, Snowdrop, Antonius, Adèle Presette, &c.

There seems to be more diversity of opinion in judging bouquets than anything else at shows. For instance, the second-prize bouquet many would have thought was better than the first. It consisted of the Source d'Or variety as a groundwork, topped, and gracefully, too, with the white button-shaped flowers of Snowdrop, and a frond of Maiden-hair giving elegance and finish to the arrangement. Mr. Watt's gardener also showed excellent table plants, viz., such as Geonoma gracilis, Cocos Weddelliana, Croton Warreni and Aralia Chabrieri.

What was a very simple and graceful arrangement in grouping, but a few plants being employed, consisted of the following, contributed by Messrs. Fromow: An Areca lutescens at back, with Erica gracilis (in flower) and Adiantum cuneatum intermingled at the base, a few Palms and Crotons rising above. It is not very often we see Orchids well grown at such local shows, but a good plant of Cypripedium insigne, bearing eighteen well-developed flowers, was noteworthy. It was exhibited by M. A. Wright. The group from the Gunnersbury Park Gardens, arranged by Mr. Roberts, was much admired, and the first prize competing group from Messrs. Fromow was a credit to the exhibitors. B.

Royal Horticultural Society.—The following are the dates of the meetings of the council, and of the scientific, fruit, and floral committees in 1887:—

Council Meetings—	June 14 and 28
January 11	July 12 and 26
February 8	November 8
March 8 and 22	December 13
April 12 and 26	Fruit and Floral Committee Meetings—
May 10 and 24	January 11
June 14 and 28	February 8
July 12 and 26	March 8 and 22
October 11	April 12 and 26
November 8	May 10 and 24
December 13	June 14 and 28
Scientific Committee Meetings—	July 12 and 26
January 11	August 9 and 23
February 8	September 13 and 27
March 8 and 22	October 11 and 25
April 12 and 26	November 8
May 10 and 24	December 13

all the meeting days being Tuesdays.

Development of Silloth.—The public who are on the outlook for new watering places will be glad to learn that the directors of the North British Railway Company have just taken a step towards the improvement of Silloth. With a view to increase its attractions the directors have called in the advice of Messrs. Little and Ballantyne, of the Carlisle Nurseries, who have executed a plan for providing shelter and ornament, by breaking up the great stretch of green sward between the parade and the sea by ornamental belts, mounds, rockeries, and clumps of flowering and evergreen shrubs. The health giving Pine, so great an attraction at Bournemouth, will be largely employed, and the whole appearance of the town and recreation grounds will be completely altered and largely extended. The streets of the town are also to be planted with avenue trees. They will be planted 30 feet apart, and will consist of Sycamores, Norway Maples, Elms, Chestnuts, Limes, and other trees.

QUESTIONS.

5530.—**Tropæolum albiflorum.**—I have a strong bulb of this which refuses to grow. It has been planted several years, and the soil in the pot has been changed in the hope that some soil or other might induce it to start, but it persists in refusing to do so. We keep it in a temperate house. Have any of your readers had a similar experience, and can they favour me with any suggestions in reference to it.—W. H. Tillett, *Sprowston, Norwich.*

5531.—**Eradicating Gorse.**—Will some of your readers kindly inform me how to get rid of young Gorse plants, which cover one of my fields in Surrey. About six years ago I grubbed a portion of a hillside, on which I built my house. The hill was covered with copse, and here and there were bunches of Gorse and Heather. Young Gorse plants soon came up, both on my lawn and on the hillside, which I wished to convert into pasture. The lawn, being of moderate size, was picked over by hand, and I have not been troubled with Gorse there since—perhaps the mowing keeps it down; but the hillside, though it is cut twice a year to make it look presentable, is becoming a huge Gorse bed. I tried spudding a part of it this spring, but it took days to do a few square yards. The roots came up 18 inches long. Is there any ready way of getting rid of the plant—any mixture that will kill it without destroying other growths. If I grub all the field again—a costly process—I fear I may only have a repetition of the nuisance.—E. W.

Names of plants.—*T. S., Aberdeen.*—1, Cypripedium insigne Maulei; 2, C. insigne, good form; 3, C. insigne, common type.—*W. S., Doncaster.*—1, Selaginella stolonifera; 2, specimen too much shrivelled to identify; 3, Selaginella uncinata; without number, Adiantum concinnum.—*F. P., Ringwood.*—Iochroma tubulosum, ordinary greenhouse treatment.

Naming fruit.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

Names of fruits.—*J. Eade.*—Easter Beurré.—*J. W. S.* 1, Beurré Charmeuse; 2, Beurré Rance; 3, Knight's Monarch.—*S. K. T.*—1, a local sort, not known; 2 small Warner's King; 3, Manks Codlin.—*L. W.*—2, Beurré d'Aremberg; 20, Passe Colmar; 21, Flemish Beauty; large Pear, rotten; small Pear, Beurré de Capiumont; round Pear, Old Crassane—numbers illegible.—*C. Batty.*—Name of Pear not known. The fruit seems to decay in a perfectly natural manner; some Pears always decay early at the core whilst maintaining a firm exterior.—*Sylvanus.*—5, Old Russet; 6, Northern Greening; 8, Brabant Bellefleur; 7, not known.—*S. Hoskin.*—Marie Louise.—*R. Edgar Jacobs.*—1, Chaumontel; 2, Glou Morceau; 3, Josephine de Malines.—*C. Earl.*—1. Uvedale's St. Germain; 3, Chaumontel; 4, Knight's Monarch,

WOODS & FORESTS.

THE BEST PLANTING SEASON FOR FOREST TREES.

I NOTICE one of your forestry correspondents writing on November 20 to the effect that "most deciduous trees are now fit for removal." I believe it is the general practice of foresters to delay planting to a period of the year when gardeners have all their deciduous trees comfortably in the ground before winter sets fairly in—at least they try to do this. I superintend woods as well as gardens, and it may surprise the writer at p. 488 and others to hear that at the time he took up the pen to tell us the planting season had begun, we had got our trees nearly all in. We began in the last week in September with all sorts of the Fir tribe that we use, except Larch, and had by the middle of November about 40,000 safely planted, which now look remarkably well, but the earliest planted will do best. Up till now, November 20, we have also got in about the same quantity of Sycamore, Ash, and other deciduous trees, all planted with foliage, but hard in the wood and with plump, mature buds. The foliage fell off naturally soon after planting, and I have no doubt the trees will make a better growth next year than if they had been planted later. On the other estates near not a tree has been put out yet. The leisurely-system foresters have of losing the very best season for planting, October and November, and planting most of their stock just before or after Christmas right away into March, or even April, cannot be too severely condemned. As soon as the wood is ripe it is time to begin, and by October most kinds of forest trees are quite ready to be transplanted. What applies to shrubs applies to trees. It is not wise to transplant before the young wood is so mature that it will not shrivel: but I have seen shrivelling take place and no harm result the following season. The advantage of early autumn planting of all trees is that the roots get partly established, which is a great gain, as a tree so established will sometimes make a long leader (especially deciduous trees) the following year, while one planted after the new year will stand still, thus practically losing a year. Trees planted late in extensive plantations cannot be watered effectively, and should the season be dry, they die. Vast losses are incurred in this way under careless or ignorant management. We grudge every man or boy who, from any cause, is absent from planting after the end of September, and long before that we are taking out pits and preparing generally to save time when planting begins. Besides, there is the weather to look at. Last year the snow came before Christmas, and did not lift long enough to permit planting operations to be resumed till March, when it was too late. Fortunately, we had most of our last year's planting done before the snow came, but the majority had not begun. Nurserymen tell me, both in England and Scotland, that their trade with foresters last year was practically nil, owing to the snow coming soon after the beginning of the usual planting season. One nurseryman told me it was by far the best plan to put out deciduous and other trees early if the former cost more for labour and carriage on account of their leaves being still upon them, and which, I understand, is one of the objections to planting at that stage.

A FORESTER AND GARDENER.

Improved method of preserving wood.—A French method of preserving wood by the application of lime is found to work well. The plan is to pile the planks in a tank, and to put over all a layer of quicklime, which is gradually slaked with water. Timber for mines requires about a week to be thoroughly impregnated, and other wood more or less time according to its thickness. The material acquires remarkable consistence and hardness, it is stated, on being subjected to this simple process, and the assertion is made that it will never rot. Beech wood, prepared in this way for hammers and other tools for ironwork, is found to acquire the hardness of Oak, without parting with any of its well-known elasticity or roughness, and it also lasts longer.—*North British Agriculturist.*

CUSTOMARY AND TRUE MEASUREMENT.

I AM not so entirely satisfied with the condition of things in general as to believe that whatever is must of necessity be right; still I cannot see that any useful purpose would be served by altering the basis upon which cubic measurement is at present estimated. The question is an old one, but "W. B. H." in his remarks (p. 488) has clearly and concisely stated the way in which the difference arises, and I commend his explanation of the example he has taken to any who may not be well posted upon the subject. I take it that when any change or reform is intended, there must be very cogent evidence that the good resulting is likely to be greater than the evil which must follow the upsetting of one system and the establishment of another. I do not know whether the "true" content measurement has ever been adopted in actual transactions, but in one or two instances I have known of its being attempted by some paper foresters who have happened to be *pro tem.* in charge of a place during a change of wood managers. The result was that the timber was not sold at all during their regency, and the succeeding man had to dispose of it upon the old and recognised lines. If there was any good ground for supposing that the timber-producer would receive a fraction more for his trees by the suggested plan of true measurement, it would be everyone's duty who is acting in the interest of such to promote the change by every means in his power. Matters standing as they do make it practically certain that the only outcome to be expected would be confusion. The merchant, of course, knows how much saleable material he can cut per cubic or customary measure, and will fix his price accordingly. If every forester in the kingdom persisted in selling by true content, every merchant, on the other hand, would be equally persistent in buying at a corresponding reduction in price. Practically, it does not matter if 1000 feet were called 100 feet, or *vice versâ*, so long as everybody knows that the unit of measurement represents a given and unvarying quantity. If, again, there were two recognised ways of calculating for this class of timber, it would be perfectly reasonable that every effort should be made to ensure the survival of the fittest; but when there is one only, and this works well in practice and fairly to both sides, I can only conclude that, however well-intentioned, anyone who advocates the theoretical as against the practical is doing more harm than he is good. On the present lines the seller of unsawn timber would be quite within his rights to have each tree hewn to a square or rectangular figure, but it would cost him more to do so than the wood so hewn would be worth. If the forester does his best to find a good market, it will be much more profitable to him than trying to set up a new system of measurement which is in no way better than the old one.

D. J. Y.

Allowance for bark.—There is no detail in forestry in which there is greater variation of practice than in that of the allowance made for bark in girthing timber. "Young Forester" says he allows 1 inch in trees girthing 12 inches and upwards, and half an inch in trees under that girth. I was not aware that any allowance, for instance, was made for the bark on a smooth-barked Ash or Beech, or, in fact, on any hard wood excepting Oak. His price per foot will compare favourably with mine if he makes that allowance on all hardwoods, for I allow nothing, excepting on Oaks. I may knock off occasionally a quarter of an inch if a tree has very coarse bark, but not otherwise. With the Pine tribe it is different. On all Larch, Scotch, and Spruce I take off a quarter of an inch, which is considered sufficient to make up for any loss of bulk in snigging and removing the timber to the railway station. Take an Ash 40 feet long by 13½ inches quarter girth above the bark; it will contain 50 cubic feet, which at 1s. 6d. per foot is worth £3 15s., but by "Young Forester's" method of measuring it will only have 43 feet, or a difference of 7 feet in measurement and of 2½d. per foot in price. If this large allowance for bark is a general thing in the south of England, it explains at once the large prices per foot they get for their timber. A nobleman told me the other day that a friend of his in Sussex had sold some Ash at 3s. 6d. per foot; whilst here in Yorkshire, 1s. 6d. or 1s. 9d. in the plantation is the highest price for the choicest butts. It would be a great advantage to everyone connected with the timber trade if a uniform system of measuring could be adopted.—W. B. H.

TREES ON LIMESTONE SOILS.

THERE are so many limestones belonging to different formations and of such variety of texture and density, that I will at once state that the kind to which these remarks chiefly apply is that known as coral rag. The elevation is several hundred feet above sea level, and forty or fifty miles inland. Generally in the part of this formation where these notes have been made the soil is sufficient to allow of fairly deep ploughing and thorough cultivation, although the implements occasionally come into rather too abrupt contact with the rough stones of the subsoil which are above the ordinary level. This, as the name of the formation implies, consists of rough stones of a coralline character, more or less compactly packed together, according to the presence or absence of rubble. The soil itself is largely composed of the same class of stones more finely sub-divided, and in a free state over this district, which is moderately wooded, most of the common trees indigenous to this country are found, and, of course, introduced species where they have been planted. Taken on the whole, the tree growth about here may be described as moderate, as there is very little of the appearance of stunted growth, and, on the other hand, little of the luxuriance which is met with on some soils and situations. The Elm is a typical tree. It generally has a healthy look, but does not grow with particular rapidity or produce wood of the clearest grain. Some large trees are here and there found, but the indications are that they have taken centuries to come to maturity. A fine old tree of this species (the common English) stands on a village green within the boundary of this limestone formation, and seems to have been used from time immemorial as a trysting-place. Many of its roots are now bared, and from their conformation point to an era long since passed into history. There is one thing which I have noticed in connection with the progress of young trees upon this subsoil, and I have often heard others comment upon it, and that is the effect that any disturbance of it has in causing a fresh growth. In several places within the area quarries have been opened, the stones removed for various purposes, and the rubble, which was useless for road-making and the like, again filled in and the surface levelled. When planted on such sites the young trees as soon as they become established feel the benefit of a free root action in the subsoil from which the closely-packed stones have been removed. In all such cases, care is of course taken that the soil is removed before the quarrying commences, so that when the opening is filled up the soil may be replaced in its natural position. This, however, only in passing, as it is obvious that quarrying an area for the purpose of making it suitable for tree planting would be about on a par with burning the house to produce roast pig—a very unprofitable business.

There is a proportion of Oak timber growing upon this limestone, but it does not seem nearly so much at home as upon the clay soils a few miles distant. What trees there are mostly turn out to be of good quality, and I have seen some very large Oaks upon it, but it cannot be fairly called anything more than an average Oak soil. In speaking of tree growth on soils contiguous to it, the Oak and the Elm improve in just opposite directions. As has been said, the Oak does better as it approaches the clay. The affinity of the Elm is for the sandy loam which flanks the district under notice on the opposite side. With regard to the Ash, when it is found in woods and plantations on this limestone, it grows pretty freely and produces very often good timber, but isolated it does not make any especial headway. From this it would seem that other influences have

their weight beyond the question of soil, and undoubtedly they have, but to enter upon them here would be a little beyond the scope of these notes.

Of Beech there is not a great quantity, but what there is bears out what I have said of the other trees, and the Sycamore differs but little. Unfortunately, the Horse Chestnut is of little economic value, otherwise it is a tree which seems to thrive as well as many. I have never had an opportunity of testing the actual rate of growth by measurement, but its tendency apparently is to grow quickly when young, and then remain in *statu quo* for a number of years. Poplars grow, as they will on almost any soil, but after a generation or two they lose their vigour. A Lombardy Poplar which has often been pointed out to the writer as being planted by a near relation a little over half a century ago has reached a great height and a considerable size, but others within short distances seem to be fast losing their vitality. With respect to coniferous trees, the Spruces do not seem to do at all. Larch succeeds moderately well, and would be a good tree to plant upon spots which had been quarried, and which consequently may not have the level surface which is desirable for cultivation. Of Scotch Fir there is not much, but what there is seems to grow well enough as regards health, but slowly. Amongst the underwoods the Hazel is the most general, and reaches a usable size in a dozen years or so. There are, of course, many trees which have not been touched upon, but enough will have been said to show that though by no means luxuriant, trees upon the coralline limestone in most cases succeed fairly well. D. J. Yeo.

Gardeners, foresters, and valuers.—The remarks of "Yorkshireman" (p. 465) are uncalled for. My few remarks on the methods and appliances applicable to timber measuring were not intended for the edification of such as "Yorkshireman," but for beginners in such work as he seems to be so thoroughly and extensively acquainted with. Those instruments and appliances that I mentioned are not presented as novelties, for they "are as old as the hills," but they may be useful to beginners, who should make themselves acquainted with such instruments and their applications. When experience has enabled anyone to act without their aid, then he may value his thousands and tens of thousands of trees with as much expedition and correctness as our Yorkshire friend. But hundreds of our foresters have to exercise their abilities upon estates that cannot afford that extensive scope for their display as that upon which "Yorkshireman" seems to luxuriate. I have, during an experience of nearly forty years, measured and sold timber of all kinds over a considerable portion of the middle, south, and west of England, and in Scotland, and have found many cases where small buyers insisted upon string measurement. But I never use it, except to satisfy such buyers' whims.—A. P.

—— It is no use taking up much more of your space discussing this topic with Mr. Yeo and others until they have something more than bald assertions to give us. I admit there are some good foresters, and it would be a pity indeed if the sons or pupils of such men were not qualified for their duties; but what is certain is the fact that the great majority of men who, at least, act as foresters in any capacity are sadly ignorant of the *rationale* of their business. I meet many of them, and I have been simply appalled by their ignorance. I should say that, taking masters and men together, not one in fifty reads anything on the subject, and few have books. The truth should be told. Gardeners are a smarter class of men altogether, and they have, as a rule, far better means of learning anything relating to trees and plants, from "the Hyssop that groweth out of the wall to the Cedar which is on Lebanon." They are just as familiar with the culture of trees as anything else, and everything relating to their growth, and most gardeners have also much nursery experience among forest trees. It is a singular fact that gardeners alone are employed by nurserymen as their agents in travelling and dealing with foresters or their employers in all that relates to planting, &c., and that these men, or at least gardeners, as a rule, do mostly all the contract planting engaged in by nurserymen.—Y.

HOW TIMBER IS VALUED.

In a paragraph in The Garden, headed as above, the writer, "Y.," states that he knows a timber merchant who can "get as much Larch as he wants from North Yorkshire, *in the Helmsley neighbourhood*, for almost any price he likes to offer." In the preceding lines of the same paragraph, "Y." enters into a series of calculations intended to show that the growers of this timber will not get more than 3d. per foot at the wood, less discount for cash. Now, nearly all the Larch timber within a radius of six miles of Helmsley is on the Duncombe Park estate, and if "Y.'s" timber merchant means to include that estate, I beg to give his assertion a most unqualified denial. No Larch on this estate has been sold for anything like the ridiculously low price per foot he names; and as to the timber merchant, or anyone else, getting as much Larch as he wants at his own price, it is an idle tale, and not worthy of repetition by a writer of "Y.'s" calibre.

"Y." also assumes that the said Larch costs ½d. per foot to fell. I give 2s. per 100 feet for ours, or just 52 per cent. less than "Y." supposes. I hope the figures he gives about the cost of removal by rail and road are more reliable, or the readers of The Garden will be apt to conclude that "Y." is not so well acquainted with all the "many details" of forestry as he professes to be.

I may also assure him that thousands of feet of Larch are turned over by timber merchants in these times of close competition for much less than 1d. per foot profit. Such is the opinion of

The Forester on the Duncombe Park Estate.

HOME-GROWN V. FOREIGN TIMBER.

The impression seems to prevail that we are to be beaten at every point by what comes from across the seas. It is, I presume, pretty well known to most who are interested in home-grown timber that of late a good many spokes and other finished and unfinished articles used by wagon-builders, wheelwrights, and carriage manufacturers have been sent in from abroad, manifestly for the time being displacing British woods, which had hitherto been exclusively employed for the work. According, however, to recent tests, it has been proved that the wood of which these articles are manufactured are of much less value, in the sense of not being so strong and durable, than the wood which had been grown at home, and which had hitherto always been used. This does not go to say that there are no purposes for which the foreign wood may be turned to account, as the greater lengths it often grows to, and its straightness, make it very useful where such dimensions cannot be readily found in our home-grown woods. Therefore it will be seen that in supplementing our own supplies we rather get an auxiliary than a rival. It was, no doubt, perfectly natural that if a market was found here for the larger classes of wood, our friends across the water should try to supply some of their smaller produce as well, but from our point of view it is satisfactory to learn that this attempt has not been altogether successful, and that the best makers who have tried the imported wood for vehicle-building are returning to home-grown timber.

The tests to which I specially referred above are some which have been made by a London firm upon specimens of English and American Oak, and it has come out from trials under various conditions that both in bending, stress, and in resisting crushing force the British Oak is superior. It is, perhaps, not well to attach undue importance to experiments of this kind, although they are very instructive and of recognised value, but the statement from trustworthy sources that in practical every-day wear and tear foreign wood is being discarded for what is grown at home, I look upon as being a circumstance which cannot be misinterpreted, and one which is, at least, a drop of comfort in the bucket of discouragement. From an independent source, and with reference to another class of timber and manufacture altogether, I am pleased to learn that there is more of our English wood used than was the case a few years ago, when I had an opportunity of knowing the extent to which such wood was employed. I do not wish to unduly dilate upon these facts which have accidentally been brought under my notice, and without any idea of further reference being made to them, but, as I remarked in opening, there is such a tendency to go with the current of unfavourable appearances, that I take it we are entitled to assess at its fair value any boulder which may be helping to divert the current into another and more favourable channel to ourselves. Whilst upon the subject, though, of course, this is a thing which growers have in their own hands, I cannot help being encouraged by the greater degree to which those who have charge of building and other operations on estates seem to be recognising the fact that our own produce is not so unfitted for the work, as has been so suddenly discovered since wood from abroad has been comeatable at such relatively low figures. At the risk of iteration, and of getting a castigation from the hands of such as assume that the bulk of wood which is wanted on places in the country is practically out of the calculation when reckoning upon the whole consumption of our home supplies, I must repeat that this gradual change of front by those who have it in their hands to use which class of wood they prefer is another rift in the cloud. A question which I have often put, but never seem answered by those who pose upon the infinitessimal quantity of wood wanted for home use, *i.e.*, in the neighbourhood where it is grown, is, if there is such an insignificant amount used, what becomes of the loads upon loads of foreign woods which are constantly finding their way into these same districts? Is this wood used up for firewood, or is it buried underneath the soil, or weighted and sunk into lakes or rivers, or what becomes of it? It must either be disposed of in some such way as this or used for building and similar purposes, as one would reasonably think would be the case. Perhaps some one in the secret can tell!

D. J. Yeo.

Saw-mill management.—"Yorkshireman" is endeavouring in many respects to alter his tone in saw-mill management. The two old men he mentions as managing the saw-mills on the estate must have been men of experience owing to their being old men. The owner of a saw-mill sawing 20,000 feet annually is rather a large one. But I know owners sending 40,000 feet out annually, and I am certain that they do not entrust the management of their mills to handy labourers. I am glad of the hint upon entering an assurance against the Employers' Liability Act. But prevention is better than cure. We avoid handy labourers working the saws. I imagine that "Yorkshireman's" saw-mills are on a small scale, and he has the advantage over large saw-mill owners in towns by being screened behind hedges out in the country from the eyes of the inspector. Let "Yorkshireman" understand clearly that when I mentioned about the men with mutilated limbs, I did not say that such occurred in our mills. But with the experience which my father and myself have had in England, France, Germany and Russia, we have seen many cases of that nature; therefore I think that the Employers' Liability Act has proved a blessing to many a poor man who is now-a-days counselled to accept almost any post, notwithstanding the danger attached thereto. —Omega.

The magnificent Spruces on Lord Wicklow's estate are well worth a day's journey to see. I believe the finest Spruce in England is, or was ten years ago, on the estate of Lord Normanton in Hampshire, near Ringwood, on the edge of the New Forest, growing on a steep slope, fully exposed to the north and east, and not by any means very sheltered from the south-west; soil moist, sandy, in fact, moorish; the tree from memory would be 5 feet in diameter, and, we venture to say, 150 feet high, forked into twin columns at some 10 feet from the ground.—F.

No. 785. SATURDAY, Dec. 4, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

WHITE DAFFODILS.

A GOOD deal has lately been written about the identity or difference of certain white Daffodils. A few years ago we were told confidently by one who had made Daffodils his special study that, search as we pleased, we should find no more and no less than four distinct white Daffodils, because Haworth had recognised and described that number. We are now aware that Haworth had not the opportunities we have, and that had he lived in this generation, he would have described not four, but probably forty varieties of white Daffodil out of the materials we have before us. Linnæus, though not well versed in Daffodils, made one name include all white Daffodils, and this name was Narcissus moschatus. Setting aside garden hybrids, to which florists' fancy names may fairly be given, it is probable that this name, N. moschatus, properly includes all the white Daffodils which have ever been found wild; but these wild white Daffodils are varied enough in form to present differences which can be made a pretext for distinct names. The supply of names, however, must be ample, if we are to name all of them. Out of, perhaps, three hundred which I have in my garden, imported direct from the Pyrenees, it is an exception to find two together exactly alike. We find perianth divisions shorter than, equal to, and longer than the crown; in some straight, in others twisted; in some broad and obtuse, in others narrow and acute, and the crown equally varied.

WOLLEY DOD.

A CHESHIRE GARDEN.

BEFORE I proceed further, allow me to demur to the old statement repeated by "B." in THE GARDEN of September 4, that Gloxinias require tropical heat; on the contrary, they succeed admirably with me under Vines in an ordinary greenhouse temperature, the pots being wintered under the stages near the pipes. The drawing of Verbascum olympicum in the same number reminds me that my plants of this Mullein have, after three years' waiting, flowered this summer in a bleak sandy spot. One plant produced a many-branched, candelabrum-like spike about 8 feet high, and attracted much attention. Flowering seems to kill this plant, and I shall stick to V. pyramidatum, which flowers every year, sows itself, and is equally as ornamental amongst shrubs as in the mixed border. But to my subject. It may interest "Veronica" to hear a few particulars of a Cheshire garden on a north sandy slope twenty miles from the sea. My object is bloom, and plenty of it from spring until autumn. The garden proper contains about half an acre, and is divided into three lawns, broken up by round, oval, and star-shaped beds, and long, straight borders, intersected by sea-gravel walks, and separated by Rhododendrons, Thorns, Viburnums, Hollies, white Roses, and other shrubs in masses, and by hedges of common red Roses and Sweet Peas, not forgetting a few Keswick Codlin Apple trees kept about 8 feet high. Every bit of bare wall is clothed with Ivy, Crassane Pears (the best late Pear in this climate), Morello Cherries, Wistarias, Jessamines, white and yellow Gloire de Dijon Roses, Clematises (Jackmanni and white-flowered), Aristolochia Sipho, Tropæolums, Kerria japonica, Cotoneaster, and other climbers. Some of the round beds, for variety's sake, are raised by a circle of strong cask staves driven into the ground, and are a mass of Ivy round the sides, the bed proper holding Hyacinths in spring, and a tub Palm or Indian Corn in the summer. The permanent occupiers of the borders and of some of the beds are Mezereons, Pæonies, Delphiniums, Everlasting Peas, white and red Daffodils, especially Horsfield's, Rock Cress, Doronicums, Phloxes, early and late Alstrœmerias, orange and white and Tiger Lilies, Southernwood, Lychnis chalcedonica, Hemerocallis, Hypericum calycinum, white Foxgloves, double Achillea, Anemone japonica (pink and white), Sedum acre, Saxifrages, Irises, and others. The rule is not to have a bare spot to lay your hand upon, and the spaces between the perennials are filled with Polyanthuses, Pansies (Tory being here the most lasting of all), Dutch bulbs, including early and late Tulips, alpine Auriculas, Pinks, Carnations, Pentstemons, Petunias, Lobelias, Cupheas (these make a splendid autumnal bed), Daisies, Stocks, Asters, Verbenas (Purple King), Doronicums, Funkias, Campanulas, Hyacinthus candicans, Indian Corn, Dahlias, single and double (the best that can be got each year), Gaillardias, Gladiolus, Gazanias (for edgings), Everlasting Flowers, Hollyhocks, Sunflowers (annual and perennial), Œnotheras, Tropæolums, Marguerites, Abutilons, Mignonette, Meteor Marigolds, various annuals, especially Clarkias, and Cornflowers and Poppies, intermingled with clumps of Fern, and so on. Sir Walter Scott's advice was, "Aye be stickin' in a tree." Our plan is always to have new plants ready, and whenever anything is over it disappears, and something new takes its place. Nothing is so useful for autumn as Tagetes and blue Lobelia, Mignonette and Purple King Verbena, of which there is always a good reserve. So between fruit and flowers, and with Michaelmas Daisies and open-air Chrysanthemums to finish with, we manage to make a perpetual show outside until October is well advanced—this year much later. The choice Roses are grown by themselves, of course, but the Rose beds are edged with Tagetes, Mignonette, and blue Lobelia, and Gladioli are set between the Roses. The tall-growing plants, such as Hollyhocks, annual Sunflowers, and Œnotheras, are scattered amongst the trees and bushes, and Aimée Vibert Rose (which is the only one that will grow year after year as a standard with us) forms quite a tree of itself, and lasts until the late autumn. Cow manure and a little bone meal for the lawns and Roses are my sheet anchor. Give me plenty of cow manure and some road-scrapings and leaf-mould, and my soft sand will grow nearly anything, except Raspberries and Strawberries. These beat me, though a neighbour of mine not 100 yards away, who has a stiffer soil, grows them by gallons; even mixing the soil with marl does no good, for they will not incorporate. Alstrœmerias, the common white Rose, Anemone japonica, Orange Lilies, Lilies of the Valley, double Achillea, white Saxifrage (especially the beautiful S. Wallacei), yellow Sedum, and Verbascum are almost weeds with us. The garden porch is smothered in white Roses and yellow Corchorus, round, over, and about which twine Tropæolums, Aristolochia Sipho, and Clematis Jackmanni. The latter has not been disturbed for years, and carries hundreds of blooms, owing to a winter mulching of cow manure. I do not forget a few bulbs of Hyacinthus candicans and some tall Œnotheras to peep out of the foliage where they can. Lawson's Cypress, Juniper, and Arbor-vitæ are my best Conifers. Portugal Laurels get periodically cut down by frost, and I and my neighbours have discarded them. My Grapes and flowers together have done quite as well as usual. In my houses, all of which are vineries, I have now a full display of flowers. My Bouvardias, Lasiandras, Cytisuses, Callas, and Abutilons—thanks to my system of planting them out (plunging them in their pots all summer)—are quite a show. Schizostylis coccinea, turquoise-blue Browallia elata, Primulas, Cupheas, climbing Tropæolums, Heliotrope, winter Pelargoniums, Gesneras, Coleuses, and cuttings of Pompon Chrysanthemums (taken off with buds showing about two months ago and potted in small pots of rich soil) add to the general effect, and are useful on the table as well. My Cyclamens and Dutch bulbs are getting rapidly on, so that when Christmas comes we shall be as gay as ever. Even with a pit of Ferns under the Vines in one of the houses Black Hamburgh Grapes are still hanging, but, as I have said before, ventilation all day is the grand secret. In my propagating house a few Cypripediums and Eucharises are in bloom, and a Zygopetalum and two or three pots of Calanthes and a couple of pots of Euphorbia jacquiniæflora are showing for flower. Great gardeners will, I daresay, be amused at all this, but when I state that I have only one gardener, that I cannot spare time to assist him, except with advice, and that what little I know is derived from a fondness for botany, from a careful study of THE GARDEN and *Gardening Illustrated*, and, most of all, from experience and many failures, it will, I trust, be an encouragement to others occasionally to hear what can be done by a mere amateur like myself.

NORTH-WEST CHESHIRE.

INDOOR GARDEN.

EVERGREEN AMARYLLISES.

AT this time of year when flowers are scarce, evergreen or perpetual-flowering Amaryllises supply a want which has long been felt. The size and pleasing colour of their flowers make them invaluable for the stove just now. As regards their free-flowering properties, I may say that a bulb of Mrs. William Lee has flowered no fewer than three times in one year, a fact which speaks for itself. There are now nearly a dozen varieties of this type in cultivation, most of which have reticulated leaves, as in the old reticulata, from which they originated. Mrs. Garfield, Mrs. W. Lee, and Comte de Germiny are the result of a cross between the old reticulata and a deciduous one called Defiance. Probably the most popular of any is Mrs. W. Lee, which has long foliage with a white variegation along the midrib similar to that in reticulata. The flowers are rich rosy pink, netted and veined with a deeper tint of the same colour, and shaded towards the base with deep carmine. Mrs. Garfield is somewhat similar, but differs in having the white band in the centre shading nearly halfway across the surface. This variety usually produces from five to seven flowers, the ground colour being nearly white, and the reticulation the same as in Mrs. W. Lee. The flowers of Comte de Germiny are much larger and deeper in colour than those of the preceding; their ground colour is pink, and the veinings deep carmine.

Her Majesty, certificated by the Royal Horticultural Society in May last, is said to be a cross between Crimson King and Mrs. Garfield. Its form is unique and the colour bright maroon, veined with deep crimson, deepening almost to black at the base. Pioneer, exhibited last month, differs from the former in having the ground colour bright cerise with very faint veinings of a deeper hue, deepening towards the base. The sepals differ from the petals in having a band of pink up the centre, the back being shaded with pink and rose. Autumn Beauty, apparently a variety of Mrs. W. Lee, varies in the reticulation of the flowers. Lady Mayoress is a cross between reticulata and Leopoldi, and is somewhat similar to Comte de Germiny. It is a winter-flowering variety, a term which may be applied to Comte de Germiny, that being the latest flowerer of them all. Pirloti and solandræflora reticulata are two continental productions, raised by M. De Graaff, of Leyden. Pirloti is somewhat similar to Mrs. Garfield, but narrower in the petals; the reticulations are carmine, and the band in the centre of the petals pure white; whilst the colour of solandræflora reticulata is pink with very few reticulations. The tube is longer, and the flowers, which are pendent, possess a pleasing scent.

R.

Isolepis gracilis.—This, as is well known, forms a pretty living fringe of verdure for a plant-house stage; it hangs down in the most graceful manner, and enhances the beauty of plants in the

background. It is of the easiest culture, and may be increased to any extent by dividing the plants in spring; any light sandy soil suits it well. The only thing needful to ensure its growing freely and retaining its charming green colour is an abundant supply of water at the roots. If little saucers are set under each pot, and kept filled every few days with water, frequent waterings will be saved, and many plants succeed better supplied in that way than by constant surface waterings.—J. G. H.

Steaming *v.* fumigating.—Two years ago I used a tin steaming apparatus continuously for a whole week, day and night, in the same house, which contained Orchids only. Fresh plants were brought in daily, though some other plants were left amongst the steam the whole time, one of which, a fine Dendrobium Paxtoni, was reported in a contemporary a few weeks after that time to be carrying 1000 flowers, a circumstance which shows that the whole week's steaming did it no injury. I found the process, however, to be too tedious for practical use.—H. G.

Bouvardias after flowering.—Some of the Bouvardias which have been in bloom during the last ten weeks are now going out of flower, and those who have not had much experience with them may be anxious to know the best way in which to treat them. We have managed them in various ways, and have found the best of all to be the system of drying them off like Fuchsias. Water is gradually withheld as the leaves drop, and when divested of foliage they are kept quite dry. Many of our plants have no water from the middle of December until April, and when watered and placed in heat again they burst into growth very freely. When dry and at rest they may be put into any shed from which frost is excluded, and thus stored, no more attention will be required throughout the winter.—J Muir.

Crimson Chrysanthemums. — "G. H. E." writes in The Garden (p. 462) in warm praise of the Japanese kind Tokio. For all ordinary decorative purposes it is indeed a beautiful kind and a free bloomer. Plants grown here in the open ground all the summer for autumn lifting were stout, erect, and about 3 feet in height when in bloom. None could well have a better habit. Lifted into the house and planted in a soil bed, the mass of rich crimson-chestnut colour furnished by the flowers, especially in the sunlight, is indeed striking and beautiful. Very recently a well-known floral decorater mentioned to me that whilst whites, yellows, and buffs were abundant enough in market Chrysanthemums, rich reds and chestnuts were comparatively scarce. I think no kind so admirably supplies that deficiency as Tokio. It is a kind so rich and striking, that were its blooms of the ordinary show size, they would be found in every stand of Japanese sorts. Not being large enough for that purpose, it is none the less a beautiful kind for pot culture, and it always tells well in Chrysanthemum groups, whilst for cut-flower purposes it can hardly be surpassed.—A. D.

Enduring plant-staging.—Amongst the exhibits at the recent show at the Royal Aquarium was in one corner of the Upper Hall a sample of what was called Perry's patent plant-staging. Why thus termed it is hard to say, as the material of which it was composed—galvanised iron—has for some time been employed for plant-staging, and with excellent results. In the present instance not only did the floor of the staging, however, consist of corrugated iron galvanised, but the supports of the floor were of iron galvanised also, and the whole might well have been described as indestructible. I have seen corrugated iron previously in use at Farnham Royal, where Mr. James has staged his new house extensions with it. The same material is largely employed by Mr. Laing in his plant houses at Forest Hill, and at Major Lendy's, Sunbury, for Orchids, and with great success. In the sample shown at the Aquarium the furrows and ridges of the staging ran lengthwise, thus rather holding water than otherwise. Mr. James had fixed his crosswise, having had it made specially in 4-feet lengths to suit the requirements of his houses. The supports in his case are of wood, but because so very efficiently protected from drip by the non-porous character of the staging, wood of good quality will endure for very many years so employed. Then, further, his staging is so fixed that it has the slightest possible run or fall towards the sides of the houses, thus enabling moisture resulting from watering to run off. Of course there is a space left between the edge of the staging and the wall of the house to enable the moisture to drip on to the soil beneath. No doubt it would be better still to fix a shallow zinc gutter to catch this drip, and thus preserve the floor of the house from excess of moisture. By fixing a strip of wood along the back of the staging in such a way as to leave an opening at the end of each furrow, moisture can escape freely, and yet retain the crushed shell or shingle which forms the levelling material on the uneven staging. I should like to add that Mr. James has, in revising the heating power of his houses, added a small pipe just under the glass on either side for top-heating with capital results.—A. D.

LEAFY VIOLETS.

When Violets form a great number of coarse leaves they seldom bloom satisfactorily, and therefore the aim of all who cultivate them should be to induce sturdy growth. On strong soils they are almost certain to grow too rank, and when this happens they produce but few blooms in the autumn, though, if they survive the winter, abundance of fine blooms may be forthcoming in spring. In this neighbourhood several acres of Violets are grown for the purpose of supplying various towns with blooms, and for many weeks past great quantities have been gathered and bunched up. On several occasions I have noticed how little foliage the plants form. Nor is this to be wondered at, seeing they are planted on a shallow loamy soil resting on gravel, the site also being a steep declivity facing the south. Red spider naturally abounds on these plants, but in spite of this they form good crowns, are fairly hardy, and very profitable. We also devote a considerable amount of ground to Russian Violets, but, as a rule, they grew much too strongly, and we gather comparatively few blooms till after the frost or damp cripples the foliage. To counteract rank growth, it is frequently necessary to plant on firm ground and in exposed positions, and as soon as they become crowded a clearance is made. To be plain, we plant a bed and destroy another annually. Just now several amateur Violet-growers hereabouts are concerned about the behaviour of their Marie Louise in frames They are growing strongly, producing quantities of spindly runners and a very limited number of blooms. Much of this is owing to the mildness of the weather and the humidity of the atmosphere; a drier and more frosty air would benefit them. To check this leafy growth, which is produced at the expense of the blooms, I recommend that the lights be thrown off whenever the weather permits, plenty of light and air being necessary to check luxuriance and to render the plants hardy. All runners, with the exception of about three that have stout crowns attached, should be kept closely removed, thus admitting air to the crowns, and also concentrating the sap on the production of good blooms. Reserved runners, if not already rooted, may be pegged down near the parent plants, and these will flower this season, and also be available for planting out in April or May in preference to older crowns. Violets in frames must be protected from severe frosts, a slight injury causing the leaves and crowns to damp off badly. With us Violets are not quite so plentiful as we have had them at this time of year, but they are of good size, and better than usual in colour. W. I. M.

Chrysanthemums going blind.—Complaints are sometimes made of Chrysanthemums failing to form buds, some varieties being more subject to this misfortune than others. Where this does not arise from the attack of insects, or from the soil becoming over-dry, it may be attributed to defective nutrition. I feel sure that some kinds require more food than others, and I believe that the blindness among some of the newer varieties may be conquered by extra liberal culture. This year I grew a quantity of a late white kind. They were planted out in good ground, and were lifted and put under cover several weeks ago. They are a remarkably even lot of plants, with deep green foliage and abundance of good buds. I also grew some in pots, and these, though looked to with water, did not get much liquid manure. These plants look healthy enough, but although they were at one time the strongest, they are much later than those planted out, and some of the shoots went blind. When I saw this, I began to feed them well, and then they threw out laterals which gave buds later on. Thus it will be seen that poverty produced blindness, and good food restored fertility. In the case of kinds that are apt to miss forming crown buds, it is possible that extra food would ensure their doing so.—J. C. B.

Late Chrysanthemums. — These, with us, are more valuable than early, or midseason ones, and any plan by which a good supply of bloom can be kept up until Christmas will be sure to repay the cultivator, as at that time the demand will be great, and the supply of other flowers at about its lowest ebb. This year Chrysanthemums have been very abundant, and I think it may be safely asserted as a fact that the height of the Chrysanthemum craze has been reached; many begin to say that they are surfeited with Chrysanthemums and want a change, and, as in the case of many other things, we shall probably find Chrysanthemum exhibitions diminish in number. Not so, however, their growth for private enjoyment, for by prolonging their season into midwinter, they are most valuable. They tide over what is really nearly a flowerless time in the case of those who have no heated structures. Such growers can spread out their Chrysanthemum supply quite two months beyond the ordinary date of the great feast of bloom early in November. To do this the plants must be kept out of doors; under the shade of a north wall is a good place, as there protection from early frosts can be given, and when placed under glass the coolest and most airy house at disposal must be afforded them; if the bloom is kept dry, a little frost will not hurt them. Ours are now only in bud, and by making note of varieties that naturally flower late, and availing ones-self of retarding influences, a fine display may be secured at Christmas.—J. G. H.

A GARDEN GATEWAY.

So many gardens are spoilt by an excess of needless masonry and architectural detail, encroaching obtrusively into the domain of plant and flower beauty, that it is well now and then to record a good example of garden architecture designed without affectation, and serving a distinct purpose. Eastbury Manor, near Guildford, has lately been enlarged and altered from the designs of Mr. Christian, architect. The kitchen garden is placed very near the house, and is separated from the pleasure grounds by a new brick wall. At the point where access is wanted the wall is pierced by the well-designed gateway in brickwork shown in the annexed engraving.

Lobelia Cavanillesi.—A friend of mine who knows a little of garden botany writes to ask if this is not an old English garden plant. In Sweet's "British Flower Garden," series 2, 389, you will find a plant closely resembling this Lobelia there called by its older name of Siphocampylus bicolor. I would ask is this new re-introduction the same or not? Both I and my friend believe it is so. The plant has also been called Lobelia laxiflora, L. angustifolia, and L. bicolor, and I remember a plant of it in an old greenhouse as long ago as 1860, and see by the dictionaries of gardening that it was originally introduced from Mexico in 1825. There is a good plate in the *Botanical Magazine*, t. 3600, where it is called L. Cavanillesi. This plant has never been lost to English or Irish gardens. Mr. Smith, of Newry, sent us plants some years ago, and at Newry, I believe, it is quite hardy.—F. W. Burbidge.

NOTES FROM FRANCE.

Late Chrysanthemums.—A writer in the *Revue Horticole* describes a method of growing Chrysanthemums whereby he has been enabled to have them in bloom at a period when their natural season of flowering is well over. His system is as follows: In July cuttings are taken, not the soft terminal points, but long shoots about half the length of the current season's growth. These, if carefully looked to, soon make roots, and about the 15th September, just as the buds are beginning to show, they are taken up and potted, at the same time cutting them down to about 8 inches in height. They are allowed to remain in the open air until there is danger of hard frosts; then they are taken indoors and kept in a cool house till December, watering only just enough to keep them healthy. During this time all suckers as well as side shoots are carefully suppressed, this being an important detail to observe. They are placed in succession during December, January, and February, in a temperature ranging from 55° to 60°, when they immediately begin to push forth side shoots, each one of which shows a bud which expands perfectly well. The writer asserts that by this method he has succeeded in obtaining a good show of bloom all through the spring months. I have no doubt that in this way the natural season of the Chrysanthemum may be thrown back to a considerable extent. The Chrysanthemum is like all soft-wooded plants; if you prevent it from blooming at its natural time, it will try to do so later on. That is only what occurs in the case of Geraniums and some other things grown expressly for winter bloom; the buds which form at the natural blooming time becoming suppressed, others are continually thrown up. It was, I believe, in February that some very good Chrysanthemum blooms were sent to The Garden office, the sender stating that his plants were caught in the sharp frost of the previous September, which destroyed all the buds. The blooms sent came from lateral shoots that formed later on. It does not, therefore, seem difficult to secure Chrysanthemum blooms at any time during winter and spring. I do not, however, think that we need them after the middle of March. Up to that time bloom is more or less scarce, but during the early spring months there is much variety to be had, and not many would care for Chrysanthemums more than six months out of the twelve.

Garden gate, Eastbury Manor, Surrey. Engraved for The Garden from a photograph.

Double-flowered Iris.—It is announced in a French gardening paper that quite a series of double English Irises has been obtained in Holland. The duplicature consists in a multiplication of the erect petal termed the standard. The markings are said to be very distinct. Opinions will probably differ as to the value of double Irises, but they are sure to find admirers. It is not stated by whom they were raised, but, I suppose, by some Dutch bulb-growing firm. As some of them have received names, they will probably soon be in the hands of English growers.

Roadside planting.—The Minister of Public Works in France has recently issued a report on the wayside planting done up to June 1, 1885. Nearly 3,000,000 trees have been set, consisting principally of Elms, Ash, Poplars, Sycamores, and Limes. The work is to be carried on until the whole of the suitable waste roadside spaces are similarly occupied. In commenting on the above, the editor of the *Revue Horticole* observes: "In estimating the value of the trees at a low figure, it will be seen that they represent an important source of production in addition to other advantages, among which may be mentioned the shelter and shade they will afford to pedestrians and travellers generally." In a climate so hot and dry such a refuge from the sun's rays is very welcome, but one cannot help feeling surprise that no mention is made of fruit trees. Those who have charge of the planting in France might well take a lesson from what has been done in Wurtemburg and in some other parts of Germany. One sees there fruit trees bordering the roadsides, which annually give a return for the outlay incurred in planting. In a fruit-growing country like France it does seem strange that only forest trees should be chosen for roadside planting.

Mountain Rice.—Under the auspices of the French Acclimatisation Society, a kind of Rice bearing the above title is now being tested with the view of ascertaining whether it can be profitably grown in the warmer districts of France. This Mountain Rice is said to form a staple article of food in some portions of Madagascar, and the same kind is said to be grown in China. Definite information as to the exact climatal conditions required to bring the Rice to perfection seems to be lacking, but it is said that the large amount of moisture demanded by the ordinary kind is not indispensable. Provided it gets heat enough it will perfect its growth. Experiments on a small scale have already been made, and the reports thereon sent in to the Acclimatisation Society have on the whole been favourable. Some of the best authorities are not, however, very sanguine of success.

Acer colchicum tricolor.—M. Carrière speaks very highly of this plant, placing it in equal rank as a decorative shrub with the well-known A. Negundo. Every tint ranging from deep red or crimson to flesh colour is represented in the foliage, forming charming and indescribable colour contrasts. These colours are continually undergoing modifications according to the age of the leaf, and as there are during a great portion of the season leaves in different stages of growth on the same tree, there results therefrom a most varied and harmonious mixture of tints. This Acer came as a sport from A. colchicum rubrum in the nursery of M. Auguste Gouchault, 19, Rue Basse Mouillière, Orleans. Grafted on the type, it shows no signs of variation, with the exception that in its first stage of growth some greenish leaves push, but these soon take on the variegation. This Acer is now being distributed by the raiser.

Ought vegetables to be washed?—M. M. G. Van Hulle writes as follows in the *Bulletin d'Arboriculture:* "Peas, Beans, Haricots, &c., ought not to be washed, and in a dry state they should be passed quickly through the water just as they are to be put into the saucepan. All roots and tubers should remain in the earth until they are needed, and should not be cleansed until they are wanted for cooking. With respect to those vegetables of which the foliage is eaten, they should not be washed if it is possible to avoid doing so They should be examined to see if they are clean, and whether simply brushing with a dry brush will suffice. In any case never wash them till just before cooking." I have heard it stated by competent authorities that a first-class salad can only be made when the ingredients have not been washed; but I never remember to have seen it asserted that vegetables generally deteriorate in quality if washed. M. Van Hulle is, however, regarded as an authority on all that pertains to vegetable culture, and in the present instance it is an easy matter to prove whether such is really correct or not.

Early Peaches.—At the July meeting of the French National Horticultural Society, M. Margottin, of Bourg-la-Reine, exhibited twenty-three varieties of Peaches in the best possible condition. These came from trees grown as pyramids in the open. They were protected up to the end of May by glazed lights, but after that time were without covering until the fruits ripened. It is stated that the fruits thus grown were superior in flavour to those produced by wall trees. J. Cornhill.

Boussingaultia baselloides.—I should have supposed that this beautiful plant would always have grown and flowered freely under glass—at any rate, if planted in a border (see p. 480). Here it is planted in a border in the Cactus house, where it grows rampantly, and would, no doubt, have filled the house if allowed to do so. It requires the most severe restriction. About two years ago the roots got under one of the stone slabs, which

they tilted high up on one side, so that it had to be taken up and re-laid. This plant produces thousands of its graceful racemes, the effect of which is most charming out-of-doors, under a south wall of one of the houses; it lives and grows moderately well, but does not flower.—R. Irwin Lynch, *Cambridge*.

NOTES.

Laurel leaves.—I should like in all reverence to lay a branch of wild Olive on the newly-sodded grave of a man who loved plants and flowers as but few, even amongst gardeners, can ever hope to do. The late Mr. D'Arcy-Hoey, of Newry, who died the other day a comparatively young man, had made a garden of which he and others were very proud, and although perhaps he was more widely known as a sportsman fond of field sports, and as a shrewd and capable business man, yet it is as an amateur gardener that he will best be remembered by all readers of The Garden. His garden at Dromolane, Newry, is most tastefully planted, and contains for its area a large, rare, and remarkable collection of hardy flowers. There seems therein a diversity of surface and a suitable locality for everything, or something of everything, beautiful that grows, and such things in abundance are there. Here a little brook rushes headlong down to the pond in a hollow, both being fringed with American Lady's Slippers, with rare Lilies, with shrubs many and beautiful, or with rare hardy Ferns or Spiræas from South America, New Zealand, or Japan. In the plant and fruit houses, in the kitchen garden even, there was ever something worth seeing. The owner was a large-hearted and a generous man, with sympathy for everything and everybody who entered his gates. The speckled trout that lie among the rare Water Lilies in the ponds there to-day will miss him. They used to come at his call and nibble their breakfast from his fingers; while the Japanese or Chinese pheasants and other of his pet birds would be jealously demanding his attention on all sides at the same time. His garden is a paradise of bulbs and other rare plants from earliest spring to latest autumn, and everyone who cared to see his garden was welcome to enter and wander over the place at their own sweet will. I hear that his garden is likely to be preserved as a memorial, and I sincerely hope this is true.

Gladioli for pot culture.—G. Colvillei albus, otherwise called The Bride, is so free and vigorous when well grown in pots that one may be excused for wishing to obtain variety of colour and form into the greenhouse during early summer by the pot culture of other suitable varieties. Last season we tried G. byzantinus, and had it in flower with The Bride, and this season we are trying some of the best varieties of the G. ramosus section in the same way. No doubt all the species of Gladiolus may be well grown in pots, but some seem to thrive better under pot culture than in any other way. This is true of G. Colvillei albus and G. ramosus in all their forms. G. insignis and G. cardinalis, G. Saundersi and G. blandus also form fine subjects for growing in pots. Three bulbs of G. insignis in a 6-inch pot rival even Disa in colour when in flower, and there are many other Gladioli, some, unfortunately, no longer growing in our gardens, which resemble and rival terrestrial Orchids in singularity of form and in brilliancy of colouring. In the Cambridge garden a year or two ago I saw Tritonia crocata beautifully in flower in pots, and as shown in the old gardening periodicals and alluded to in the earlier numbers of the *Botanical Magazine*, the Ixias, Babianas, and Tritonias were usually well grown in this manner. I saw some allusion in the last number of The Garden (p. 496) to Gladiolus Ville de Versailles. It is a fine plant, and the latest of all to bloom here in the open air, being now at its best. This would be most valuable as a pot plant. Six bulbs in an 8-inch or 10-inch pot would produce growths 4 feet to 6 feet in height, and these flowering at this season amongst Chrysanthemums would be very distinct and effective in their way.

Cœlogyne Gardneriana.—This rare old Orchid is now pretty freely distributed in gardens, and is flowering with us for the first time. It is a snow-white flower with a little stain of citron on the lip, its spikes being densely packed with blossoms and produced from the base of the last year's bulb. It is figured in vol. vi. of Paxton's "Magazine of Botany" (p. 73), and we therein learn that the late Dr. Wallich, of Calcutta, originally discovered this species; but it was introduced by the late Mr. John Gibson, when travelling in Khasia for the Duke of Devonshire, in 1837. It is said to flourish near the summit of the Khasia Hills, on trees and rocks in moist and shady woods. Its favourite position, however, if luxuriance of growth be taken as a proof, is near a waterfall from which it is bedewed with spray. It first flowered at Chatsworth in December, 1838, so that it is of some interest to find that it even yet adheres to the calendar. In its native habitat it is said to bloom at the rainy season, and Mr. Gibson described the appearance of the plant at home as being most beautiful. Its blossoms, hanging as they do from the branches of trees, are said to resemble floating garlands of snow interwreathed with the golden colour of the bracts and the vivid green of the pseudo-bulbs and leaves. The modern re-introduction of this plant seems to have been due to the late Mr. Freeman, who collected Vanda cærulea and many other Orchids in Khasia ten or twelve years ago. As an interesting plant it well merits careful culture, but it cannot be compared to advantage with the great-flowered C. cristata and its white and lemon-lipped forms.

Euonymus europæus.—When the white-leaved form of Negundo variegatum was first introduced it soon took the town by storm, and it so continually met the eye in suburban gardens, that one tired of its "white-rag-on-a-bush" effect, and one of my friends went so far as to say that half a dozen plants of it dotted about were quite sufficient of themselves to spoil the effect of a good garden. A good healthy piece of this Negundo near a golden Laburnum or a flowery mass of Jackmann's Clematis is very good to see in August, and it is possible to otherwise place the plant so as to show its peculiar leafage to advantage, but, of course, it is easy to have too many violent contrasts of this kind. But wherever cultivated taste can appreciate quiet homely tones on the lawn, or in the shrubbery belts or plantations near the house, one might do worse than plant a few healthy young bushes of the above Euonymus, or Spindle tree, for the sake of its soft terra-cotta coloured crop of fruit now beautiful in the winter sunshine. There is a white-fruited form, but the common red one is that most generally useful. Its beauty is not startling, but as seen here and there in sunny nooks, or on the margins of home woods, this plant and Cotoneaster frigida yield quite a rich warm glow of colour to the browns of Beech and Bracken, and the bright firm red tone is intensified delightfully by the ashen-grey trunks behind. If you plant this Euonymus, and the gold and crimson Osier and crimson Dogwood, in good bold groups here and there along the margins of woods or plantations, you may add much warm and precious colour to the masses of browns and greys which betoken the waning year.

Calanthes.—These are deciduous Orchids with annual bulbs or stems, and deserve culture in hothouses everywhere. Their prevailing colours are rosy crimson (C. Veitchi) and white (C. vestita and its varieties), and when well and strongly grown they bloom so profusely and endure fresh and fair so long, that they become invaluable for winter decoration. Last year a friend of mine who grows these plants remarkably well drained his Calanthe pots and pans with dry, half-rotted bones instead of crocks, as is usual. The size of bulb and of flower-spike were enormous, and he thinks the colour of C. Veitchi was much intensified by this addition to its usual food supply. A compost of turfy loam, fibrous peat, chopped Sphagnum, and charcoal suits them on a well-drained bottom, and when the leaves approach their full size, an occasional watering with weak liquid manure helps them along wonderfully. They should be grown near the light, but protected from the full force of the mid-day sun during the summer-time. The finest plants I ever saw had three bulbs in an 8 inch pot; each bulb was 15 inches in height, and they threw three spikes each—that is, nine spikes to a pot. All the spikes were over 2 feet in height, most of them over 3 feet, but the finest spikes bore sixty flowers and buds, and were over 4 feet long. As so seen, Calanthe Veitchi is a very useful plant. I have another little memorandum anent bones for drainage. The finest-grown Dendrochiliums I ever saw were grown in shallow pans drained with dry, half-rotten bones. It is a matter worth the attention of those who fail to grow these fairy Orchids satisfactorily.

Salvia Pitcheri.—This is a tall, free-growing, half-hardy species, well worth growing for blooming at this season in the conservatory along with white or dark bronzy Chrysanthemums. It produces long wand-like shoots, each now wreathed with 1 foot or more near their apices of bright sky-blue flowers; as seen spearing up through the fleecy clouds of blossom, such as are produced by Elaine or White Princess Chrysanthemums, its blue flowers are most effective, being quite unlike any other blue-blossomed thing now in season. It roots readily from cuttings in March, April, or May, and if pinched once or twice, and plunged outside during the summer, and treated like a Chrysanthemum, it is easily grown. We have a batch of things of this kind every season—Justicia speciosa, Goldfussia isophylla, Salvia splendens, Linum trigynum, &c., all of which succeed best from cuttings rooted in May, and grown on in pots plunged outside or in an open frame. A little stimulant of some kind improves these things much when in full growth. None of these are, however, quite so distinct and effective as is the Salvia. For one reason, blue of this lovely soft and fluctuating shade is rare at any time, and especially so at this season of the year, and another point about this plant is its elegant Bamboo-like grace of habit. It is to the greenhouse or conservatory what the scarlet Euphorbia jacquiniæflora is to the hothouse or stove, and should be grown everywhere where blue flowers are in request during the dull months of winter, when blossoms of all colours are welcome.

Epiphyllums.—All Lobster Cacti, as these are called, are beautiful, and by no means ungraceful in habit, whilst their winter-flowering tendencies give to them an added charm. One beautiful way of growing them is to plant out a strong-growing Pereskia as a stock, and to train it, in Grape Vine fashion, up the rafters of a

moderately warm greenhouse. The Epiphyllums can then be engrafted into the soft stem at suitable intervals, and if of different varieties, a very pretty contrast may be made. They may be grown on their own roots in wire baskets suspended near the glass, but, being very impatient of stagnant moisture at the root, the compost should be mixed with charcoal and broken crocks. But it is as dwarf standards on the above stock in pots that these plants are most generally useful, either for decorative uses in the conservatory or as table or bracket plants indoors. Of late years the race after novelties has been so great, that the beautiful succulent plants so popular in the days of Haworth are now rarely seen. The best varieties of Epiphyllum and Phyllocactus are, however, well worthy of careful culture. There is a lovely white Phyllocactus which flowers freely and is as fine as any Orchid in its way; and the purple shot-blossoms of Cereus speciosissimus are most gorgeous when seen at their best. Once upon a time the night-blooming Cereus caused as much sensation as do the finest of new Orchids of to-day; and I believe the coloured plate and description of this flower which I saw in McIntosh's "Practical Gardener" had much to do with my being a gardener to-day. I think it a poor picture now, but it was lovely to me at the time as a boy.

Odontoglossum Alexandræ.—This plant is popular already, being the Orchid *par excellence* in English gardens to-day, but if people generally were less afraid of the word "Orchid," and knew how easily this plant can be grown in a close and moist greenhouse temperature, it would be grown ten times more abundantly than is already the case. A winter minimum of 50° and a summer temperature as much below 70° as is possible suit it perfectly. Just at this season, when choice flowers are apt to be scarce, this plant gives wreaths of long-enduring flowers, and scarcely any two plants out of an imported batch will be precisely alike in habit of growth or in size, form, and colour of the individual flower. There are a good many beautiful Orchids in our gardens, but if a *plébiscite* were taken to-day, I believe this lovely plant from the Andes would receive more votes than any other Orchid whatever. Certainly there is a little knack in getting this plant to grow well, but it is a knack easily to be learned, and the results are better than those which attend the ordinary culture of less beautiful things. Any gardener who can grow really good Cyclamens or Chinese Primulas (to say nothing of Clianthus Dampieri, or Leschenaultia biloba, or Lisianthus Russellianus) ought to manage this Odontoglossum to perfection. I shall never forget seeing Dr. Paterson's little cool Orchid house one chilly day in October of last year. The door stood wide open, and there was but little, if any, fire-heat: I believe none, but the great arching paniculate spikes hung out above the most vigorous of leaves, and the snowy flowers, contrasted with scarlet Nerines, were very lovely, while overhead a happy marriage between the white and the red Lapageria completed the picture.

Aralia Sieboldi.—This glossy-leaved Japan Ivy, or Fatsia japonica, as it ought to be called, is perfectly hardy in most sheltered localities near the sea; and even were it not so, it is so distinct and ornamental, that as a pot plant in a cool house it really has but few rivals. I saw a big bush of it at Mount Merrion yesterday bearing perhaps fifty of its stout, ivory-white flowering stems, which contrast very beautifully as seen amongst dark green shining leaves. As planted out in sheltered positions near Bamboos or clumps of Eulalia japonica it is most effective, and in winter gardens or in cool conservatories it is most useful. If we except Aspidistra lurida, there is no more noble pot plant for a partly shaded window than a well-grown plant of this Aralia in a terra-cotta pot, or in an old copper Venetian bucket. Seedlings make the best plants, and they grow best in pots when plunged in coal ashes in the open air. As the pots become filled with hungry white roots, a little sprinkling of Standen's manure or a weekly dose of manure water strengthens them wonderfully, and an occasional watering with soot water improves the colour of the leaves, as it does those of nearly all other plants whatever. I am often asked to name the six best foliage plants for room culture, and this is my selection: Aspidistra lurida, Aralia Sieboldi, Acacia lophantha, Dracæna rubra (a hardy green-leaved kind of vigorous growth), Corypha australis, or Kentia australis, both of which grow well in rooms; while the India-rubber plant (Ficus elastica) is and ought to be a general favourite for this purpose.

Outdoor flowers in winter.—Roses are still blooming everywhere in sunny, sheltered gardens, and only yesterday I saw a Narcissus Tazetta in full bloom on a dry and sunny border alongside white Snapdragons and tall, scarlet Lobelia ignea. Scarlet Geraniums, Fuchsias, Gaillardias, and Calceolarias are as yet uninjured, and there are clusters of freshly-opened China Roses, Escallonia, and purple-flowered Veronica, and odd blooms of the large-flowered Clematis yet linger on thus far into the time of fallen leaves. Such a season will give a wonderful impetus to the even now popular outdoor culture of Chrysanthemums, for seldom, if ever, have we had such a suitable winter for them. Schizostylis coccinea and Gladiolus Ville de Versailles, and one or two of the G. Lemoinei group are also in flower. Ionopsidium acaule looks very neat and pretty in amongst the autumn Crocuses, and I think the earliest Christmas Roses are this year blushing more deeply than ever at finding so many unexpected floral friends around them. One of the sweetest of all the November flowers, however, was the pure white form of the mule Pink, and Painted Lady Carnation has only just opened its latest buds, and the seedling Primroses, Polyanthuses, and Crown Anemones are everywhere throwing up flowers. Even the Auriculas are yielding a few velvety clusters, and there are many Violas and odd seedling Pansies here and there opening in the sunshine. Gentiana acaulis flowered here more freely in November than it did in May or June. The Arbutus trees are now very fresh and covered with clusters of Lily-of-the-Valley-like flowers and the soft, grey catkins of the Garrya or Tassell Bush dangle gracefully in the breeze.

White Everlasting Pea.—I believe I am right when I say that twenty-five per cent. would be a very good yield of white-flowered plants from the seeds of Lathyrus latifolius albus. The white Ramanas Rose (Rosa rugosa alba) affords us another instance of the strong tendency to progression or reversion, as shown by the seeds of white-flowered varieties. But, on the other hand, we have selected races of white Stocks, white Chinese Primroses, and of white Snapdragons which will invariably produce from fifty to seventy-five per cent. of white-flowered plants. I suspect no one has yet taken the necessary care in growing and selecting the seeds of this lovely white Lathyrus latifolius, but, on the other hand, has not Mr. Eckford succeeded in giving us coloured strains of the common annual Sweet Pea, all of which come fairly true from seeds? On some soils the white Everlasting Pea grows and seeds freely, and the first step necessary in such localities is to grow the white form only so as to ensure self-fertilisation, or the intercrossing of white individuals only; this plan would soon fix the white form sufficiently, and we could then rely more implicitly on the seed than is now possible. If the blush and rose-coloured forms be grown in the same garden, there is always the danger of their pollen infecting the white flowers, just as the pollen of Polyanthus or Cowslip will soon ruin a good strain of true Primroses if they be grown in close proximity to each other. Veronica.

Rose Garden.

NOTES ON ROSES.

Rose stocks.—It speaks well for the value of the seedling Brier as a stock for Roses that so practical an observer as "J. C. C." should be driven to figures for evidence against it (p. 453), and that even so, the best evidence adducible of its unsuitableness is that the distribution of many thousands of Roses worked on seedling Briers has not prevented continued annual mortality among the almost countless myriads of Roses worked on the Manetti simultaneously distributed. For, be it observed, "J. C. C." does not state that plants on seedling Brier die every year; only, that the distribution of many thousands of such plants has not reduced the outcry against annually moribund Rose trees. Nor is this to be wondered at, for figures have only a relative value, and however imposing "many thousands" may sound, the expression is meaningless, except when regarded in proportion to other figures. Now, if the number of plants on seedling Brier that have been of late distributed be regarded in proportion to the millions of plants on Manetti sent out during an equal time, what a drop in the ocean does it appear. Perhaps it would be no exaggeration to say that the proportion of plants on Manetti to those on seedling Brier now in course of distribution is about 100 to 1. The Manetti is still the main stock in most nurseries (of course, there are one or two well-known exceptions), and though a few great growers may not send out more than three or four plants on Manetti to every one on seedling Brier, who shall reckon the innumerable plants distributed every year by the general nurseries all over the country, nurseries in which from 10,000 to 50,000 Roses are worked annually, and in which no other dwarf stock than Manetti is known for Roses? Under these circumstances it will be a long time before the seedling Brier can possibly be on an equal footing with the Manetti, nor will this end be attained until the Rose-buying public are convinced of the superiority of, and insist upon having their plants worked upon, dwarf Brier stocks.

Referring to the liability of seedling Briers in the young state to an attack of mildew, "J. C. C." makes a startling assertion in saying that "plants so affected at the beginning cannot, under any circumstances, prove to be sufficiently vigorous to sustain robust growth." "J. C. C." must know perfectly well that almost all seedling Roses invariably get smothered with mildew; and therefore his statement amounts to the assertion that no variety of Rose yet raised is sufficiently vigorous to sustain robust growth. But if it be said that this surprising remark was only intended to refer to seedling Briers, then this disparaged stock is credited with the achievement of the impossible, for instances may be cited *in infinitum* in which it has proved and continues to prove quite sufficiently vigorous to sustain not only robust, but exceedingly strong and lusty growth. It is certainly a remarkable fact that plants worked on seedling Briers should be so much less liable to mildew than plants worked on Manetti, although the former stock in its young state is such a victim to the pest from which the latter is itself exempt. I cannot but regard it as highly satisfactory that so experienced a grower as "J. C. C." concurs in holding the Manetti, as ordinarily employed as a stock for Roses, to be a failure; while the only objection put forward against seedling Brier is what may be called the

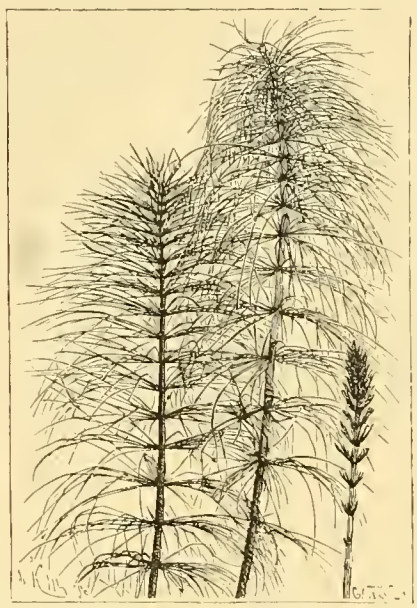
trivial charge of getting mildewed in the young state; but even granting the assertion about the insufficient vigour of seedling Briers (although I am not in the least prepared to relieve "J. C. C. of the *onus probandi*), I may once more point out that I stated that I found very little to choose between established (five and six-year-old) plants on seedling Brier and Brier cutting stocks, and that for those who resented the youthful indiscretions of the former in the matter of over-indulgence in mildew, the Brier cutting was the stock, as with so many of the seedling Brier's good qualities, it has further the merits of the Manetti in being free from mildew and easy to bud. Therefore, with "J. C. C.'s" support in regard to the worthlessness of Manetti, except as a roundabout means of establishing Roses on their own roots, and from the fact that Brier cuttings are not liable to the charge brought against the seedling Brier (which charge I submit to be quite unimportant), I would continue to urge that dwarf Briers are the stocks for Roses, leaving the selection of seedling or cutting as a matter of taste.

Into the question of the relative value of own-root Roses I do not propose to follow "J. C. C.," as I hardly feel qualified to offer an opinion in the matter, having never grown more than two or three hundred plants in this way; but I may mention one or two points in connection with them. My difficulty with own-root Rose trees has been that the suckers coming up from the base of the tree to form the plant the following year make their appearance just as the flowers in July are about to open; consequently, if the suckers are left alone, the flowers seem to stand still and never attain their greatest possible beauty, or, if the suckers are sacrificed to the flowers, the plant is damaged for the next season. In the case of worked plants, these strong growths from the base of the plant do not appear until the flowers are expanded, and hence neither interfere with the others. There is no doubt that Roses on their own roots endure well enough, and I have many plants of well-known varieties which were struck as cuttings not less than twenty years ago, and which are still flourishing; but to say that this shows "plainly that we can do without stocks altogether," will certainly strike most people as rather an over-statement of the case—at any rate, until Rose-growers generally become a more patient race than they are at present. Why, for instance, in the case of a novelty, should we wait wearily and watch laboriously for four or five years to see the plant in character on its own roots, when, by the insertion of a few buds upon dwarf stocks, we may, under ordinary circumstances, obtain sufficiently characteristic plants and blooms to form an estimate of the value of a new variety in a single season?

"J. C. C." gives an instance of one variety that succeeds on its own roots, so I will mention one with which I have failed. For the last five years I have been trying to establish Maréchal Niel on its own roots out of doors. Good, sturdy plants were planted and carefully tended, but only one now survives, and I have never had from them a single flower fit even for a button-hole; while numerous plants on dwarf Brier seedlings and cuttings that were put in at the same time are flourishing all over the walls and fences. If, therefore, "J. C. C.'s" one instance proves that we "gain nothing by using any kind of stock," I suppose this proves the converse.

Rose exhibitions.—In his genial Rose jottings under this heading, "E. H." has a dig at the exhibitors of Roses which can hardly pass unchallenged. "E. H." cannot be really an opponent of exhibiting, or he would not give such excellent advice on the subject as he does in the latter part of his remarks; he does not mention, moreover, which exhibitor's garden he found empty and flowerless. Could one of those great exhibitors have so far forgotten the laws of hospitality as not to have handed "E. H." a large bunch of Roses when leaving, that he implies that exhibitors do not grow Roses for their own beauty, nor have them in their rooms, nor give them to their friends? I have seen the gardens of growers who exhibit in classes of all sizes, from those for six blooms to those for seventy-two, and I do not believe in the possibility of any such grower returning from a show to find his garden empty and flowerless, though I have seen many gardens where Roses were supposed to be a feature, but where, through the growers never having learned from exhibiting the best development and culture of the Rose, there has been hardly a flower to be seen. If, as "E. H." truly says, "in the full flush of the Rose season, the more we cut them the more they flower," then it must be that the exhibitors who cut day after day will have the most continuous display of bloom; and it is certainly my experience that the exhibitors are the very people who most deck their rooms with Roses and keep their friends supplied.

The instancing of Gloire de Dijon also as a reliable show Rose might be misleading to intending exhibitors, for according to Mr. Mawley's record of the Roses most frequently shown during the eight years 1877—1884, Gloire de Dijon failed to obtain a place among even the twenty-four most frequently exhibited varieties of Teas and Noisettes coming after a so difficult and rarely



The great Horse-tail (Equisetum Telmateia) Engraved for The Garden from a photograph.

shown a variety as La Boule d'Or; while from the analysis of the National Rose Society's London show this year, it appears that Gloire de Dijon was not shown in a single winning stand. Of Glory of Waltham, again, I cannot recall or find any record of any instance of its having been successfully exhibited of late years. There are two Roses, however, which may well be recommended for planting where good plants as well as exhibition blooms are wanted, namely, Bouquet d'Or and Emilie Dupuy, both climbers, nearly as hardy and free as Gloire de Dijon, and both giving flowers good enough to show, the former even among twelve Teas.

Cheshunt Hybrid.—Mr. Muir might also mislead unwary exhibitors in classing this Rose as a Tea; whereas it may not be shown in the Tea and Noisette classes, as it is a Hybrid Tea, and therefore classed among Hybrid Perpetuals. Were it really the "*alpha* and *omega* of bright-coloured Roses," I would be inclined to say the Rose alphabet begins at *beta* and ends at *psi*. Has Mr. Muir grown Reine Marie Henriette really pure in colour, and always (even now) in flower? We have not been without blooms of it since May this year from plants out of doors, and since its arrival not a bloom of the dingy Cheshunt Hybrid has come into the house. T. W. G.

The Everlasting Rose.—This old Rose, the crimson Monthly, deserves all the praise that "Veronica" bestows upon it either as a pot plant in the window or elsewhere, or in the open on warm soils and in sheltered sites. Closely related as is this old favourite to the pink China, or Monthly Rose *par excellence*, it is much weaker in growth, and also more tender. Again and again have I worked up sufficient crimson Chinas to edge beds or groups of the pink; and while both colours have been subjected to identical treatment and the same protection, the crimson has sooner or later, and mostly sooner than later, succumbed. The only protection given, however, in most cases has been a handful of Bracken or Spruce boughs over the Fern fronds to keep them in position. But further north these Roses used to have a foot of dried leaves placed over their crowns and among their branches, and these were kept in place with an additional screen of boughs. Thus treated and uncovered and pruned about the end of May, they yielded any quantity of crimson and pink blooms and buds until November. By the way, does "Veronica," who has so admirably cleared up the history of the white Japanese Windflower (see p. 449), know the history of the so-called white variety of the pink Monthly China Rose? This variety is also more tender than the pink, from which it is probably a sport. In certain soils and positions it is almost pure white; in others, it seems to have taken several steps backward towards the pink variety, from which it may have evolved. Or is any proof forthcoming from China or elsewhere that the white China Monthly is the original type of these Roses? One more nut for "Veronica" to crack for us while he is about it: is the crimson Fairy Rose a dwarf sport from the Rosa semperflorens of botanists? and if so, it is rather singular that we do not seem to have a Fairy Rose of the exact shade of colour as the common pink Everlasting or Monthly China Rose. The latter phrase deserves revival, if only "for the days o' auld lang syne." —D. T. F.

Flower Garden.

THE GREAT HORSE-TAIL.

(EQUISETUM TELMATEIA.)

A native plant of great beauty, highly desirable to naturalise in any moist spot where its free-rooting nature would not endanger other plants. Nothing could better adorn a fairly large space of wet ground where its graceful plumes, 4 feet to 5 feet high and of a brilliant green colour, could be seen from a sufficient distance as well as close at hand. It may be called a most important landscape plant.

Carnations in winter.—The following remarks do not refer to flowers, but to plants only, and more especially to those good kinds which bloom in July and August. These are generally increased by layers, an operation performed in September, as a rule. The young plants are mostly rooted by the end of October, and it is the practice of some growers to lift them as soon as rooted and either plant them out in frames under protection, or pot them and put them in frames afterwards. This is no doubt good practice, but many growers of Carnations have so few frames and glass protectors, that it is almost impossible for them to treat their plants in that way. We do not keep any of our Carnations under glass in winter now; in short, they are not disturbed after layering in September until they are replanted in April. Managed in this way, they never suffer in winter to any serious extent, and they are preserved in health and strength mainly through being mulched with leaves at the end of November. These are packed closely between the plants and shelter them wonderfully from both wind and frost. I have often known young Carna-

tions to suffer through the ground being frosted about the roots, but this the mulching of leaves prevents.—J. Muir.

LILIUM NEILGHERRENSE.

I am much surprised at the performance of Lilium neilgherrense at Colchester. If there is one thing more than another of which we think we have a good share in the Isle of Wight, it is sunshine, and if there is any one garden in the island which lies particularly open to the sun, it is my own; but Lilium neilgherrense has never gladdened me with a single blossom, though I have had it in abundance for several years, and I have consulted for its wishes in every possible manner. I grow it in full sun in a loamy, sandy border, where it runs about *ad libitum*, and its whole appearance is that of being completely and happily at home. But, then, this is not all that is required. At this present time many strong stems and fresh green leaves seem to say there is just one thing they want to crown their lot, and that is a longer summer. And so it has been over and over again. Given only an additional month or so of bright weather, and I think I should have Lilium neilgherrense in blossom to my heart's content, but that is just what never comes off. This Lily is with me very late in rising from the ground; it makes a few delusive promises, and then at the first touch of winter it goes to rest without doing anything at all. It wakes up the following year only to repeat the performance, and to wander in a most erratic manner all over the border. It is therefore rather a puzzle to me why it blooms so well at Colchester in the open ground. I should like to know if it has ever done so before, and I shall be curious to see if it ever does it again. I am sure that my bulbs are in good, sound health; they were all kindly sent to me by Mr. Griffiths from India, and they succeed to perfection in this place, if only that be left out of account for which bulbs are generally prized, viz., blossoming. A garden, however, abounds in compensations, and when one thing falls below the mark another is sure to come up to it. Ornithogalum lacteum was in full glory here in the open ground a week or ten days ago, and I think it would have been so still if I had not plucked the blossoms. I more and more believe that a large majority of Cape bulbs only want to be kept dark and dry in the ground during the winter months, and then they will be sure to succeed; at any rate it is so in such a locality as this. A large covering made of Willesden paper meets all their requirements, and many of them start forth into beauty at once when this is taken away on the arrival of spring. Even Buphane ciliaris has got through one trying winter after a fashion of this sort. It is in very strong form now, and will, I hope, blossom with me next year. And there are others to whom the same hope applies. Mr. Bull, of Chelsea, most kindly gave me the other day some valuable bulbs on which to experiment, and as time goes on I shall be glad if I can report favourable results to him. Like "Veronica," I have attentively studied Prof. McEwen's remarks in your contemporary of the 6th inst. With regard to western Cape bulbs, I do not know that they have any great significance here, but with regard to eastern Cape bulbs they will make all the difference between life and death. If you let a bulb be wet when it should be kept quite dry, there will soon be no bulb to keep at all. I think that many of the eastern Gladioli may now have a chance with us. I enclose the first Snowdrop of the season, Galanthus nivalis var. corcyrensis. It has been out nearly a week; also a Crocus from Beyrout, Crocus vitellinus, which might well have had a place in your autumnal gathering of Crocuses (p. 476).

Henry Ewbank.

The first Chrysanthemum.—Referring to the remarks in The Garden on this subject (p. 467), allow me to say that I have Dr. Sharpe in flower, and was able to make the comparison between it and the kind figured in the *Botanical Magazine* in 1795, and the likeness between the drawing and a very poor flower of Dr. Sharpe is, I must say, very striking. There ought to be no difficulty in tracing its parentage, as it was sent out with Mrs. Sharpe as a new variety either in 1866 or 1867. I used to take notes of all the new varieties at that time both at Mr. Salter's and at Mr. Forsyth's, Stoke Newington, both of whom had Dr. Sharpe in 1867, and it was exhibited that year as a new variety. Messrs. Salter and Forsyth were almost the only trade growers who got up exhibitions of Chrysanthemums at that time, and unfortunately there was sometimes a certain mystery about the introduction of new varieties. Mr. John Salter's own seedlings were well known and acknowledged, but I fancy Dr. Sharpe was not one of them, and unless its parentage can be proved we must credit Mr. Burbidge with having made an interesting discovery.—J. Douglas.

MONKSHOOD.

(ACONITUM NAPELLUS.)

This old favourite is one of the good hardy flowers that has lived most prominently through the now happily dead-and-gone period of their

The Monkshood (Aconitum Napellus). Engraved for The Garden from a photograph.

neglect. Its fine spikes of hooded flowers, purple, blue, or blue and white, may be seen in most cottage gardens. Unfortunately, it is a dangerous plant where flowers and vegetables are grown together in a small space. The root is a deadly poison, and lives have been lost through its ignorant use in mistake for Horse Radish, and in even more purely accidental cases.

Tree Pæonies.—These are in many respects like Hydrangeas. They are deciduous, and require an open situation where the soil is deep and rich; they are most effective when large in size. There is, perhaps, no more showy plant in cultivation than one of these large Pæonies in flower, the massive blooms of which weigh down the branches. The foliage is also ample, and distinct from that of ordinary lawn subjects. Before planting Pæonies, a thorough preparation of the soil should be made, then the plants will each season increase in attractiveness. A space 4 feet square and 2 feet deep should be trenched up for the roots, and if the natural staple is at all poor, it should be removed and some good turfy loam substituted. Tree Pæonies start into growth early in spring; therefore, the planting out should be completed by the end of February. There is a good variety of colour amongst this class of plants; one is almost white, and another rosy red, but the most common sort bears pinkish lilac flowers. There is a very old variety belonging to the herbaceous section of Pæonies which bears large rosy crimson flowers, and this, when grown singly on a lawn, is a conspicuous plant; indeed, it would be difficult to find another more striking. Plants of this variety growing in poor soil in mixed borders and crowded by others give but a poor idea of their capacity to make telling specimens when grown in good soil and with plenty of room. This sort is quite hardy, and starts into growth early in spring; it should be planted at once.—J. C. C.

Tropæolum tuberosum.—In the interesting note on this fine old plant by "T. W. G." (p. 447) it is incidentally stated that the plants were still uninjured at the time of writing, though five degrees of frost had expended its force on them on the 3rd of November. Fully a week later, on the morning of the 11th ult., I gathered some nice sprays of the Canary Creeper to mix with Veitch's variety of the Virginian Creeper in draping a dinner-table decoration. These and many similar illustrations convince me that not a few plants endure more frost with impunity in the autumn than in the spring. In the case of many plants, too, the cause of this difference is obvious enough. The wood and leaves are harder and more matured in the autumn, and hence comes their greater power of resisting frost. But this explanation can hardly apply to the late autumnal growths of such plants as these. The Canary Creepers were soft and tender in full fresh growth and bloom; the terminal shoots were brittle almost as glass; and even the flowers were soft and tender as in the early spring and summer. And yet the fact remains that they endured more frost with impunity. Nor is this peculiar and superior hardiness of plants in the autumn confined to Tropæolums. It is equally or more marked in Tomatoes, Dahlias, Vegetable Marrows, ridge Cucumbers, &c. These are frost-bitten or killed in May or June, with degrees of frost that leave them unharmed in the autumn. Before leaving Tropæolum tuberosum, I may add, what I think I have stated before in The Garden, that the finest lot of it ever seen was growing in a Yew hedge. The roots were planted within a few inches of the Yews, and the plants allowed to scramble over them at will. The effect was something quite unique, large portions of the Yews being hidden beneath the rich scarlet and golden drapery of this myriad-flowered Tropæolum.—D. T. F.

Unseasonable flowers.—Here we have still Roses and Carnations of all kinds in bloom; Gladioli, too, are still good. Hollyhocks we have in sufficient abundance for table decoration. Violets are scarcely so good as usual, but to make up we have every variety of single and double Primrose in flower. Christmas Roses are doing well. On the 22nd we picked red Salvia, Stocks, Snapdragon, Pentstemon, purple Honesty, Scabious, large St. John's-wort, Poppies, Marigolds, Lupins, purple Clematis, Mignonette, Sweet Peas, Forget-me-not, Nasturtiums, Marguerites, Auriculas, Candytuft, Œnotheras, Godetia, red Flax, Cyanus minor, Wallflower, a stray Dahlia, and other flowers.—T. Duff, *Kenmure Castle, Galloway.*

White Everlasting Pea.—"J. C. B." (p. 495) may think himself peculiarly lucky in getting one-third of his seedlings white. I have often saved the seed myself to be sure it was true, and have given it to various friends, but in only one instance have I or they got a white seedling. I now propagate the white variety by cuttings of the underground suckers in spring. They strike very certainly, but not very quickly.—W. Wilks, *Shirley Vicarage, Croydon.*

—— I can confidently assert that the white form of this Pea does revert to the red or pink kind. About three years ago I purchased half a

dozen plants of the white and planted them against a wall, as they are most useful for supplying cut flowers late in summer, when there is a dearth of good white blooms; this year only one out of the six produced white flowers; the rest had reverted to the pink, which is, I presume, the original colour. I am decidedly of opinion that the white is only a sport, and therefore liable to go back to the original form.—J. G., *Hants.*

—— I obtained a few seeds of white Sweet Pea some years ago and sowed them in pots, and every one came quite white. In 1883 I saved some seeds some of which were sent to Norfolk, where they flowered last year and every one came red. I also heard of a similar case happening about the same time.—Chas. Jeffries, *Boston House, Brentford.*

Centaurea ragusina in winter.—If anyone who values this plant feels disposed to take "Cambrian's" advice, they had better take it quite literally, and only allow a few to remain out. We used to grow several thousands of this very striking foliage plant, and, like "Cambrian," found great difficulty in finding room for it, so we began to leave it cut. It stood pretty well the first season, and hence we were tempted to leave it out the second, and the frost made a complete sweep of our stock, root and crown, and we have never recovered it. The Cineraria maritima shared the same fate, though that seemed more hardy than the Centaurea. A great deal depends on soil, site, and local climate; but it is unsafe to trust any large proportion of either of these plants in the open for the winter, unless in very mild localities. I noted a very excellent mode of propagating the Centaurea ragusina a few weeks since which may be worth detailing here. Each leaf with its bud in its axil was cut off from the stem with a small segment of the latter about an inch long, and a little thicker than the sheaf of wood for Rose budding attached; this was cut through with a clean cut about half an-inch under the bud on the segment. Pots half filled with drainage and surfaced with leaf-mould were then filled with coarse silver sand, and the leaf-cuttings inserted close to the sides, and compressed as firmly as possible, the leaf segment that formed the side of the cuttings being placed in contact with the edge of the pots. This and the smallness of the cutting being little more than leaves were the chief vital points, and on the rapid callusing of the raw segment of wood in contact with the hard pot, the chief reliance was placed for sure and successful rooting. The cuttings after insertion were placed for six weeks in a cool, close frame. In that time most of them were callused, when each was potted off singly and grown on into bulk in a temperature of 60°. These small plants grow rapidly after rooting, and form useful material for ground-work on dinner-table or for other decorations before being wanted for use in the flower garden in May.—Hortus.

Japan Anemones.—"Veronica" having apparently satisfied himself, and probably most others, that the white and rose-coloured Anemones of the japonica family were hybrids, he proceeds to avow his belief that the white kind is after all the typical species. This is hard to understand, inasmuch as he had just previously shown that it was not a species, but a true hybrid. Whether the flowers of the true A. japonica should be red or white seems of little importance in face of the fact that the plant introduced into Europe by Fortune produced red flowers. In no case does this species seem to have broken sportively into any other form or colour; hence it seems fair to assume that it is not only a species, but a typical one. I know I am treading on dangerous ground, not being a botanist, but I look at the matter from the common-sense aspect peculiar to practical gardeners. Now, the late Mr. Gordon, it is shown, crossed Anemone japonica with the white-flowered vitifolia, and the result is a plant producing rather larger and better-formed flowers than those of the type of a pale red or rosy hue. Still farther, the foliage has the Vine-leaved characteristics of vitifolia more prominently marked than in the Japanese parent. Later from this hybrid comes a break, and what more natural than that it should produce white flowers, because most experience shows that the male or pollen parent in cross-fertilisation leaves the strongest impression on the progeny. Thus there seems no room whatever for doubt, the whole business being of a very matter-of-fact description. The only difficulty remaining is as to the proper designation of these hybrid products, and if the rose one is properly named A. japonica hybrida; it seems certain now that the white one is fully entitled to the designation of Honorine Jobert.—A. D.

Crocus bulbs.—There must be some unexplained reason why "Veronica's" Crocus bulbs, planted 5 inches deep, came to the surface in three years. My own experience is, that they work downwards in some unexplained way. When I first took charge of the gardens at Loxford Hall I planted a long row of Crocus bulbs close to the margin of a path. They were not planted very deep, and no covering was ever placed over them. There they remained for eighteen years, and at the end of that time they were 7 inches or 8 inches deep. How does "Veronica" account for that? I am quite aware that the new Crocus corm is formed over the old one, the natural inference from which would be that the bulbs would in time work out of the ground. But we know that neither Crocus bulbs nor those of Gladioli do so. We had bulbs of Gladioli growing in the same garden without being disturbed for twenty years. I have just been examining some bulbs planted last year, and I find the new corm pushing over the sides of the old ones, and the base of the new ones is already lower than that of the old corms. I believe they go down at the rate of an inch in three years.—J. Douglas.

Trees and Shrubs.

EVERGREEN SHRUBS.

The important part of a garden devoted to trees and shrubs should bear inspection from more points of view than one. Collective effect should be secured by the right disposal of the materials, in the shape of trees and shrubs, deciduous and evergreen, which the planter has at command, without which the work must ever be deficient in a leading feature. But although the collective appearance of the trees and shrubs associated is an indispensable feature in this department of gardening, still it is only one of the needful essentials, and though it may satisfy those who see nothing in the cultivation of plants deserving of consideration, except what, for want of a more appropriate term, may be called artistic effect, yet, those who can see individual beauty in each tree and shrub are not likely to be content with effect taken in its general sense, but require as much variety in the plants they cultivate as is consistent with their ability to thrive and maintain a healthy appearance. The desirability of securing this will be generally accepted, but in practice it is so far from being generally acted on, that it is rather the exception than the rule. What, for instance, do we usually find in the shape of Evergreens in the ordinary run of gardens? The same Laurels, Aucubas, Cotoneasters, Berberis, Box, Euonymus, Hollies, Rhododendrons, Laurustinus, and others of a like character, represented by the commonest varieties. Whereas all that stands in the way of any ordinary garden of moderate size containing ten times the variety with a proportionate increase in the beauty and interest attached, is a non-acquaintance on the part of those who own gardens with the quantities of beautiful plants now within reach, and the little apparent disposition of many who are entrusted with planting to go beyond what was done when the number of species now at the planter's command were yet unseen in the wilds where Nature placed them, and the many fine seedling varieties that have been raised were non-existent. Possibly a few words respecting the most desirable of the less known kinds and the best of the commoner sorts of evergreen shrubs may be of use to some who wish to make their gardens more interesting.

The Laurel (Cerasus) has ever been a favourite. The common kind is still most planted; yet this is a mistake, inasmuch that there are two or three others that have all the good properties of the old one with none of its defects. The character of their leaves is so far like that of the old sort, that the uninitiated would not see the difference, but their general habit is better, and the growth closer and less straggling; whilst their hardy nature is such, that they bear our severest winters without injury in the way that the common kind suffers. Of these, C. Laurocerasus rotundifolia, C. L. caucasica, and C. L. colchica are all fine sorts that only require to be sufficiently known to insure their finding a place in every shrubbery. The first-named of the above, C. L. rotundifolia, may be set down as the best, taking all its properties into account. C. lusitanica (the Portugal Laurel) is one of the best known of Evergreens, and is always a conspicuous object, either massed in the shrubbery or as a single specimen on the lawn, where its dense habit of growth and healthy, vigorous appearance, thriving as it does in almost any locality, will always ensure it a place. C. lusitanica myrtifolia, the small-leaved variety of the last-named plant, is compact in growth and suitable for using where the type is too large.

Arbutus (the Strawberry tree).—The common A. Unedo is met with in most gardens. Independently of its beautiful red fruit, which it produces freely in some places, whilst in others it does not bear, its appearance is such as to make it still deserving of being cultivated generally. A. Andrachne, another fine kind, is not so much grown as A. Unedo, although long in the country. It is a distinct-looking and beautiful plant, a stronger grower, attaining a much larger size than the common species, and one which might with advantage be more used by planters than hitherto.

Andromedas.—The commoner kinds of these shrubs are too well known to require any remarks, but there is one which, though long enough introduced, is not so much planted as it should be—A. floribunda; where a dense, compact-growing, low shrub is required it has few equals, independent of the profusion of pretty white flowers with which it is annually clothed. A. japonica is a desirable kind; its panicles of white flowers are effective, whilst the habit of the plant gives it a distinct appearance. A. formosa is also a desirable sort.

Azara microphylla.—This is one of the most distinct of all Evergreens in cultivation; its slender branches, densely furnished with neat foliage, spread out as flat as the feathery fronds of a Fern. It is one of the best and most suitable of all plants for clothing a wall, the protection of which is an advantage, as its ability to bear a severe winter in the open ground is doubtful.

Aucubas.—The old spotted-leaved female A. japonica maculata is one of the best known and most useful plants ever introduced to British gardens, and its presence is more acceptable now when there is the means of having it annually furnished with beautiful red berries, by simply planting here and there amongst the females a plant of the male variety, of which there are different forms, each of which is handsome. It does not require many, even in a large place, to insure a crop of berries, yet there are many gardens where only the female exists.

The Bay (Laurus nobilis) is one of the best evergreens we possess, and never looks more at home than when located against the wall of a building, the shelter of which preserves it from the effects of the occasionally low temperatures that visit us, and which, even in the south of England, often make sad havoc with this plant when growing under conditions more conducive to vigorous growth than well-ripened wood.

Berberis.—Most people are acquainted with the charming B. Darwini, which is undoubtedly one of the finest evergreen flowering shrubs existent. Although in parts of the kingdom less favoured by climate it suffers from occasional low temperatures, nevertheless everyone should grow it; as also the beautiful hybrid B. stenophylla, which has few equals as regards the elegance of its slender drooping shoots, that when furnished

with their strings of yellow flowers are extremely effective. This plant should be in every garden.

Buddleia globosa.—If only for its appearance, which is so distinct from that of all other plants, this Buddleia is worth having. In many parts it will not stand the winter in the open ground, but wherever room can be found for it on a wall it deserves a place. Its perfectly globular flowers give the plant an appearance like nothing else that I recollect. When grown against a wall it should not be kept pinned in too closely in the way sometimes practised; allow it more liberty, simply keeping the branches from getting too far away to admit of the protective influence of the wall.

Cotoneasters.—The value of C. buxifolia and C. microphylla for covering walls or rockwork is generally known, and of C. Simonsi, the red berries of which brighten up the shrubbery in winter. Another kind, C. Roylei, may with advantage be added to those previously named.

Cistus.—C. ladaniferus (the Gum Cistus), although a very old plant, is not so common in gardens as the distinct character of its charming flowers might lead one to expect. Even in places where it suffers in hard winters it deserves the little labour that is involved in giving it the necessary protection during severe weather.

Garrya elliptica.—Though this plant is devoid of the gay-coloured flowers that many possess, still there is a peculiar elegance in its long, drooping catkins that is attractive and different from everything else I have seen. It does well on a north wall where few things would succeed.

Choisya ternata.—When better known this plant can scarcely fail to become a favourite. In those parts of the kingdom where it will succeed, it well deserves a place amongst the most select wall plants, protection of which kind it most likely will require.

Ceanothus.—Of these there are now a good many varieties besides the better known sorts, such as C. dentatus and C. azureus. C. azureus albidus, C. azureus Gloire de Versailles, C. floribundus and C. Veitchianus are all handsome kinds, but even in the southern parts of England they should have the sunny side of a wall.

Desfontainea spinosa.—If one were to imagine Osmanthus ilicifolius bearing small flowers of Lapageria rosea, it would give a tolerably correct idea of what Desfontainea spinosa is like when in bloom. Unless in the mildest parts of the kingdom, it is not safe without the protection of a wall, which it well deserves. The aspect should be south. Being a slow grower that does not attain a large size, little space will suffice for it.

Daphne Cneorum.—In the whole range of fragrant flowers, it would be difficult to point to any plant that surpasses this little gem. It is just the sort of plant that everyone who has a garden might be supposed to grow, yet it is a question if it could be found in one place out of fifty. The little room it occupies, which is not more than that required by the common perennial Candytuft, puts it within the reach of those who have not much space at command.

Box.—The ability which the common Box has of maintaining a fair appearance when under the shade of trees where few plants can live is sufficiently understood, and as a dense, healthy-looking shrub when it receives better usage it will always keep in favour. There are several varieties that should not be lost sight of. Handsworthiana is a useful sort, and also the gold and the silver varieties of the common kind; japonica aurea is remarkable for its clear yellow colour, and the strong-growing balearica deserves planting in localities where the winters are not too severe.

Escallonias.—Unfortunately, the beautiful Chiloean species, E. macrantha, is not hardy enough to show its true character except in the mildest parts of England, but it makes a good wall plant in most of the southern counties, though even under such conditions it sometimes suffers from exceptional frosts. E. Phillipiana is a comparatively new introduction from the Andes; it is a distinct and pretty species, bearing numbers of white flowers, which are well shown off by the neat foliage.

Eugenia Ugni.—Although this shrub failed to realise the expectations held by some when it first appeared of its turning out a useful edible fruit, still its general appearance, which is enhanced when in berry, is such as to make it a desirable plant.

Euonymus.—The Japanese kinds of Euonymus have turned out valuable shrubs for the various purposes which they can be used for. E. japonicus is one of the best Evergreens for planting in and about towns, and it is an excellent plant for use near the sea. The golden and the silver variegated forms as well as the green kind are amongst the best Evergreens for covering a wall; whilst the little E. radicans variegatus, besides being one of the best edging plants we have, is an excellent subject for a wall, reaching a height which its humble appearance when trailing on the ground would scarcely lead one to expect.

Laurustinus.—This old favourite is too well known and well proved to require anything to be said in its favour. Its ability to thrive almost anywhere, together with its healthy appearance and the profusion of pretty flowers it bears when there is little else to enliven the shrubbery, will always ensure its being largely planted.

Ligustrum.—L. vulgare, the common Privet, is one of the best-known plants for a screen or hedge about gardens or grounds where ability to resist cattle is not required; for the purposes named its neat appearance befits it. But L. ovalifolium, the oval-leaved kind, which is much stronger in habit and one of the quickest-growing shrubs we possess, is supplanting the old variety. It is one of the most useful Evergreens for town planting, its vigorous constitution enabling it to thrive where few things can live. L. coriaceum and L. japonicum are both distinct and desirable plants for shrubberies.

Magnolias.—M. grandiflora is one of the most remarkable Evergreens we have, and one of the best plants for a wall in the south of England where a considerable space has to be covered. Its large glossy foliage is very handsome, and equally so are the massive fragrant white flowers which the plant produces freely when in good condition. It is not well to trust it away from the protection of a wall except in the most favoured localities. In the northern counties it sometimes suffers when on a wall, unless protected in exceptionally severe winters. The Exmouth variety and M. ferruginea are both desirable plants, requiring similar treatment.

Osmanthus.—O. ilicifolius, with its gold and silver-variegated forms, are desirable plants, best adapted for standing in the front of large growing things, as they never get coarse or attain a size such as to encroach on other plants. O. myrtifolius and O. rotundifolius are also handsome.

Phillyreas.—The contrast which these plants present to things with massive foliage, combined with their ability to thrive in most localities, are the chief merits which they possess, and will doubtless still keep them in favour, although planters are not now confined to the limited field they had to choose from when these old-fashioned Evergreens were first introduced.

Rhamnus.—These plants are more interesting than striking in appearance, but are worth having to give variety. R. angustifolius and R. latifolius, with its varieties, are amongst the best deserving of the planter's notice.

Skimmias.—Amongst berry-bearing shrubs S. oblata holds a first place, but it is dioecious and a female; consequently, to secure berries, the male, S. fragrans, requires to be planted with it. The hermaphrodite form usually sold as S. japonica, which is more generally grown, so far as my experience in a good many localities goes, is not near so desirable a plant as S. oblata, but no harm will be done by having all three. These and other small-growing plants are not enough used at the outer edge of clumps and shrubbery borders, large coarse-growing things often being planted instead; the result of this is that they get too big for the positions they occupy either to look well or to be allowed to remain.

Ulex (Gorse) is too common a plant to suit everyone's taste; yet there are few gardens where the double variety might not with advantage be more freely introduced to the front of shrubbery borders than it usually is. When rightly placed, its dense sheet of yellow bloom lights up everything near it.

Ilex.—It may be safely said that there is no Evergreen which plays a more important part in decorative planting than the British Holly with its numerous varieties that have appeared in the form of seedlings and sports, in which latter direction it has a greater tendency than many things. The type will ever be a favourite from its excellent properties and the varied purposes to which it can be turned; but there are several other green-leaved sorts that are especially deserving of notice for their handsome appearance. Of these may be named I. Hodginsi, I. laurifolia, I. Shepherdi, I. ferox (the Hedgehog Holly), I. cheshuntensis, I. donningtoniensis, I. myrtifolia, the yellow-berried, and the Weeping Holly. Of the variegated varieties, Gold and Silver Queen, aurea marginata, argentea, Handsworthensis, aurea picta, and alba picta, the Gold and Silver Milkmaids, the gold and silver forms of I. ferox, Waterer's dwarf golden, and the gold and silver weeping varieties are all good. Other kinds that deserve notice are I. balearica, I. maderiensis, and I. opaca. The above are the cream of the Ilexes, though there are others that anyone desirous of growing a collection might be inclined to add. T. B.

Berry-bearing shrubs.—I have read with much interest Mr. Coleman's remarks on these in The Garden (p. 489). The collection of berry-bearing shrubs and trees at Eastnor is almost unique. In my opinion they are not so much planted as they ought to be. Their useful properties may not be conspicuous in summer, but in winter, and especially in December and at Christmas, berries in the open air are most valuable. As a rule, however, it is only the Holly that is planted to produce them, and the Holly is about the most uncertain berry-bearing subject that could be selected. It is only every other year—frequently not so often—that a crop appears, whereas if a greater variety of berry-bearing bushes was planted, the absence of Holly berries would cause no inconvenience. Last winter Holly berries were plentiful hereabouts, but at present I do not know where to find one. I would therefore advise planters not to overlook Mr. Coleman's remarks on Cotoneasters.—J. Muir, *Margam, South Wales.*

New double Lilacs.—The double-flowered varieties of the common Lilac have of late years had a good deal of attention directed towards them by M. Victor Lemoine, of Nancy, and one of his earlier productions (Lemoinei) has had its merits recognised by a certificate from the Royal Horticultural Society. Since that time, however, M. Lemoine has raised others which he claims to be greatly superior even to Lemoinei, so that these double Lilacs should when better known be very valuable, not only for open-air planting, but also for forcing into bloom early in the season. M. Lemoine now announces in his catalogue the following list of double-flowered varieties: hyacinthiflora plena, Alphonse Lavallée, Lamarck, Le Gaulois, Lemoinei, Mathieu de Dombasle, Michel Buchner, Renoncule, and rubella plena, as well as three novelties for the present season, viz, M. Maxime Cornu, President Grévy, and Pyramidal. Of this number, I have up to the present seen in flower but Lemoinei and Mathieu de Dombasle, and this last was too weak to judge of its merits, but it seems difficult to understand that all the above differ in any marked manner from each other, as the range in colour among Lilacs is not great. No doubt, however, they are the cream of double Lilacs, and I shall watch with interest the flowering of the various

kinds. Besides those previously mentioned, M. Lemoine announces that yet another variety, Comte Horace de Choiseul, for which he has received recognition when exhibited in France, will be distributed at some future time.—H. P.

THE CANADIAN WILD VINES.

The Frost Grape (Vitis cordifolia).—Those deep, embowering masses of foliage; those verdant draperies that fall in such graceful, leafy curtains from branch to branch, roofing the dark shady recesses of our wooded lakes and river banks; those light feathery-clustered blossoms that hover like a misty cloud above the leafy mass, giving out a tender perfume as the breeze passes over them—like sweet Mignonette—those are our native Vines, our wild Grapes.

Yon tall dead tree, that stands above the river's brink, is wreathed with a dense mantle of foliage not its own. The changing hues of the leaves, the deep purplish clusters of fruit, now partially seen, now hidden from the view, have given a life and beauty to that dead unsightly tree.

The ambitious parasite has climbed unchecked to the very topmost branch, and now flings down its luxuriant arms, vainly endeavouring to clasp some distant bough; but no, the distance is beyond its reach, and it must once more bend earthward or, in lieu of better support, entwine its flexile tendrils in a tangled network of twisted sprays, leaf-stalks, and embowering leaves and fruit.

The fruit of the Frost Grape—our northern Grape Vine—is small. The berries, round blue or black with little or no bloom, very acid, but edible when touched by the frost, and can be manufactured into a fine jelly and good wine of a deep colour and high flavour. Whole islands in the Trent and Rice Lake are covered with a growth of this native Grape. There is not a lake in Canada but has its "Grape island," and many persons cultivate the plants about their dwellings over light trellis-work, under which circumstances they will yield an abundance of fruit. It is also very useful to conceal unsightly objects, as out-houses. An old Pine stump can be converted into an ornamental object by nailing Cedar poles—fastened at the top—round it, and planting Grape Vines around it, having first prepared a bed of good earth and large stones to bank the lower part; a few plants of the wild Clematis intermixed with the Grape Vine and a sprinkling of Morning Glories, make a lovely pyramid and convert a defect into a charming object during many months of the year.

The wild Grape seems to flourish best, in its natural state, near the water, but will grow and flourish well in gardens where it is given the support of a trellis or in any suitable position where it can climb. I have even seen a dead tree specially planted for such a purpose.

The Fox Grape (Vitis Labrusca).—This is the original of the cultivated Isabella Grape, which has long been introduced into our gardens and vineries as worthy of the attention of fruit growers. The leaves of this species are very densely woolly, covered, especially when young, with tawny, silky hairs; the fruit is of a dark purple, of a musky flavour, whence its common name, Fox Grape.

This wild Grape is found on the shores of Lake Erie and to the westward. From the improvement made by cultivation in the size and quality of the wild Fox Grape, we may perceive how much might possibly be done with others of our wild fruits, which, when introduced into our gardens, would have the advantage of hardiness in bearing the severity of our climate beyond that of exotics.

It seems reasonable to suppose that plants that are indigenous to a country could, by due care, be brought to a state of higher perfection than when under a foreign sun and soil, and that the culture of wild plants would amply repay the cultivator. Attempts of this kind are rarely made or persevered in, so that the result is not often satisfactory; either the process is thought to be too slow, or we despise as common that which is within our reach, valuing that which is more costly above what is easily obtained; whilst we eagerly spend our money to obtain a foreign species, which may possibly have been originally taken from our native woods and wilds to a foreign country, there cherished and cared for, improved by cultivation, and returned to us increased in value. It would greatly enhance the pleasure of cultivation if we were ourselves able to show native flowers and shrubs and fruits rendered equal to the imported kinds by our own culture.—*Plant Life in Canada.*

White-stemmed Bramble (Rubus biflorus).—Among choice shrubs this Bramble would need to be introduced with caution, for its vigorous character tends to make it an undesirable neighbour for delicate-growing subjects; but when so situated that it can attain the dimensions of a good-sized clump, the peculiarly whitened stems form quite a prominent feature in woodland scenery, especially at this season, when so many shrubs are devoid of foliage. This Bramble is a native of the Himalayas, and is occasionally injured during very severe winters, but from its vigorous nature it quickly recovers. It will form a large mass some 10 feet or 12 feet high, and may be readily increased either by detaching some of the stems with roots, or by layering the tips of the branches. It is frequently met with under the name of R. leucodermis.—H. P.

Gaultheria procumbens.—In a moist, peaty spot this pretty little shrub flourishes. It forms a small compact growing shrub, reaching but a few inches in height, and with dark green shining leaves. The flowers, which are bell-shaped and of a whitish tint, are borne during the summer months, and are then succeeded by red sealing-wax-like berries, which remain on for a long time. I was recently struck with its beauty on a rockery. In a cool, moist situation it had formed a good clump, and the red berries nestling among the dark green leaves had a pretty effect. Though this species was introduced from North America during the last century, it is much less common than its more vigorous relative, Gaultheria Shallon, as this latter will hold its own under anything like favourable conditions. It is a free-growing shrub, reaching a height of a couple of feet or so, and bearing during the summer a great profusion of drooping bell-shaped blossoms of a pinkish tinge. They are succeeded by dark purple coloured berries, which ripen in the autumn, and are much sought after by birds. For this reason it has been highly recommended as a game covert plant, while objection has been taken to it on the ground that it does not grow to a sufficient height for that purpose. Be that as it may, it is very useful for carpeting the ground under trees, especially if the soil is largely composed of vegetable matter, as in this the roots run freely and the plant quickly covers the ground.—Alpha.

Variegated Privet (Ligustrum ovalifolium variegatum).—The variegated variety of the Oval-leaved Privet is now one of the most conspicuous shrubs, from a foliage point of view, that we possess, and for furnishing empty flower-beds or other bare spots at this season it is most useful, as it can be struck without difficulty from cuttings, is quick in growth, and transplants readily—all desirable features in a shrub such as this. It has the ordinary foliage of the Oval-leaved Privet, except that the greater part of the leaf, from the margin inwards, is of a rich golden yellow colour. There are a great many variegated Privets now in cultivation, but this is the finest of all. Cuttings may be put in at almost any season, but the best time is during the autumn months, and if they are then sheltered by a cold frame they will be rooted by the spring. Where needed for bedding and such purposes as small bushy plants are the most useful, the cuttings, when rooted, should have their points pinched out in order to ensure a sturdy growth, for if allowed to run up naked at first, it is impossible to get them to form good bushes afterwards unless cut back severely, and in that case a season's growth is lost.—T.

Snowberries.—Among berried shrubs, the Snowberry (Symphoricarpus racemosus) stands out almost alone among those with white fruits. The berries, too, are larger than those of most other shrubs, and, being borne in considerable numbers, form a prominent feature at this season of the year. It is a native of North America, but has been long known in this country, and, being easily increased and hardy in constitution, it is now among our commonest shrubs. Though the berries are by far its most conspicuous feature, yet the pretty little pink blossoms that are borne freely in the spring and early summer are well worthy of recognition. There is another species of Symphoricarpus (vulgaris) which is also well known, though the berries do not form so conspicuous a feature as those of the last named kind. The regular arrangement of the leaves is noticeable in S. vulgaris, and a variety in which the foliage is variegated with creamy white is a very pretty shrub during the summer months. In this species the fruits are, when full grown, much smaller than those of the Snowberry, being about the size of a small Pea and crimson in colour. One feature about the two shrubs herein mentioned is, that they both will thrive fairly well where shaded by overhanging trees, and, with regard to soil, they are in no ways particular.—H. P.

GARDEN FLORA

PLATE 573.

DOG'S-TOOTH VIOLETS.

(WITH A FIGURE OF ERYTHRONIUM DENS-CANIS.*)

This is a comparatively small genus of plants, not more than seven being admitted as distinct species, but with the addition of garden and other varieties it becomes raised to eighteen or more; four of the species are Californian, two are confined to the Atlantic States, and the well-known Dens-canis has a wide distribution ranging from Southern Europe to Russia, Siberia, and Japan; it has been known and cultivated almost from time immemorial, and has changed but little or none within the last three centuries. The name, it is said, occurs in "Pliny" and "Dioscorides," and certainly the Dog's-tooth Violet was a great favourite with the older botanists. The whole of the species are charming and rank amongst the first to flower in spring amongst hardy bulbs. They are suitable for the rockery, border or wild garden, and are even much appreciated when grown in pots for greenhouse or conservatory decoration. In the case of the American kinds, a light peaty soil is, we find, one of the essentials of success; and although, perhaps, hardy enough, they are all the better for a little protection. One or two of the species make charming edgings to beds or borders. Dog's-tooth Violets should never be planted less than 3 inches deep and more in light soils than in heavy ones. Deep planting keeps them cooler than they otherwise would be and out of harm's way. E. grandiflorum and its varieties might, with fair expectations of success, be planted on sloping, sunny banks, where the Grass is thin; some light sandy soil should be put round the bulbs at planting time, and plenty of room given them. E. Dens-canis has finely mottled and blotched foliage as well as pretty flowers; it is an effective border plant, and also does well in warm nooks in the rockery, and even in the wild garden in sheltered spots we have seen it flower well. It increases rapidly by means of offsets, which are produced at the base of the old bulbs—much the easiest and quickest way of propagating it.

E. albidum (white Dog's-tooth Violet).—An old species resembling in many respects the yellow Adder's-tongue. Its leaves are lanceolate spotted, not dotted as in the latter; flowers large, produced singly on the stem, white or bluish white, and drooping; bulb roundish and emitting subterraneous runners, by which means it is increased. It thrives under much the same conditions as those indicated for americanum, and, like that species, it is all the better for being restricted. It blooms in April. It is found in low thickets from

* Drawn in Captain Nelson's garden, Holme Lodge, Godalming, April, 1886.

VARIETIES OF DOG'S TOOTH VIOLET
(ERYTHRONIUM DENS-CANIS)

Albany, W. Pennsylvania to Wisconsin and southwards.

E. AMERICANUM (Yellow Adder's-tongue).—This is doubtless the plant intended by Collinson in his catalogue under the name of E. Dens-canis, as follows: "After many years' expectation, the 3rd April, 1761, the Dens-canis from Pennsylvania showed its yellow flowers." Later on he says, "It appears, by Rea's 'Flora,' to have been known in our gardens nearly a century before, but was lost until re-introduced in 1754." It appears to be a very common plant in the States, where it begins to flower about the end of April or beginning of May, earlier or later according to circumstances. It is said to have received the name of yellow Snowdrop from the earlier settlers of Pennsylvania, perhaps by way of remembrance of the Snowdrop of their old homes. It has also been named yellow Snake-leaf, &c. The markings on the leaves are said to vary, and in some localities to almost entirely disappear; then it is called Lamb's-tongue. The length of time that elapsed between its introduction and flowering is very characteristic of E. americanum when improperly managed, the general impression being that it is rather a shy bloomer. In a shady, moist situation in rich, peaty soil it flowers freely enough, as it also does when the roots are confined in a box pocket in the rockery. It increases rapidly by means of subterraneous runners, and flowers all the freer when these are restricted, otherwise leaves are developed at the expense of flowers. It might be used with advantage in edging Heath beds where the soil has to be kept moist, and where the roots of large trees are kept at bay. It appears to succeed all the better for the little protection afforded by a bed of Heaths, &c. The leaves are lance-shaped or elliptic-ribbed underneath, green or slightly glaucous above, spotted and dotted with purple, &c.; the flowers, which are yellow, are drooping, bronzed on the upper surface, and produced singly on slender stalks from 6 inches to 9 inches in height, the outer segments being broader and more reflexed than the inner. The variety bracteatum we have never seen alive; it differs from the type chiefly in having a bract developed on the scape, as we sometimes see in robust forms of E. grandiflorum. (Syns., Nuttallianum, lanceolatum, flavum)

American Dog's-tooth Violet (Erythronium americanum); flowers yellow.

E. DENS-CANIS (European Dog's-tooth Violet).—This old historical species is the only one indigenous to Southern Europe. It has, however, geographical varieties extending in the forms sibiricum and japonicum through Asia to Japan, and differing from the type more or less in the size, shape, and markings of the leaves, as well as in the flowers. They are perhaps of little or no importance to the cultivator, as they are inferior to the old form in usefulness. So charming does the old Dog's-tooth Violet look in early spring, that it has become quite indispensable for edgings, &c., out of doors, and so numerous are the forms ranging from purple through rose to white, that quite a gay display can be made with them alone, either mixed or planted in patches of separate colours. It is very easily grown, thriving best perhaps in an open sunny border, backed by a wall or other shelter, from which its tender flowers may have a little protection from cutting east winds. The annexed illustration is a good representation of the old plant. Other varieties which may be had in the trade are album and album majus, purpureum majus roseum, and roseum majus, and others. There is also a distinct variety with long, sparsely-blotched leaves called longifolium, and another called altaicum, but we doubt very much if the latter is distinct enough from sibiricum for practical purposes. It is figured in the first number of the *Botanical Magazine* (tab. 5), where americanum is also mixed up in the text.

E. GRANDIFLORUM and its varieties, of which there are three or four distinct, are, without doubt, the handsomest plants in this genus. They all thrive admirably under ordinary cultivation; clumps of them, either mixed or separate, look well in the spring garden. Producing flowers as they do so freely, they are well adapted for cutting, and last a considerable time in water. On one or two of the varieties single flowers only are produced, but on the type and some other varieties there are often as many as five or six, varying according to the strength of the bulbs, and they generally measure about 2 inches in diameter. In the type the leaves are oblong-lanceolate, not mottled, or, if so, very obscurely. They are acute-pointed, and have broad, short stalks. The flowers are primrose-yellow or cream-coloured, and have a more or less orange base; the segments are recurved and pointed. There are often from two to six flowers on a stem, from a foot to 18 inches in height. E. g. var. Smithi has large flowers tinged with purple or rose, and very handsome. Revolutum, found by Smith in the redwoods of Mendocino. E. g. albiflorum, which includes giganteum, is a noble plant, having large mottled and white flowers with a yellow and orange base. They are often 4 inches in diameter, and invariably have only one flower on each stalk—a good character by which to distinguish it from the type. It is also called speciosum, maximum (Douglas, 1829), and pallidum. E. g. var. minor differs but little from the type, except that its flowers are smaller. Most of the forms of this variable plant would look well in our spring bulb gardens could they be naturalised in quantity; where the necessary shade abounds, their establishment would only be a matter of time, seeing how well they succeed in borders. The type is found in Washington territory, Oregon, Vancouver's Island, and North California, and it flowers with us in April and May.

E. HARTWEGI, is a comparatively new species, which we have not yet seen in cultivation, but it promises, we hear, to be a very desirable plant. Its leaves are oblanceolate and mottled; its flowers are solitary, or two or three in a sessile umbel, and light yellow and orange in colour. It is E. grandiflorum of Bentham, and is a native of the Sierra Nevada, Butte county, &c.

E. PROPULLANS.—This is a comparatively new species, and, as far as we are aware, not yet in cultivation. It has a very ingenious way of increasing itself. In Dens canis, as everyone knows, the new bulbs are produced directly from the sides of the old ones, and grow so closely as to form close clumps. In americanum and albidum, as we have already seen, the increase is by means of offshoots or subterranean runners, produced from the base of the old bulbs. In the present instance, the offshoot springs from about the middle of that portion of the stem which lies between the bulb and the base of the leaves, usually about 5 inches or 6 inches long. This lateral offshoot sometimes grows downwards and lengthens, as in albidum, but sometimes it remains an inch or so long, and its apex dilates into the new bulb. The flowers, which are produced in spring, are much smaller than those of any of the other species; they are bright pink or rose, with a slightly deeper base. It is a native of California.

E. PURPURASCENS.—Although this has comparatively small flowers, it is really a charming plant, and should find a place in every garden; besides E. grandiflorum, it is the only other species having more than one flower on a scape. In the case of the present species they vary from 6 inches to 9 in. or 10 in., and would no doubt, under good cultivation, produce them larger than they are found to be in newly imported plants. The leaves are undulated, oblong, or narrow lance shaped, acute-pointed, and narrowed to a very broad short stalk. The flower-stalk is sometimes divided towards the base, or carries the flowers umbellate fashion. They are smallish, light yellow, more or less tinted with purple and deep orange towards the base; sometimes they are quite purple and very pretty. (Syns., E. grandiflorum var. multiflorum and Fritillaria multiscapidea.) E. p. var. uniflorum, a slender one-flowered plant, is made to include E. revolutum, introduced by M. Max Leichtlin in 1874, and grandiflorum (Torr.) flowers with us in April and May. It is a native of the Sierra Nevada. D. K.

WORK DONE IN WEEK ENDING NOV. 30.

NOVEMBER 24 TO 30.

We have had a week of true November weather—fog and darkness—and our diary notes are few, for it has not been possible to do half a day's work on any one day of the week. Having a light soil to deal with, we have been able to continue the planting of Roses, and have also planted a few bush fruits—Currants and Gooseberries—the ground for which had been trenched at least 3 feet deep, and two layers of well-decayed manure worked in with the soil. The trees are now being securely staked, and afterwards, so far as their roots extend, we shall spread a thick layer of half-decayed stable litter to serve the double purpose of protection from frost and the too rapid evaporation of moisture from the soil surrounding the roots. Roses as planted are served in the same way, except that in the dressed grounds where neatness must be maintained, the mulching is well beaten down and covered either with fine soil or Cocoa fibre. Pruning of Plums, Pears, Currants, and Gooseberries is being done as rapidly as hands at command admit of. We had not much root-pruning to do, and this work is therefore completed; some half-dozen Pears that are worked on the Pear stock, which trees always grow most luxuriantly, were all that needed root-restriction, and now these trees, alike with their congeners on the Quince, will be heavily mulched with good manure. We continue the work of trenching the vacant plots in the kitchen garden as opportunity offers, and between whiles go to the work of leaf-raking, carting, and stacking them for hotbed purposes. All our Pines are grown with the bottom heat obtained from leaves, and for them we reserve the driest Oak and Beech. As our Strawberry house is likely to be required for flowering plants for some time to come, we have filled another three-light pit with leaves for the purpose of starting forcing other relays of Strawberry plants; a second batch of fifty plants has been added to the first-started pit. The warmth and moisture generated by the leaves render either firing or syringing unnecessary, and but little watering is as yet required; about twice a week we look them over with that intent, as we strongly object to their ever getting dry. It is sheer nonsense to suppose, as some do, that dryness at the roots is ever essential; nay, more, it is ruinous, for it is, I feel sure, almost solely the cause of blindness or non-setting. Too high a temperature or great humidity of atmosphere may sometimes conduce to non-setting, but very seldom indeed. We can speak confidently under this head, for ours set well in any temperature between 50° and 75°, humidity or dryness of atmosphere being apparently immaterial, for we have had them do equally well under each condition. Full maturity of crowns, and soil never to be what we understand as dry, are the two elementary, yet principal, lessons that must be learnt if non-setting of fruit is to be prevented. Once these are learnt and acted on, temperature and humidity will come to be regarded as of secondary importance. From the foregoing will be sur-

mised what my opinion is concerning the wintering of Strawberry plants piled together on their sides. No; they must have water; better have twice or thrice too much than get half dry, and, by way of practising what is here preached, all the plants that we could not afford space for in cold pits have just now been placed closely together in a sheltered position, and between the pots to protect both these and the roots from frost has been rammed plenty of dry leaves, and in the event of extraordinary severe weather we shall cover the plants entirely over with Bracken or straw. Tied Peaches to trellises. We cannot get rid of Chrysanthemums from the house, else our first Peach house would be closed up for forcing. A week or two late at this season can easily be made up by slightly increased forcing as soon as the fruit is set, and again after the fruit has stoned; hence this delay in starting is not of much consequence. Pruned Figs; we are apt to train in the summer's growth too thickly. Appearance has something to do with this, as we like to see the trellis well furnished, but it is bad policy; better fruit is produced when the fullest amount of daylight and sunshine can reach it. In the pruning now being done we are striving courageously to thin out the wood as thin as it should be; all shoots that are budless to the greatest length are those that are being cut out, together with others that are shrunken near their points, because not well ripened. Soon as pruning is done, the whole will be painted over with a strong lather of soft soap and sulphur, to which pepper will be added, which we have tested as being an excellent dislodger of the small white scale, which is the only parasite that afflicts our Figs. Our earliest vinery is now fairly started; we have a bed of Oak leaves on the floor, and these prevent the necessity of syringing; present temperature, 55°. On the bed of leaves we have placed Spiræas, Deutzias, Hyacinths, and a few Tea Roses, which is a capital place for them in the earliest stage of forcing. Put more Grapes in bottles; Golden Queen, Alnwick Seedling, and Alicantes from an intermediate house. Those still hanging on the Vines need looking over twice a week. All is kept as dry as possible, no washing of floors, and decaying leaves are at once removed, and the inside borders are covered with clean, dry straw. Fire-heat is kept constantly on to keep the internal air a few degrees warmer than the outside, otherwise this fog would quickly cause decay of the berries. Flowering plants need quite as much attention in this abnormally dark, damp weather to keep them from injury by damping as does fruit, and to Cyclamens, Primulas, and double-flowered zonal Pelargoniums we have given a little more warmth to prevent this. Fruit rooms we now keep constantly closed, for, having no means in these of drying up damp air, the next best thing to do is to strive to prevent its entry, and air freely when we happen to get a drying atmosphere. Potted Seakale roots for forcing, and also put in warmth the first roots of Rhubarb. Hants.

FRUITS UNDER GLASS.

Pines.

By this time all the plants will be in the positions they are intended to occupy until after the turn of the year, and days being dark, dull, and as short as we may expect to see them, they must be kept as quiet as may be consistent with safety. The fruiting house may be kept at 76° to 80° by day, or perhaps a few degrees higher under gleams of sunshine, when all available spaces may be moistened to soften the atmosphere, as overhead syringing is now out of the question. Plants swelling fruit will require cautious watering, as too much will cause the centres to turn black, whilst want of this element will produce a check which will lead to premature ripening, and most likely the bolting of the suckers when potted and plunged in sharp heat in February. If in good sized pots and deeply plunged in moist fermenting leaves at a temperature of 80° to 85°, the lower roots will absorb a great deal of moisture, and stem roots can be fed by the application of tepid liquid through the syringe, but these means will hardly be sufficient to keep the whole balls in a growing state; therefore such plants as seem to require it must have a liberal supply occasionally. As soon as the fruit has attained its full size, and there is the slightest appearance of a change of colour, the balls must be allowed to become comparatively dry, and a dry, warm compartment being at command, the plants may be lifted out bodily and placed near the glass to ripen. In this position ripe fruit will keep for a long time, but unless some good end can be served, Pines, like all other fruits, should be detached when fully fit for use, otherwise the finest suckers may suffer.

Successions.—If the earliest batch of Queens is still resting, and the plants, by their thick stems and pointed leaves, look like starting, heat and moisture may now be gradually supplied. Where a newly-formed bed in an adjoining compartment has settled down into a steady reliable heat, the change from dry to moist heat will produce the desired effect on a large percentage of the plants, and those which do not start will make a little growth and throw up larger fruit at a very acceptable time. Root-watering and atmospheric moisture will, of course, be necessary, but until the fruit is well up great caution will be needful, as a sudden flush of either at this dead season is sometimes injurious. The general stock of intended fruiters will be kept quiet for some time longer, but it will not be well to let the air or bottom heats fall too low, as the roots of Queens may be injured by starvation and excessive drought.

Young stock potted in September and kept steadily progressing up to the present time should now be looked to, as it is not improbable the extra fire-heat and fermentation combined may have caused the leaves immediately above the pipes to become dry. Should this be the case, steps must be taken to avert the mischief that will follow, either by renovating with a few fresh leaves, or by the application of warm water between the pots, and in quantity sufficient to moisten the lower stratum. The roots also may require a little water occasionally, especially where the beds are shallow and dry fire-heat is near the crocks now full of roots. If growth is to be continued throughout the winter, the plants should be kept well up to the glass, as they must have plenty of light to prevent them from drawing, and in this case will require more top and bottom moisture than if resting. The bottom-heat in such light structures should range from 75° to 80°; the top-heat from 60° by night to 70° by day in favourable weather, and a little lower when dark and cold. In order to secure an approximation to these figures, and at the same time to spare the plants the injurious effect of excessive firing, good covering of some kind should always be provided and carefully used through the night. Shutters are antiquated; mats are untidy, and fast following shutters; but oiled canvas on rollers for running along, not up and down, will be found a cheap, efficient, and neat covering not only for Pines, but for all sorts of plants, especially in pits and frames. It can be obtained any length and width, properly furnished with eylet holes and cords for securing it from wind. Cold rain runs off it on sharp pitched pits before it reaches and chills the glass, and, judging from one year's wear and tear, economy as well as constant neatness and protection will be secured by its use.

Cucumbers.

The weather so far has been favourable to winter plants, which have made good progress under a moderate amount of fire-heat. All plants now in bearing, either in pots or planted out, will require continuous supplies, little and often, of good top dressing to keep the roots active and near the surface. This may consist of light turfy loam, a dash of peat where plentiful, rough, lumpy lime rubble, and charcoal, well mixed and kept in a dry, warm place ready for use as often as the young roots begin to show on the surface. If planted out as formerly directed, and the dry bottom-heat pipes are well covered with a good layer of moist, fermenting leaves, root action will be rapid, and the fruit will swell freely without the aid of solid manure, which, like all other powerful stimulants, forces gross growth of leaf and vine when least wanted. Mild diluted liquid at a temperature of 80° to 85° may be necessary, but this even should be regulated by the condition of the plants, as it is much better to cultivate for firm shoots and medium-sized leaves than to run into the other extreme and be overtaken by canker and mildew. Next to moderate fertile growth under a proper day and night temperature, very important points are cleanliness and the maintenance of a fresh, sweet atmosphere. To this end all surfaces, including the glass, should be frequently washed; not a particle of superfluous or decaying matter, on or off the plants, should be allowed to remain, and air more or less should be admitted near the surface of the bed daily. Add to these precautions thin training, light cropping, and good covering to economise the damaging influence of strong fire-heat, and the plants should continue fresh and healthy until the time comes round for daily syringing. Cucumbers just now are of little value; consequently every fruit that is not likely to be wanted, also all male blossoms, may with the greatest advantage be removed for the present; stopping likewise must be discontinued; and, assuming that close planting has been avoided, full extension training will keep the plants in the best of health where crowding and constant pinching might lead to a collapse just when the fruit is most needed. Mishaps in the best regulated houses no doubt are frequent, and some are beyond the most careful cultivators' control, but by constant attention to every trifling detail and an attempt to nip all diseases in the bud, the most trying month now before us may be tided over. In some gardens the fatal Cucumber disease sweeps all before it for years, and as mysteriously disappears as it first put in its appearance. In others, canker or spider claim their victims, not occasionally, but annually, until perhaps by some trifling change conditions favourable to their development are removed when plants in the same structure may go profitably through the winter with impunity. By some express culture—that is, intense heat—a saturated atmosphere and the exclusion of air is considered the never-failing remedy for, or preventive of, every ill, but I have not had occasion to try it, and so long as my plants continue healthy and fruitful the winter through, I shall follow the doctrine I preach, and advise my friends to do likewise.

Early Peach House.

Unless houses are plentiful and a continuous supply of fruit can be kept up throughout the season, there is nothing gained by starting a permanently planted structure before the first week in December, when, all having gone well, ripe fruit will be forthcoming in May. If wanted earlier than this date, then pot culture, recently referred to, should be relied on, as trees in pots whose chief value is their extreme earliness, can be put aside and replaced at trifling expense in cases of failure. Where the best early varieties are thoroughly established in well made and properly drained internal borders and the houses are light, efficiently heated, and ventilated, December-started trees under careful management can be forced successfully for a great number of years; and when it is borne in mind that their season is as nearly as possible reversed, the veriest tyro will understand that the successful cultivator must be imbued with a large stock of patience. An easily excited tree like the Peach, which naturally starts early, can be forced into flower at almost any time, but unless those flowers are in every way perfect and well in advance of the wood-buds, they will not set, or if they do, many chances run in favour of the fruit dropping when it reaches the critical stage of stoning. To avoid this dilemma and secure full crops really worthy of the size and quality of first-class Peaches, time must be given by starting at a very low temperature, always with air through the day and allow-

ing rest through the hours of darkness. Young trees are less reliable than old ones, but assuming that the latter are in good condition, the borders have never felt the want of water and are now in a proper growing state, fire-heat will hardly be needed during the first fortnight after closing. If artificial heat is required, a good body of fermenting leaves, unless the weather is very severe, should prevent the temperature from falling below 45° at night, whilst under favourable conditions it will range some degrees higher. When the house has been what gardeners term "closed" a fortnight, although practically the ventilators have been open every day and the Oak leaves are throwing off warmth and a steady stream of moisture, gentle fires may be started every morning, always with air to raise the temperature to 55° or 60° under gleams of sunshine. If water through the syringe is considered necessary, this is the proper time to apply it both to the trees and walls, but the first should be allowed to get dry before nightfall, and the fire-heat should be shut off when the mercury registers 50°. Worked on upon this give-and-take principle, the flowers will open strong and perfect; moreover, they will set well; and although a little time apparently may have been lost, they will prove the value of the virtue I have mentioned at the finish. When the blossoms begin to expand, 50° at night and 60° by day may be worked upon as the mean until the fruit is set and swelling out of the decaying flowers, but no hard and-fast line need be adhered to, as Peaches frequently set well under a temperature of 40°. These low heats are not, however, recommended, as warmth from fermenting materials combined with gleams of sunshine and gentle fire-heat which will raise the temperature to 70° will be beneficial, as it ripens the pollen and sets it at liberty when wanted for fertilisation.

Succession houses.—The trees in these should be cleansed and tied in as opportunity offers. Whilst keeping the pruning and training well in advance, we always divide our time between trees under glass and others in the open air, as the men then have indoor work for bad weather, and it is hardly necessary for me to say, get over the greatest possible amount of pruning and nailing when the days are dry and mild. The trees in this, as in all other houses, having been pruned as soon as the crop was cleared, this operation at the present time merely consists of a general dressing over and smoothing of rough cuts as a preliminary to washing. There prevails an impression that extension-trained trees soon become thin in the centre; this I do not find the case, but rather the reverse, as the maintenance of a free healthy balance between the roots and branches gives one the choice of an abundance of fruit-bearing shoots in every part of the tree, and opponents have only to try the system to find out how easily a careful disbudder can command a good supply wherever he wants them. When a regular shortening back to one-third the length of every shoot is adopted, nine-tenths of the young breaks have to be rubbed off and sent after a similar proportion of the flower-buds which might have produced fruit. An extension shoot from 18 inches to 30 inches in length breaks equally well; consequently grossness and confusion are avoided, as a smaller number of fruit-bearing shoots are needed—the first, of course, from the base or lowest bud, the second from about the centre, and the third from the point. These are allowed to grow outwards and onwards to their fullest extent. All intermediate growths are pinched where fruit has set and removed as thinning is proceeded with; where fruit has not set, or its removal is a certainty, they are rubbed off in the usual way. Hard-pruned trees are generally crowded with gross wood which requires much ripening, a decided disadvantage in late houses. Extension-trained trees grow themselves into fertility, and having more room for the full development of their leaves, the wood becomes hard and brown, the buds are large, round, and plump, and being perfectly formed and ripened, the flowers invariably set well.

Late houses.—One of the secrets of success in the management of the trees in these structures is perfect ripening of the wood. When late sorts like Barrington, Sea Eagle, and Walburton Late Admirable are retarded through all the stages of their growth, it is no unusual event to find the wood in a backward state after the fruit is gathered. Fire heat, after the sun has lost its power late in October, many people think is of little avail, but this being the next best element, I always keep the hot-water pipes constantly warm with a circulation of air so long as a leaf hangs naturally upon the trees. When quite clear of foliage, firing is discontinued, as it would be ruinous to push the buds beyond maturity, a by no means uncommon event in very early houses where the trees lose their foliage during the heat of the latter part of the summer. Root-pruning in these late houses is, of course, a telling factor, and should be practised immediately after the fruit is gathered. This work may still be performed, and where fresh trees have to be introduced from reserve walls not a day should be lost in getting them transplanted and their places filled up with young stock before frost sets in. External borders still open to the elements may remain so until we have a change, but frost-resisting materials should be held in readiness for use when wanted. W. Coleman.

Eastnor Castle, Ledbury.

Fruit Garden.

OUTDOOR GRAPES.

Mr. Cornhill (p. 469) is correct in his conclusions as regards failure in outdoor Grape culture arising in most cases from want of attention. The Vine, we all know, is a favourite for training on walls of cottages, and often on those of larger dwellings, but in much the greater number of cases little or nothing is done to secure a fruitful condition, or, if the Vines happen to show the requisite quantity of bunches in spring, to assist the ripening of the fruit within the space of our short and too sunless summers. In place of the shoots being sufficiently reduced in number by thinning as soon as they have made the usual progress, and of stopping those that are retained in the ordinary way and attending to the removal of lateral growth as it appears through the summer, the whole is allowed to go on until a complete thicket is the result, after which an indiscriminate cutting back of the shoots is effected, or the whole are allowed to go on until the leaves fall, when the pruning is done much in the way that one would clip a hedge. So far as I have had an opportunity of judging, the want of attention on the part of those who have Vines on open walls is through ignorance of what is required to enable them to bear and ripen their fruit as they should and would do if properly treated, for it often happens that other things, including bush and other fruits in the gardens where the neglected Vines exist, receive the requisite care. In support of this, it is a common occurrence to hear the owners of these non-fruitful Vines complain of their not bearing or the fruit not ripening, when, on a few hints being given as to the treatment required, they are not only adopted, but followed up in a way by which crops of eatable fruit are secured when the summers are such as to enable it to ripen, which by no means always happens even as far south as London. With fair treatment, a couple of the old white Muscadine Vines, growing on the south side of the house in which I live, show plenty of fruit each spring, but it does not always get ripe enough to eat. This was notably the case the summer before that we have just passed through, when a very late spring was followed by the fine weather being cut short earlier than usual in autumn. This year the spring was later even than in the preceding year; so much so, that the Vines were not in bloom on Midsummer's Day—a condition that has not before occurred during the seventeen years that I have resided in this part of the kingdom. Yet, contrary to what at the time the Vines flowered I thought was possible, the fruit has ripened thoroughly, which shows the exceptionally fine warm autumn we have had, the double advantage of which to outdoor Vines is that the buds for another year are also plumper and better matured than often happens.

Varieties of Grapes that require only a short season to bring them to maturity, such as the Muscadine named and Black Cluster, fairly treated, ripen their fruit in some localities further north than is generally supposed. An amateur with whom I was well acquainted, living in North Lancashire at some eight miles from the sea, had a Black Cluster Vine growing on the south side of his house that used to ripen its fruit thoroughly in fairly warm summers when the weather kept fine well on into autumn. The Vine in question was a strong one, and I have frequently seen it with half a hundredweight of fruit on it black and agreeable to eat. Respecting the absence of the requisite attention to outdoor Vines so generally seen, there are more reasons than one to which it is attributable. The treatment required by Vines is different from that of the common kinds of fruit, such as Apples, Pears, Plums, Cherries, and bush fruits, success with which is attainable more or less by annual pruning carried out at any time during the winter; whereas Vines to do any good must have their shoots sufficiently thinned and the bearing wood that is retained stopped at the right time, with repeated attention in removing lateral growth as this appears. Further than this, Grapes cannot be used in so many ways as most other fruits, and consequently are not worth so much or command the attention which the commoner kinds receive.

In regard to growing Grapes in vineyards in the way that used to be done in England in generations past, much has been written with a view to show that either the climate has changed for the worse, or that giving up their cultivation in this way has been a mistake. Yet those who reason thus seem to express their ideas without reflecting much on the subject, or knowing anything as to the character of the Grapes grown in bygone times. Eatable fruits were then few in number, and vastly inferior in quality to what they have been even at a period comparatively remote from the present day; consequently people were likely to be satisfied with such that now would be rejected as unpalatable. And, so far as I have ever been able to make out, there is no evidence existent that gives any idea what the character of the Grapes grown in English vineyards was. We know that the chief object in their cultivation was for wine-making purposes, to adapt them for which, it is needless to say, it was not necessary that they should have been ripe enough to eat, nor, for the matter of that, even anything near ripe, as unripe Grapes, in common with other kinds of fruit suitable for wine-making, answer for the purpose when much too acid to be eaten. In seasons when the white Grapes I have mentioned do not get ripe enough to eat, we make them into wine by a slow fermenting process, which wine after being bottled a year is little inferior to champagne; no spirit of any kind is added, except such as is contained in the sugar that is used in making it. Doubtless there are many who turn their outdoor Grapes to account in this way, and many more might do the same, if only a thought was turned to making use of the acres of bare, unoccupied walls that exist throughout the land, which, in addition to being vastly improved in appearance, would afford much that would be interesting as well as useful. But as opposed to this, so prevalent is the deep-rooted prejudice against things produced at home, that wine made from Grapes grown in England is not likely to be held in much favour, and this, notwithstanding the well known fact that thousands of gallons of imitation material is annually manufactured and drunk, but which, in spite of the labels on the bottles, has no more relationship to Grape wine than the water that runs down the nearest brook.

As to the re-introduction of the cultivation of Grapes in vineyards in this country, of which accounts from time to time appear, little that is reliable can be gleaned. During the summer one occasionally hears of the prospects of the growing

crop, but, so far as I have noticed, nothing has been said at the time the fruit should have been ripe that was likely to encourage anyone to adopt the system. In fact, it may be accepted as a certainty that in summers when the weather is such as only to just admit of Grapes ripening against a south wall, they will not ripen in a vineyard where the Vines are grown on the ordinary supports. There is one circumstance connected with outdoor Grapes that might possibly be of use to anyone feeling disposed to undertake their cultivation, when Vines are trained on the roof of a building facing the south with the rods secured to strips of wood laid flat on the slates or tiles, the fruit ripens quite ten days earlier than against a south wall. But to admit of the Grapes coming to maturity as early as possible, enough of the sun's rays must reach the surface of the roof, without which the requisite amount of heat will not be thrown off to bring on the crop with as little delay as possible. The way to effect this is to keep the canes far enough apart, so that it will not be necessary to remove too much foliage, to allow the sun to act sufficiently on the roof. Within the limits of such parts of England as are favourable to the cultivation of outdoor Vines there is an immense extent of roof surface covering sheds and low buildings of various kinds that might be turned to account by growing Grapes on them. There is one thing in favour of Grapes over other fruits when grown on a roof in the manner described—that is, the Vines are not brought on into flower by the sun-heat radiated from the surface so early as to get injured by frost in the way that other fruits are more or less liable to in such a position.—T. B.

—— When we called attention the other day to Mr. Harrison Weir's advice to plant Vines out of doors in England, we kept the question clear from that of the growth of the Grape in any artificial structure. He, however, confuses the issue by bringing his doings with ground vineries, &c., into his letter in the *Field*. Seeing a letter of Mr. Weir's in a daily paper of wide circulation among country people, telling them to plant Vines in the open air, we said a few words of caution. More misleading advice we can scarcely imagine to be given than telling people to plant Vines for fruit in the open air; and no one with any pretensions to gardening knowledge has any excuse for giving such advice, because no one with eyes in his head can travel in our warmest counties without seeing the absurdity of it. Mr. Weir speaks of his grandfather and his doings in Grape-growing out of doors fifty years ago—a very interesting reminiscence, no doubt, to him, but not throwing any light on Grape-growing out of doors in our own day. He, however, does not say a word about that experiment of the Marquis of Bute, a recent example which some of us have been to see, and he does not give the name of any place where good Grapes are ripened regularly out of doors in England. The Vine out of doors is always an interesting subject to us, and we have seen some hundreds of gardens within the past three years in which it is grown, but in not more than one case did we see a really eatable berry! Surely it is needless to say to anyone having the least knowledge of gardening that the Vine is a plant which is perfectly unfit for a cold climate like ours without artificial protection. It is no new thing, but one which has been tried for hundreds of years in the most favourable parts of our country, from Norfolk, where it is on every cottage in many of the shore parishes, to the best parts of Kent, Surrey, and Devon. With care and skill a little fruit may be got off warm walls in hot seasons; but the regular and profitable cultivation of the Grape in the open air is impossible. It has been proved to be so in a thousand gardens. Of all possible experiments in cultivation, this has received the fullest trial and the clearest decision. All who know gardens are familiar with the poor bunches of Sweetwater grown now and then under the south gable, and which are often a source of amusement to the owner, but no proof of the fitness of our climate for Grape-growing out of doors—quite the contrary. The wall space given to such trees would be much better given to a first-class winter Pear, or any good fruit that ripens in our climate. In our best gardens, in the warmest districts, no good gardener ever wastes his time and his walls growing Grapes in the open air. Go to Chiswick, and while a variety of experiments may be seen, those in charge know too well the effect of the British climate on the Asiatic Grape to give the subject a thought. With doubtful fruits good gardeners persevere. The severe winters of recent years, though they were so destructive to another valuable exotic fruit—the Peach—have not discouraged good cultivators. At Tortworth, and various gardens in the west, we have seen excellent fruit, and even at Burghley, where the climate is not so good. We say so much to show that where there is any hope, our good gardeners are not slow to try. But the fact is, a number of people have no power to generalise, and if they see a miserable crop of Sweetwater Grapes on the warm side of a house, they fly to the conclusion that everybody should grow Grapes on walls in England. The same kind of men, seeing that a young Gum tree, put out in our flower gardens, made what they thought a strong shoot during the summer, wrote to the *Times*, telling people to plant the Fever Gum tree; and so a few years ago these trees were planted in hundreds of gardens, to live till the first hard frost. Anyone who had seen the fine growth of the tree in a warm temperate climate would not have been deceived by the summer's growth in the sub-tropical garden, and its value for our country was previously well known. We frequently observe that persons who urge these rash experiments ignore the really useful and pleasant planting of the things suited to our climate; and so we ventured to remind Mr. Weir that it would be much better to call the attention of the public to fruits they could bring to perfection, and of which our markets and our tables stand in as much need as they do of Grapes. "No," says Mr. Weir, "the market is often overstocked." This is certainly not the case so far as fruit of the best keeping quality is concerned; and that is the fruit which should be grown on our best wall surfaces. Winter Pears of good quality, the fruit which would pay the best price of any hardy fruit grown in Britain, are not likely to be plentiful for a generation to come. Much very good fruit comes from France, and some from America. Because we had a glut this year of early fruit, that is no reason why we should give up the culture of fruit of the highest class; far from it. The Americans will not cease to send us their Apples, nor the French Duchesse and Easter Beurré Pears, because we had a glut of Plums this year, and because, owing to railways and bad market arrangements, the grower did not get his just profit.—*Field*.

Late Plums.—I have now before me a box of late Plums, grown by Mr. May, the gardener at Northaw House, near Barnet. The variety is Late Rivers, a most delicious dessert fruit, slightly below medium size, round, dark purple, and not unlike the old Purple Gage, to which it is quite equal in quality. It has a very slender stalk, an inch long, and the flesh, firm and juicy, is almost as yellow as that of an Apricot. Growers of the good old Golden Drop, who wish to have a purple companion in perfect condition on the trees as late as the middle of November, will do well to plant this excellent variety. It is one of the many seedlings raised by the late Mr. Rivers, and bore fruit the first time about twenty years ago. Good purple Plums are now perhaps more numerous than white or yellow varieties, and may be had in use from a very early date until after the leaves fall in the autumn. The first to ripen is Early Prolific, an excellent kitchen and market Plum; this is closely followed by that most delicious dessert variety, De Montfort. Then we have Kirke's, a host in itself, one of the best for forcing, and very prolific against open walls or grown as a pyramid. Angelina Burdett is rich, juicy, and prolific. Belgian Purple and Prince Engelbert, free, hardy, and prolific, are invaluable, the first for cooking or dessert, the second for the kitchen and preserving. These should be extensively planted for market purposes. Purple Gage is too well known to require notice. The Czar, a large, early purple Plum, is said to be an improvement on the Early Orleans; and Grand Duke is now making its way as a very high-flavoured fruit, alike useful for market or the private garden. Blue and Ickworth Impératrice are delicious when well ripened against a wall, but they will not do in cold gardens. Plums in the season are plentiful enough, and not unfrequently become a drug; but late sorts, like the excellent subject of this notice, are worthy of the attention of all planters. —W. C.

WINTER PRUNING FRUIT TREES.

Almost everyone who owns a fruit tree professes to be interested in pruning, and is often anxious to know when and how it should be done; but instructions respecting the matter are often badly carried out, and in not a few cases pruning is neglected altogether. Almost all fruit trees will produce a crop whether they are pruned or not, and when their owners see that they fruit, though not pruned, it no doubt makes them careless as to pruning. The quality of the produce of pruned and unpruned trees is, however, very different. On pruned trees the fruit is, as a rule, fully developed, fine in form, juicy and richly flavoured; while that on unpruned trees is always below the proper size, badly formed, dry and flavourless. It is in these respects that the advantage of pruning and the disadvantage of not pruning become visible. If anyone would plant half-a-dozen trees now, prune three of them annually, and allow the others to grow on without being pruned for six or eight years, I venture to affirm that at the end of that time it would be difficult to tell that both lots consisted of the same variety. This applies to all kinds of fruits, from Peaches to Gooseberries, and from Currants to the finest Pears. All trees have a natural tendency to become a dense mass of branches. A Gooseberry bush, never pruned, would soon become so full of wood, that it would be impossible to get one's hand into the middle of it to gather the fruit without being severely scratched. An unpruned Apple tree presents such a mass of foliage at midsummer, that it is impossible to see through it or tell what amount of fruit there is in the centre. But this is not a difficult matter as a rule, because Apples do not form or swell readily in the dark or shade, and trees of this kind have generally a sterile interior; whereas properly pruned trees bear freely and uniformly throughout. In short, if you want a poor crop and small fruit, do not prune, but if you desire a full crop and first-class produce, pruning must be resorted to. In answer to the question, "When is the best time to prune?" the general reply is, "Oh! any time from November until April." I do not, however, believe in such latitude; some pruning may certainly be done in November, though the majority of trees will not be ready for it then; as to April or even March, these months are much too late. It is injurious to prune after the buds have begun to swell. December and January are the two best months in which to prune, the whole of which should be done then. Cut out the decayed branches first, and allow young ones to remain to take their place. Apples, Pears, and Plums fruit most freely on spurs; therefore the young shoots formed during the season should be cut in to 1 inch or so from the bottom, with the exception of those allowed to remain to extend the tree or fill gaps, which may be left 1 foot or more in length. Peaches, Nectarines, and Cherries fruit freely on the young wood; therefore the most fruitful shoots on these should be allowed to remain. Apricots should be pruned on the spur system, and so should Red and White Currants and Gooseberries. Cambrian.

Wintering Strawberries in pots.—Strawberry plants for forcing into fruit in February, March, and April will now be at rest, and they will not grow any more until placed in their forcing quarters. Moreover, the growth made then will not help them; it is upon their development in autumn and the way in which they were matured then that their fruiting mainly depends; part of their success also rests on the way in which

they are kept during the winter, or from now onwards until they are placed in heat for forcing. They are greatly benefited by having a complete rest, and plants kept from frost or cold are not so good as those treated in a more hardy manner until forcing time. It matters not whether they are wet or dry at the root so long as they are cool, but they will bear a good deal of drying off, and if the pots are laid on their sides along the bottom of a wall three or four rows deep, it will be found that they will winter uncommonly well; I would rather treat them in this way than put them in a glasshouse. There is no advantage in plunging the pots in ashes or leaves, as is sometimes done; where there are any spare frames no better place could be had for them, as they can be placed close together in them; the lights may be left off night and day when the weather is mild, and in times of severe frost or much rain, they can be put over the plants to protect them. Plants treated in this way invariably force freely, while they do not suffer in any way from the weather. When left standing wet and exposed to frost, the soil swells and breaks the pots; but were it not for this disaster, there would be no harm in exposing Strawberries to frost. To prevent breakage, and where no protection in the way of a glasslight can be put over them, it is an advantage to put a layer of Bracken or straw over them, but at no time should they be treated as plants which cannot bear exposure so long as they have not been subjected to forcing.—Cambrian.

NOTES ON STRAWBERRY CULTURE.

Wintering pot plants.—Although wintering Strawberries in the open ground seems to be in favour with many, I cannot but think that the best way is to keep them under cover. I have had occasion more than once to winter plants in the open, and the crop of fruit from them never was so great as that from plants which had been well protected. In gardens which lie up well, and where there is no danger of water stagnating round the pots, I do not doubt that thoroughly well-rooted plants may be wintered very well, but I have found that the greatest enemy to them was periods of hard frost, which necessitated covering them with litter for a week or more at a time. When the protecting litter becomes saturated with rain or with melting snow, and then hard frost freezes it into a solid mass, it cannot well be removed, and then the foliage is sure to turn yellow, and decay as soon as the plants are put into the forcing house. We know what the function of the foliage is, and how its health or otherwise acts on the roots. Can it, then, be a matter of indifference whether that of a pot Strawberry be in a thoroughly healthy or diseased condition when, by the application of artificial conditions, the plants are forced into activity? The greener and more abundant the foliage the stronger will the young leaf push. That, at least, is my experience. Given a thoroughly well-rooted plant with a moderate-sized plump crown and several stout deep green leaves, and I always feel that it is an easy matter to get a crop of fruit. I do not deny that good crops may be got from plants which are but naked crowns when started into growth, but I contend that it is not good policy to bring them into this condition, and I know that a considerable amount of skill and much care are indispensable to keep them from getting into a bad condition. The first stage of forcing when the plants are called upon to make an effort under more or less unnatural conditions is always fraught with danger, and many thousands of plants are annually ruined at this time through careless handling, or the plants not being in a fit condition. One great risk lies in over-watering; once the roots get injured, more or less of a failure is likely to follow. I have the word of an excellent grower that his greatest difficulty is to keep his plants from being overwatered. Good healthy foliage preserved intact fresh and green through the winter, minimises this risk very considerably. Some draw their conclusions from the behaviour of plants that have been wintered on shelves, but this is not a good place for them, as unless they are carefully attended to they are sure to suffer from want of water. It is just as bad for a Strawberry to become very dry in the winter as to be soddened with moisture. In cold frames standing on ashes they are in a position to keep them in good health. One mistake, often made, is over-haste in getting the plants under cover. As soon as the first heavy rains come toward the end of September, they are frequently put into their winter quarters, and are thus deprived of the benefits of abundance of pure air and refreshing autumnal rains. If a plant has been well grown it will not fear, but will rejoice in the occasional drenching rains of autumn. It is often said that the Strawberry has completed its growth by the middle of September, but this is wrong. There is a considerable increase of bulk up to the middle and, in some years, to the end of October. It is the autumn weather that does this, and we are, therefore, not justified in depriving plants of its beneficial influence. I am sure, and many of your readers will endorse the statement, that Strawberries this year made more growth in the six weeks following the first week in September than during the whole of the summer. This often happens after a hot, dry season. When plants are stored away so early, they are apt to get dry frequently, but if they are not wintered till the end of October, and are stored away when quite wet, they will rarely need looking to till they are required for forcing. They remain in an equable state of moisture through the winter.

Plants several years in the same pots.—The possibility of getting good crops of fruit from plants that have had no change of soil for several years has on several occasions been questioned in The Garden. Some years of experience have proved to my satisfaction that in quantity and quality, the produce given by old plants is quite equal to that given by young ones. Of course, they must be rightly managed; there must be some labour expended on them, but so there must on young plants. It happened some years ago that we had not the means of obtaining a sufficient number of young plants, and we were obliged to keep some of the old ones. These we found answered so well, that we did not trouble to get any great number of runners. The treatment given was as follows: Early in June the foliage was cut off, thus getting rid of red spider. It is noteworthy, that as soon as the old leaves are cut away new ones immediately begin to develop; whereas, when left on, the greater part of the summer passes before fresh foliage is made. As soon as each crown has two fairly developed leaves they are thinned out to one good crown to a pot, and they then get a top dressing of some kind. They are then placed on a bed of free, rather light, soil, and are not disturbed until September. During this time the roots push through the bottom of the pots, and this gives a great impetus to top growth. About the first week in September they are broken off, the roots that have been made in the soil are cleared away, and if there are any signs of mildew, they are dipped or well syringed with soft soap and sulphur. They then get a top-dressing of three parts soot and one part sand, the latter being added to set the soot and keep it from floating off when watered. This, being well watered in, binds firmly on to the surface, gives a fine colour to the foliage, and prevents the formation of Moss all through the forcing time. The destruction of the roots when the pots are disturbed would seem to be likely to be fraught with disastrous results, but if the plants are kept well moist for a week afterwards, they sustain no check. It is also curious that the breaking off of the roots at the bottom is immediately followed by the production of new ones from the crown, and as well as from the old roots composing the ball. In the course of a month the pots are again filled with new fibres, and the roots from the crown, which are much stronger than those produced by young plants, will have reached the bottom of the pots. Occasionally I have shifted some of these plants during July into 8-inch pots, and they then made specimens about like what old stools in the open air are when doing well. I have had plants of Sir C. Napier with more than a dozen good flower-spikes on them. Such plants will not do for early work, but they are good for bearing a heavy crop of late fruit, say, early in June. A friend of mine has adopted this system with a modification. Instead of letting the roots go through, he shakes them partly out in August, gives fresh drainage and a little new soil. This is the way I should recommend if any reader of The Garden wished to grow on the old plants, and this is the way to get the best rooted and strongest plants that can be grown. Such plants are more sure of fruiting than young ones—that at least is my experience. I have compared old plants with young ones both in respect to heaviness of crop and quality of berry, and I can conscientiously say that I have never found any difference. There need be no surprise that this should be the case; it does not matter what the age of the plant is if it has the requisite strength. I do not suppose that many readers of The Garden will care to grow on old plants, but if through circumstances they should be obliged to do so, they may rest assured as to the results if they will give them proper treatment. It will perhaps be said that it is quite as easy to get young plants as to grow on old ones. Those who find this to be the case, need not, of course, trouble about retaining old ones; but where there is any difficulty in procuring good strong runners, I would advise the best of the old plants to be kept.

Strawberries after fruiting.—One reason why plants collapse after having yielded one or two crops of fruit is that they do not get any particular attention after the fruit is gathered. The Strawberry probably bears a greater weight of fruit in proportion to its size than any other hardy fruit, and whilst this is ripening off there is a great strain on the plant. This is especially the case with large-berried kinds, and when very dry weather accompanies or immediately follows the ripening period. During the time that the fruit is swelling, a Strawberry plantation is a source of much interest; the eye of the grower is constantly upon it; but this supervision often ceases with the ripening off of the crop, and the plants frequently get no attention for a month or so. It is, however, just at that time that a little attention is much needed; a day's work would often save the plants for another year. In the first place, some of the old foliage should be cut off, and where there is a mass of crowns they should be thinned out to three or four. Then give a top-dressing of some kind, and a thorough soaking of water if the weather is dry. It is surprising what this does for the plants: the partial defoliation and thinning of the crowns give them a new lease of life, and by the end of the autumn they will have made seven or eight good substantial crowns, very different from the mass of more or less weakly ones that are often to be seen on old stools. Early in autumn a good dressing of soot is very beneficial, as it gives great substance to the foliage. J. C. B.

APPLES FOR PROFIT.

There never was a more encouraging time for making a start in Apple-tree planting for market than at present. It needs but a glance into our markets to convince the most sceptical that we can still get the highest price for home-grown Apples, no matter how many may be on sale of foreign growth. Thus we have the first three months of the Apple season without any rivals in which to dispose of our early free-bearing sorts of the Codlin type, and after that we must be prepared with sorts that will bear comparison with anything foreigners are likely to send. Some say we have too many orchards already, but let it be remembered that one-half of the orchards now in existence are worthless. Good fruit cannot be expected from trees prematurely old through neglect. No wonder that the produce of trees that ought to be grubbed up and burned is specked, worm-eaten, and unsaleable; yet Apples only need common-sense

culture. Blenheim Orange, Cox's Orange Pippin, Wellingtons, Ribston, Queenings, Russets, and a few others are sufficient for the largest orchards that are likely to be planted. I should like to see for once a large orchard of Blenheim Orange, a variety that always sells well. The expense of planting is not so great as many imagine, and the idea that a young orchard produces nothing for the first few years is wholly a mistake. Whether planted with standards or dwarfs, the land should be cultivated and manured, and such crops as Potatoes grown between the rows, but do not plant bush fruits; they are too exhausting and there is plenty of them already; do not crop close up to the trees; on the contrary, give them a clear space all round for their roots. Apple trees do not require a great deal of manure at planting time, *i.e.*, if the soil is rich enough to grow good vegetables, or Corn, but after planting the roots should be mulched. The mulching keeps them warm in winter, saves them from drought in summer, and provides food for the rootlets near the surface. On a large scale in the case of orchards laid down with Grass, the only way of supplying the roots with food is by grazing the orchard with sheep in summer, and winter dressing with farmyard manure. Every shoot must be fully exposed to light, and the bark must be painted with paraffin oil to free it from insects, Moss, and other parasites. If dwarf trees are adopted, let them have the soil entirely to themselves; do not choke them with bushes of any kind. J. G.

Hants.

Books.

APPLES AND PEARS AS VINTAGE FRUITS.*

This handy little volume of some 250 pages has been published soon after the completion of the last part of the "Herefordshire Pomona." The Woolhope Naturalists' Field Club, at the head of which was the late Dr. Bull, spent nine years in getting up the "Pomona" with its 430 beautifully coloured plates, but, fully alive to the fact that the work was too expensive for the masses, the club determined upon publishing a selection of papers from it, with sections of fruit, at a price that should at once place it within the reach of every cider grower in the kingdom. This the society did not do one day too soon; the crowning work of the editor's life was the re-writing of the papers which he had selected, and the drawing with his own hand of the sections of fruits with which the book is illustrated. This statement alone should recommend the book, for the editor, a keen observer, spent many years of his life in the centre of the richest cider district in England; he also gained much useful information from the French during his visit to the Congress at Rouen in 1884, and the outcome is a mass of useful matter in a very convenient form. In these days of agricultural depression, when landlords and tenants alike are suffering, when the colonist, aided by brighter climes, is beating us out of our own markets, when even our own railway companies are dead against us, this carefully written book should be read by everyone engaged in the culture of the Apple, its scientific management and conversion into a beverage more wholesome than much of the wine now imported into this country. So thoroughly practical indeed are the short chapters on soils, manures, and general culture, that we have no hesitation in saying that this little volume may be perused with profit by every horticulturist who wishes to keep abreast of the times in the production of culinary and dessert fruit for the English market.

The first part of the work is divided into short chapters on the orchard and its products, *i.e.*, cider and perry, and a most interesting and instructive portion it is. Then follow chapters on the orchard generally, orchard trees, fruit management and fermentation, chapters which should be made prominent subjects in every rural elementary school and agricultural college, especially those in cider districts. Then we have a chapter on the orchard in its commercial aspect, no trifling matter when it is estimated that the produce of one county (Hereford), with its 27,000 acres, principally of Apples and Pears, is worth £127,000 per annum. A very important chapter in the "Pomona"—renovation of the orchard—is too lightly treated, as much may and must be done in this direction before growers can discuss with any degree of satisfaction or comfort our future orchard prospects. The writer's remarks under this head run as follows:—

English agriculturists have now to meet the competition of the world, and it is desirable on every account that they should enlarge their sphere of action. Instead of confining themselves so much to Corn and cattle as they have hitherto done, they should pay closer attention to the growth of other products which will command a constant and lucrative market in our own populous and wealthy towns. . . . . Happy in these times are they who, living in districts especially adapted to the growth of hardy fruits, can turn their efforts in this direction. Our orchards ought to supply economically and profitably the markets of our cities and towns with an abundance of Apples and Pears, and to be able to meet successfully, moreover, an active competition from the continent of Europe, from America, and even from Australia.

Herefordshire, Devonshire, and Somersetshire, and other districts capable of producing cider and perry of good quality have a peculiar advantage in the possession of a branch of agricultural industry that may be made very remunerative. It is one of the least likely to be interfered with by the fluctuations of ordinary trade, and has therefore, with proper care, only the seasons to contend with. The present state of our legislature is most favourable to its extension, since there are no longer any restrictions on its produce by taxation, nor yet on its sale direct from the orchards; whilst as regards foreign competition, there is no probability that the supply for our home consumption can be seriously interfered with for this, if for no other reason, that beverages which only contain so slight a proportion of alcohol are readily susceptible of re-fermentation caused by the constant shaking incident on conveyance from a distance.

Landlord and tenant are alike interested in the utmost development of our home industries. The greatest attention must be paid to the special products of every district. Great competition must be met by high cultivation, by economy, and by intelligent, persevering industry. The land must be managed, if not in the letter, yet in the economic spirit of John Stuart Mill, who pointed as an illustration to the Cabbage of the French proprietor, so carefully dug round, watered, and manured; so individualised, in short, as though the whole profit of the farm centred in that one single vegetable. By thus paying greater attention to minute details, the farm may become, what it ought to be in these days of competitive agriculture in both hemispheres, a duplicate of the garden on a large scale.

Turning to the editor's opinions upon pruning, we have (p. 30)—

The necessary pruning in the orchard is very apt either to be neglected altogether, or to be carried out in excess. In the one case the boughs grow matted together, and bear their fruit small in size and deficient in quality; or in the other, whole boughs are mercilessly lopped off close to the trunk, leaving those great round scars commonly called "owl's faces," to offend the eye of every good orchardist, since they show how deeply the trees have been injured. It would sometimes seem as if the want of fagots suggested "a turn at pruning," when the poor trees are mercilessly attacked, at the cost of their strength and vigour.

The trunk of a tree is fed by its branches, just as a river is fed by its tributaries. It is not nourished by the sap taken up by the roots from the soil until it has been acted upon by the atmosphere in the leaves; and thus its growth is downward from the foliage, and not upwards from the roots. Every branch of a tree has smaller branches of its own, and is in fact to them a tree. Now, supposing a branch to be condemned, instead of proceeding by capital punishment (which admits of no repentance except to the inflictor), the humane process is this. Select a branchlet which happens to grow in the most favourable direction, and at the point where it springs cut off the main branch obliquely in the direction of the growing branchlet, undercutting at first to prevent spalteiing, and prune the wound as much as possible into symmetry with the direction of the new leader. In another year or two serve the new leader in the same way, and the process may be repeated if requisite. The result is this. The growth of the original condemned branch is entirely stopped without its being itself killed, and as the trunk of the tree increases its size gets less in proportion, and may generally in a few years be moved entirely without injury or eyesore close to the stem; that is to say, when the proportionate size of the scar to the stem is such that it will heal perfectly in two or three summers.

Thoroughly at home as a microscopist, Dr. Bull's papers on fungoid growths, insect enemies, and diseases will be found alike useful to the farmer and the gardener. His remarks and quotations on gathering, storing, and managing ripe fruit may also be read by both with mutual advantage. To the owners of old orchards, in which nomenclature has been lost or muddled up with local or outlandish names, the latter part of the book, embracing 150 pages, will be found of immense value, as it not only contains faithful sections, by means of which the names of all leading varieties of Apples and Pears can be determined, but it also briefly gives the history, where known, the locality which suits them best, a minute description of the fruit, wood, and flowers, as well as a chemical analysis of the juice. Take, as an example, the Foxwhelp, which may be considered the king of Cider Apples:—

Density of fresh juice	1·068
Do. after 24 hours' exposure to air ..	1·070
100 parts by weight yielded of sugar ..	14·40
Tannin, mucilage, salt, &c.	8·50
Water	77 100

If space admitted, we might quote more or less from every page, but quite sufficient has been said to show that the owners and occupiers of the soil are indebted to the Woolhope Club and its late leader for a valuable book, which comes within their reach at an opportune time, and which should be read by all who wish to elevate our orchards to their proper commercial position. The type is bold and the paper good, and the work, upon the whole, is worthy of the editor of the "Herefordshire Pomona." W. C.

NOTES ON MARKET NURSERIES.

The speciality of Messrs. Drovers' nurseries at Fareham is flowers for cutting, and notably white flowers, with which house after house is packed until there is hardly space to get amongst the plants. Chrysanthemum blooms and white Camellias are just now magnificent, and every shoot is surmounted by great bunches of buds and blooms in various stages, that will keep up a supply for months. They are gathered every morning and sent to all parts of the kingdom by post or rail, as the case may be, and as only the blooms are picked, no wood being cut, the bushes soon attain a large size. They are planted out in a border all round the house, and there is in addition a large central bed. The house, which is low, is span-roofed, and exceedingly well adapted to the purpose. Gardenias are grown in several houses exactly similar to the Camellias, each bush being on a large hillock of the best peat, and they are really a sight worth looking at at any time of the year, but especially when covered with thousands of buds, for

* "The Apple and Pear as Vintage Fruits." By H. G Bull, M.D., &c. Hereford: Jakeman & Carver. 1886.

the picking is too closely followed up to allow of many fully expanded blooms being seen. The roofs of these houses are covered with Stephanotis, planted out, and from which flowers are procurable in one or other of the houses nearly the whole year round. These houses get copious drenchings of soft water; the latter feeds the Gardenias, and enables them to produce quantities of blooms of good substance and purity. Keeping such houses free from mealy bug is a heavy item of expenditure, several boys being employed almost continuously in sponging and brushing.

The Arum Lily house is a grand sight at certain times, 1000 pots being ranged in it as thickly as they can stand, and all containing good stocky plants that have been plunged in the open ground all summer. They keep very dwarf and sturdy in foliage, and throw up fine spikes. Five-inch and 6-inch pots are the sizes used, and the supply lasts from October until Easter, when they are cleared out and some other kind of plant introduced. The spikes of this Lily are always in request for church decoration, funeral wreaths and crosses, &c., and they last a long time in a cut state.

Double Primulas and winter-flowering Pelargoniums are both well grown, also Maiden-hair Ferns in countless numbers, the demand for this being an all-the-year-round one. Adiantum cuneatum is the kind grown most largely, being liked best by bouquetists; but the slender-leaved A. gracillimum is also used for special purposes.

Roses planted out, trained on wires like Vines, and grown in other ways, fill many houses. Gloire de Dijon, Maréchal Niel, Niphetos, and a few brilliant-coloured ones, good in the bud state, are produced in quantity, and most of the Tea sorts, such as Safrano, Marie Van Houtte, &c., are coming on in pots. Greenfly, so destructive to Roses, is kept in check by timely and constant light fumigations.

Christmas Roses in pots and boxes were plentiful, as were also Deutzias and other hardy material for spring flowering in cold houses.

All the rain-water that falls on the houses here is stored for use until required, by means of converting every alternate pathway into a cemented tank, and running all the surplus rain-water into them.

Gosport. J. Groom.

Kitchen Garden.

TOMATOES IN AMERICA.

Perhaps no fruit or vegetable shows the result of careful selection so much as the Tomato. Within the last few years it has made rapid advance towards perfection. Solidity, medium size, thinness of skin, perfect shape, and prolific bearing have been the standard aimed at, and has, I think, been attained. The best are Cardinal, deep red, perfectly round and smooth; Acme, pink, perfectly round, smooth and early; Beauty (Livingston's), an improved Acme; Perfection (Livingston's), red, quite round and smooth; this kind is exceedingly prolific, bearing medium-sized fruit, and is a really good market kind. Trophy is of good repute, but to my thinking does not come up to any of the others, except, perhaps, in flavour. The fruit is larger than that of any of the above-named (which are medium-sized). It is orange in colour, slightly flattened and lobed, and not such a heavy bearer, or so early as some. Last in my list comes the new Mikado, sent out last season by Mr. Peter Henderson, of New York, and Burpee, of Philadelphia—the latter under the name of Turner Hybrid. This is a new departure altogether, and, judging from our first year's results, not quite satisfactory. In growth, its Potato-leaf and vigorous habit are its distinctive features. Not only are the fruits large, but very ugly, nor do they ripen evenly or fully. In our patch of something like sixty plants, one only bore perfect fruit. These were red and large, though not so large as the uglier ones. But the great point was the quantity of fruit that one plant bore. I shall scarcely be believed when I state that I picked over half a bushel off one plant, which covered 4 square yards, though some others were even more gross. I did not neglect to save all seed of that plant I could find, and something else I did—I got a batch of nicely rooted cuttings, and it seems to me I could increase my stock to almost any extent in that way.

T. D. Hatfield.

VEGETABLE FORCING.

Hotbeds are useful at all times, as the bottom-heat which they afford is valuable for rooting cuttings, in growing plants which require heat at the root, and also for forcing vegetables. It is in the latter respect that they are in demand at this season, and with a good hotbed or two, vegetable forcing becomes a simple matter. Asparagus and Rhubarb especially are easily forced with the aid of a hotbed, and early Potatoes, Radishes, and such like grow freely on hotbeds in the early spring months. To ensure success, however, with any or all of these, a good bed is necessary, and as they cannot be re-made after being once planted, care should be taken that they are satisfactory at the beginning. When made up hurriedly or imperfectly, they generally heat violently for a short time; then the heat goes down and their usefulness ceases. When the produce is only half grown at this time, the decline of the heat causes it to fail, and the whole of the expense of making the hotbed as well as putting in the crops is lost. It is the danger of this occurring which should make everyone most careful in forming their hotbeds. The best hotbed materials are litter from the stables and leaves. Two parts of the former to one of the latter make a good mixture. The droppings may be shaken from the manure to form Mushroom beds, and the long material should be well mixed with the leaves. They may be thrown together roughly at first, but they should be turned daily for a week or more, and when finished the whole should be thoroughly well mixed together. It is in this the main part of a good hotbed resides, as a bed composed of hot manure alone soon cools down, while one made entirely of leaves fails to heat sufficiently; but a mixture of the two holds the heat for a long time and answers the purpose admirably. In making a hotbed up to last for any length of time, it cannot be too firmly put together. A loose heap never retains the heat more than a week or two, but a firm bed will keep warm for two or three months. The bed should always be made 1 foot or more wider all round than the frame which is placed on the top of it, and when the heat goes down the outside part should be taken away and a warm lining substituted. A temporary bed need not be more than 18 inches high in the front and 2 feet at the back; but a three or four months' bed should be 2 feet 6 inches in height at the front, and 4 feet in height at the back, and as building goes on, the whole must be trodden down frequently from bottom to top. Cambrian.

Two good Potatoes.—Among the numerous novelties sent out of late years there are few that will long be cultivated. Two noteworthy exceptions will, however, be found in Sutton's Seedling and Abundance. The former, which is of moderately strong growth, is very prolific, and the majority of the tubers are handsome enough for exhibition, while all are of excellent table quality. It belongs to the white kidney section; in shape not unlike a good Woodstock Kidney, only the skin is rougher, and some of the tubers tend to roundness. Abundance, a white round variety, grows strongly, and gives promise of being disease-resisting. It crops heavily, the tubers are rough-skinned and clean in appearance, or such as would sell readily, and no fault can be found with the quality. At Draycot Manor, near Chippenham, a considerable number of varieties, new and old, were tried this season, and among these Sutton's Seedling and Abundance stood out pre-eminently good.—W. I.

Autumn-sown Peas and Beans.—Although the custom of sowing Peas and Beans in autumn has of late fallen into disrepute, it has many things to recommend it. It is, I think, specially well suited for dry, poor soil, such as prevails largely on the south coast; under such circumstances both Peas and Beans get much more firmly rooted than they do in spring, and are able to defy a spell of dry weather should it set in early in the season. If not already done, this is a good time to sow, and the advantage of getting such work done in a comparatively slack time will be helpful in spring. The Early Mazagan and Long-pod Beans are very hardy, and are never more useful or appreciated than when got in early in the season. Of Peas there are many, both white and blue, that answer well for the purpose. Ringleader is a capital kind. One of the things in which old gardeners firmly believed was sowing early in winter, and, singular to say, in spite of the endless kinds sent out, we have not gained anything in point of earliness in the days when our forefathers depended principally on early sowing for their early gathering. In the flower garden I find sweet Peas sown now answer admirably; they get deeply rooted, and will be in full bloom from May throughout the entire season, provided the pods are kept picked off before they exhaust the plant by seed-bearing, as no plant can perform such double duty for any length of time. —J. G., *Hants.*

AN ENGLISH CELERY SHOW.

Many of the hardest workers and those whose work is of the most cheerless description are enthusiasts as regards some hobby. These are notably coal-miners and mill operatives, whose productions in the direction of the humbler varieties of fruit, flowers, and vegetables vie with the efforts of great gardeners. Especially is this so in the counties of Lancashire and Yorkshire. Fruit and vegetable growing there is universal. At one time Rhubarb was the plant which everyone grew. Then came Gooseberry culture, when big Gooseberries were not merely the autumnal production of newspaper paragraphists, but could be seen in dozens as big as Victoria Plums at shows. Afterwards came Cabbages and Cauliflowers, whose dimensions and weights would be regarded as fabulous did I name them. And now the rage is Celery-growing. Each of these hobbies has yet many followers, but fashion changes. With these there are flowers which receive a like attention. Pansies, Gladioli, and Asters appear to be the favourites just now, though Pelargoniums and Fuchsias are always popular.

In a Lancashire town, which shall be nameless, I recently saw the advertisement of a Celery show, and a unique advertisement it was. Projecting from the upper window of a public-house, called the "Shoulder of Mutton," was a flagstaff, upon which were hung a dozen copper kettles, and at the extreme end a big bunch of Celery. Nothing could be more suggestive, and it combined two eminent necessities in successful advertising—prominence and effectiveness. I learned that the show was to take place that evening; it was Saturday, and in due course I paid my twopence—which, by the way, was good for a pint of "drink" as I came out—to find the show in the long room of the house. Here was gathered together a remarkably good collection, not only of Celery, but of Potatoes and Pansies, of Cabbages and Cucumbers, of Fuchsias and fruit, vegetables and flowers. But the Celery was decidedly in the ascendant. Behind the winning lots of this latter edible were the copper kettles, or the britannia-metal teapots, the latter given as second prizes. The winning lot of untrimmed Celery weighed 14 lbs. 4¾ ozs., and the corresponding victor in the trimmed class 9 lbs 8¾ ozs. These weights will give some indication of the size, and from what I could see of the bunches, they were tender and beautifully white.

Nights and days had been spent in their culture; heaps of manure had been supplied to the ground around them, and doubtless during the week previous to the show, the grower had worked by day and sat up all night watching his plants against the designs of some unscrupulous opponent. It is no uncommon thing for Gooseberries and flowers to be watched day and night previous to a show, lest some evil befall that which it is hoped will secure the copper kettle, the height of the competitor's ambition. A Lancashire house is never complete without one of these utensils; and polished as only Lancashire women can polish—that is, with plenty of the stuff known as "elbow grease"—they are brilliant ornaments in the

kitchen, or "house," as it is usually called. Many of those to be seen in Lancashire houses have been won at such shows as this one. A young fellow feels impelled to win a kettle either before or after his wedding, in order to maintain his claim to manhood. But there is a reverse side to the shield. Held in public-houses promoted by publicans, they are a direct incentive to drinking, especially with the drink tickets. We were regarded as strange mortals indeed, because we did not use our privilege and "hev a soop." Some of the prize-winners were already, at the early hour on which we attended the show, far gone, and probably the kettles which they had won would be very expensive articles ere they got them safely home.—S. B., in *Country Gentleman*.

GARDEN DESTROYERS.

CLOUDS OF APHIDES.

The most singular thing about those described by G. B. Buckton (p. 502) is the lateness of their appearance. In East Anglia such swarms, so far as I can remember, have not appeared later than September. I think I alluded in The Garden, some years since, to a dense cloud of aphides that lasted three days. It came from the east, and was thought to have come from Germany. Several of the movements described by Mr. Buckton were observed, though in a less definite degree. But the chief feature of the living cloud was its density and its movement nearly, I believe, from east to west. It was also mainly migratory, very few of the aphides remaining behind after the mass had passed over.

So far as I am aware, no one has attempted to measure the area of such swarms, which must be, indeed, immense, as measured by their rate of progress and the time needed to sweep past a given point. Their speed, however, appears to vary greatly—now being whirled along by some inscrutable impulse, and anon hanging on sluggishly to the tail of the air-currents. In other words, no one can watch an aphides cloud for long, or feel the impact of their mass upon his face or hands, without realising that the myriads of insects have their active and passive moods; now using their wings to quicken their speed, and again folding them to be calmed into rest or floated on the wings of the moving air.

The most singular thing about these clouds of aphides is their erratic and intermittent character. Did the swarms come and go annually, they would be accepted as incidents of breeding, transportation, or change of climate just as easily explained as the migration of swallows or other birds. But it is just otherwise with these clouds of aphides. For years there are none, or none of any noticeable extent, and then they appear quite suddenly and unexpectedly; but however widely they spread they never seem to expand to anything like universality over the entire country, but seem to originate in and to be confined to local centres, however wide their circumferences may be. Have they, like the locust, found all before them fair as the garden of Eden, and left all behind bare as the barren sand? And has hunger and starvation in their rear forced them on to the wing? Possibly our entomologists may be able to instruct us on these points, or explain on some intelligent hypothesis those marvellous flights and swarms of flies which are among the most curious and interesting phenomena of Nature. D. T. F.

Mildew on Roses.—In The Garden of November 20 there is an article by Mr. Cornhill on Grapes in the open air, in which he recommends an application of sulphur and soft soap for mildew. I shall be obliged if Mr. Cornhill would inform me how much sulphur is required to the gallon of water, how dissolved, and if the water should be warm. My requirement would be for Roses in the open, which this season were badly mildewed, and in no way lessened by two applications of sulphide of sodium, so often recommended of late. Perhaps I allowed the mildew to get too far ahead.—Jacqueminot.

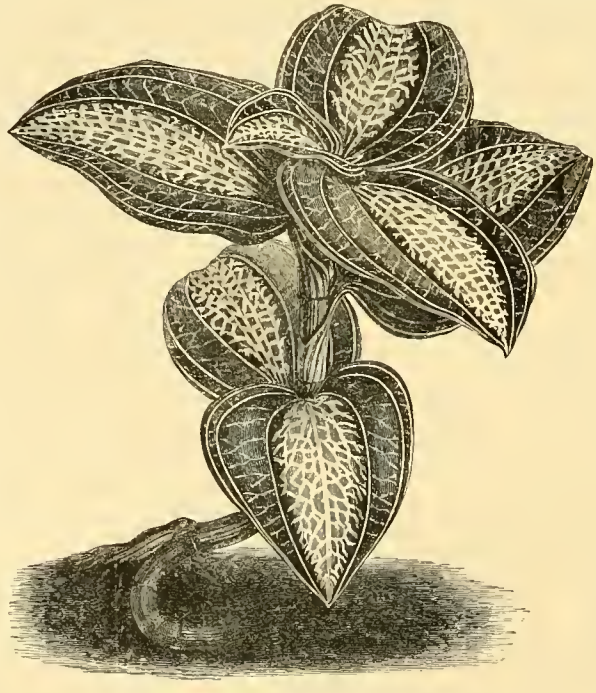
Bulb-destroying insects.—Kindly name the accompanying maggots, and tell us the best way to kill them. We find them round the base of our Hyacinthus candicans just lifted. Gladioli growing close to them they do not touch.—C. B. G.

*** The grubs now forwarded are those of a fly. The only means I can suggest of killing them, except lifting the plants and picking them off, is burying small slices of Turnips, Carrots, or Potatoes, with a small stick stuck into each to show where they are, near the plants. These traps should be examined every morning. Any insecticide applied in sufficient strength to be detrimental to the grubs would, I am afraid, injure the plants.—G. S. S.

ORCHIDS.

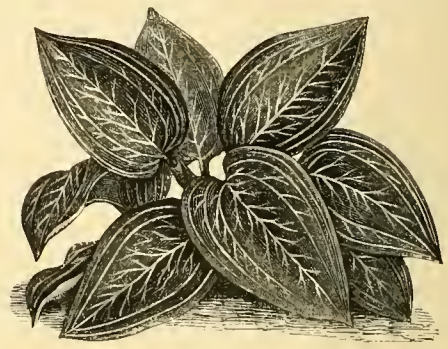
VARIEGATED ORCHIDS.

So much attention has been paid of late years by Orchid growers to showy flowering Orchids, that those with fine foliage have been overlooked, and yet the leaves of Anæctochiluses, Goodyeras, and Physuruses far surpass in beauty those of other variegated-leaved plants. In several gardens these plants, we are glad to see, are again receiving the attention which they deserve, and which they formerly received at the hands of Orchid growers. A few years ago we



Anæctochilus xanthophyllus (natural size).

cultivated very successfully considerable numbers of these plants. The Anæctochili are slow growers, and one need never expect to get large specimens of them. Nor are they naturally very long-lived. They are renewed from seeds from time to time, which they produce very freely, but their period of existence under cultivation may be much prolonged by frequently cutting them into pieces, by which means they are also increased in numbers. This cutting up likewise tends to check their propensity to bloom, which under cultivation too frequently has a disastrous result, inasmuch as the effort to produce flowers exhausts the plants, and in most instances no seed is perfected. We have cut these plants three times in one season, an operation which greatly increased our stock, and at the same time benefited the plants. The stem should be cut about half-way through, just



Goodyera Dawsoniana.

below the second joint; the cut should be covered with sharp sand and living Sphagnum Moss, when it will speedily throw out roots. At this stage the top should be taken off entirely, potted, and placed in a somewhat close atmosphere, and in about a week it will have become established. Soon after the top is removed the old plant or stool will push out one or more lateral shoots, which, in their turn, must be cut and treated in a similar manner. Anæctochili and their allies, the Goodyeras and Physuruses, require just about the same treatment, but of the three the Goodyeras are the most robust. They are frequently killed by too much heat and moisture, and by the total exclusion of external air, by being shut close in under bell-glasses. The temperature in which they thrive best varies from 70° to 75° in summer and from 60° to 65° in winter. The atmosphere should be well charged with moisture, and a fair amount of air should be admitted at all times; they must never be exposed to the sun's rays, but must be kept rather heavily shaded. We have known some of the East Indian Anæctochili to live (but not grow) through the winter in a temperature as low as 40°, but this practice we do not advise. We do not like covering these plants with bell-glasses, but prefer a shallow frame in which the pots may be plunged in living Sphagnum Moss. This frame should be covered with loose panes of glass, and thus more or less air may be admitted without suddenly drying the leaves. The soil for these plants should be a mixture of chopped Sphagnum Moss, small nodules of charcoal, a little fibrous peat, and some sharp silver sand, whilst the drainage must be kept exceptionally free.

Re-potting should be done early in February; by this we do not mean they will require much larger pots, but all the soil by which they have been surrounded throughout the winter must be carefully removed, and be replaced by clean drainage and fresh soil. Do not pot firmly, as these plants have thick, fleshy, woolly roots, and thrive best when these can easily penetrate the soil. The surface should be neatly covered with chopped, growing Sphagnum, which not only tends to keep the roots moist, but sets off the foliage to advantage. After growth has commenced, let them have a fair amount of moisture, and as the days lengthen the supply may be increased up to about the month of October, when

the quantity given must be considerably reduced until the re-potting season comes round, but at no season must water be entirely withheld.

There have been a goodly number of Anæctochili introduced during the last twenty-five years, more especially in the first half of that period, but many of these are no longer to be found in this country. Amongst those lost we fear are A. Ruckeri, Nevillianus, and Bulleni, which were introduced from Borneo by the Messrs. Low, of Clapton. The following are truly handsome, viz., xanthophyllus, concinnus, Petola, hieroglyphicus, intermedius, Roxburghi, Lowi, Dayi, and Lobbi, which differ more or less in the intensity of their marking, and various forms of setaceus, which latter obtains the name of "Wana Rajah," or "King of the Woods," in Ceylon, on account of the brilliant golden reticulations which cover the dark velvety bronze-green of the leaves.

Goodyeras much resemble the last-named family, of which the illustration of G. Dawsoniana, here given, serves to show. Other kinds are G. Veitchi and Dominii, both garden hybrids of great beauty; G. Rollissoni, a very handsome kind, blotched and striped with creamy-yellow on a dark velvety-green ground; and G. rubrovenia, the surface of the leaves of which are bronzy velvet striped with fiery red. Another section of this genus thrives admirably in the coolest house with the Odontoglossums, and consists of natives of Japan. The best of them are G. macrantha, having dark velvety-green leaves, streaked and netted with pale green, its variety, luteo-marginata, having an additional attraction, through its leaves being bordered with creamy yellow; and G. velutina, with velvety leaves of an intense green, with a broad metallic-white band along the centre.

Physuruses are for the most part plants with light green leaves and silvery markings and reticulations, and have the same habit of growth as the Anæctochili, the bronzy-green and gold foliage of which contrasts well with that of the Physurus. The most notable of this genus are P. argenteus, querciticolus, nobilis, pictus, and maculatus, the latter species being discovered by Cross on his first Cinchona expedition.

W. H. G.

Well-grown Phalænopsids.—The collection of Phalænopsids at Heaton House, Cheshunt, is equalled by very few and excelled by none in this country. The species in the collection are P. amabilis, grandiflora, Sanderiana, Esmeralda, Lowi, leucorrhoda, casta, violacea, Stuarti, cornu-cervi, rosea, and Luddemanniana, each being represented by numerous plants, and of such kinds as P. grandiflora and amabilis there are grand specimens bearing nine, ten, and thirteen leaves upwards of a foot in length and 7 inches across; quantities are throwing up flower-spikes innumerable, whilst some of the plants of grandiflora and amabilis have as many as sixty flowers on each plant fully expanded at the present time. It may be thought by some that these plants have been stimulated into an unnatural growth, and that during the winter they will melt away like snow before the sun. This, however, is not the case, as the plants are grown under cool treatment, not the cool system as applied to Odontoglossums, but upon a plan which supplies them with a continuous circulation of fresh air, which keeps the house in such a genial condition that I was surprised to find the thermometer standing so high as 70°, so cool and genial did the atmosphere feel. All the plants in this collection of Phalænopsids are without spot or blemish; they have bold, hard, rich green leaves, which are persistent; even the fickle, but beautiful P. Lowi cannot resist the seductive influence of the atmosphere, for it does not part with its leaves through the winter months. There are one or two lessons to be learnt from an inspection of Mr. Partington's Phalænopsids. The Phalænopsis house here is a lean-to (but the shape of the house we do not consider as being of great importance); a side stage extends all round the house, leaving the centre open, over which Phalænopsids are suspended in baskets. The side stage is covered with a layer of sand, which is kept damp. Over this and a few inches above it is an open lattice-work stage, upon which the plants are placed. They are in baskets filled with pieces of broken pots, with just the thinnest coating of Sphagnum upon the surface. The baskets are again set upon pots, with the mouth uppermost, and into and over these pots the roots extend in a marvellous manner. This system does not smother the roots with sour Moss, neither are they bleached and reduced to such an enfeebled state of health as to fail to keep the plant in a healthy condition, but are hard, firm, and wiry. The hot-water pipes are under the stages, and air is constantly admitted from the front, which has to pass over the pipes, and thus becomes heated before it rises amongst the plants. There is a marked absence of that moisture-laden atmosphere which is usually so characteristic of the houses in which Phalænopsids are grown, but yet there is sufficient moisture to prevent the current of air from absorbing it to the detriment of roots and leaves of the Phalænopsis. There is a total absence of metal and stone in this house, which, we believe, is too prevalent in most Orchid houses. The latticed stages are wood (the hot-water pipes are, of course, iron), and the floor of the open centre of the house is composed of a bed of loose, fine shingly gravel, kept moist, and from which there is always a gentle but imperceptible exhalation of vapours which is so coogenial to these plants. This produces no drip, and, together with the free admission of air, tempers the atmosphere, and renders it quite enjoyable both to plants and visitors. The temperature in which these plants have thus thriven is 60° at night and 65° to 70° during the day in winter, and 70° upwards during the summer months.

Odontoglossums at Cheshunt.—In Mr. Partington's garden at Heaton House, the cool system of growing Orchids is well carried out, and the robustness of the plants shows how beneficial a cool atmosphere and an abundance of air are to the majority of Odontoglossums. We were somewhat surprised to find the doors of these houses standing wide open on the last day of November. Under these conditions, Odontoglossum crispum and most others of the genus appear to grow and flower most profusely, the majority of the plants bearing branching spikes. For instance, one plant of O. crispum, growing in a 7-inch pot, is now bearing a tall spike having seven lateral branches, the whole forming a large and dense panicle of bloom, sixty flowers being expanded; another plant of the same species is bearing a fine five-branched panicle of its lovely blooms, and several other branching forms are not yet open. A specimen of a very fine variety has produced two spikes from one bulb, one being simple, the other having five branches, bearing in all thirty-two large flowers; another plant of the same species is bearing two unbranched spikes from one bulb and is carrying twenty-seven superb blooms. The robust health of these plants, and the numerous spikes of bloom they are just beginning to push up, give promise of a magnificent display throughout the winter. It may be supposed that these grand branching forms of O. crispum are the result of careful selection from established collections of Orchids; this, however, is not the case; they have been bought as imported plants, some of them being from lots which were sold three or four years ago, in bags of twenty-five together. This fact goes to prove that the success obtained is due to the rational conditions under which they have been grown.

Saccolabium giganteum.—Most of the members of this genus produce their flowers during the summer months, but this species and its near ally, S. violaceum, always produce their long racemes of waxy white and violet-purple flowers during winter. We recently saw a fine display of it at Selborne, Streatham.

Anæctochilus Lowi.—This beautiful variegated leaved Orchid is just now thriving well with Mr. Laing at Forest Hill, where it is kept under bell-glasses, but with air always admitted. We have also seen it in other gardens growing vigorously amongst other East Indian Orchids, exposed to the ordinary atmosphere of the house.

NOTES OF THE WEEK.

National Auricula and Carnation and Picotee Societies.—The annual general meeting of these societies will be held in the East Crush room of the Albert Hall as soon after 12 o'clock as possible, on Tuesday next, December 7. The business of the meeting will be the election of officers and committee, receiving the secretary's and treasurer's report, the election of judges for the ensuing year, and other necessary business.

Plumbago rosea.—This plant is again coming into favour after having been subjected to some years of neglect. It should be grown from cuttings every season, as young plants produce longer racemes and brighter flowers than old plants. Its rosy red blossoms are now making a fine display in many warm greenhouses round London.

Chrysanthemum Mrs. Norman Davis.—We have received from Mr. Mizen, of Mitcham, flowers of this variety, which is a sport from the well-known Princess of Teck; the colour is rich golden yellow, and the petals are beautifully incurved. Judging by the beauty and freshness of the flowers just sent to us, it would appear to be a late bloomer, and, if so, an acquisition.

Winter-flowering Flax.—As a brilliant, clear yellow this Flax (Linum trigynum) stands unequalled as a stove or warm greenhouse plant during winter. It may be grown into good-sized plants in one season from cuttings, but it should be kept in an intermediate house during summer, and freely syringed, in order to keep down red spider, its greatest enemy. We saw it in great beauty recently in the Forest Hill Nursery.

Celsia cretica.—I send herewith a piece of a plant of Celsia cretica, a self-sown seedling. You will perceive that the habit of flowering is quite different from that of the ordinary form—at least, as far as I have ever seen it. It generally runs up in a long spike without any foliage, while in this there are leaves amongst the flowers all the way up the spike. There is no difference in the flowers.—Delta.

The winter Cherry.—This fine old-fashioned annual is now in great beauty in various rock gardens in the suburbs of London. The calyx, which increases in size after the flowers have fallen to that of a small orange, is rich orange-scarlet, a colour which renders this plant, when seen in a mass, very conspicuous. No more interesting plant can be grown for outdoor decoration at this season than this winter Cherry, the Physalis Alkekengi of botanists.

Yucca gloriosa.—We have received from a correspondent, who does not give his name, a beautiful photograph of a Yucca. The stately grace and the beauty of form of the flower of these plants are not surpassed among hardy plants, and it is only the fact that we have engraved this Yucca so often that makes us hesitate to reproduce this photograph also. It is a good thing for our gardens that we are able in our cool country, owing to our mild winters, to grow such fine semi-tropical forms of plants.

Royal Botanic Society.—The following are the dates of the exhibitions of this society during 1887: Spring shows—Wednesdays, March 23, April 20. Summer shows—Wednesdays, May 18, June 15. Evening fête (probable date)—Wednesday, July 6. Exhibition of American plants, by Mr. Anthony Waterer, Knap Hill, Surrey—daily during June. Promenades—Every Wednesday from May 4 to July 27, excepting May 18 and June 15.

Dahlia imperialis.—Some years ago for a brief period this Dahlia attracted a considerable amount of attention, but it did not long retain its popularity, owing partially doubtless to the fact that a lofty structure is required for its full development, and also to the circumstance that single Dahlias were at that time regarded only as fit for the rubbish heap. This Dahlia needs a structure from 12 feet to 15 feet high, or even more, and where this can be had there are few more imposing subjects for flowering during the autumn and early winter months, especially if the temperature be an intermediate one. In such a house the blooms become better developed than in a green-

house. This Dahlia flowers freely every year in the Palm house at Kew. Out of doors is its proper position during the summer months; indeed, plants so treated are more sturdy than when grown wholly under glass. For the introduction of this Dahlia we are indebted to M. Roezl, who found it in Mexico about twenty-five years ago.—T.

London parks and gardens.—Next session a Bill will be introduced into Parliament having for its object the transfer of several public parks and gardens in London from the department of Works and Public Buildings to the Metropolitan Board of Works. The parks and gardens which will be affected by this arrangement are the following: Battersea Park, Victoria Park, Kennington Park, Bethnal Green Museum Garden, and the Chelsea and Westminster Embankment Gardens. It is proposed that no material alteration shall be effected in regard to the management as far as the officers and servants attached thereto are concerned.

Outdoor Chrysanthemums.—Herewith I send a few spikes of Chrysanthemums gathered from plants growing out of doors and trained on a south wall. Each plant is bearing about twelve spikes such as those sent. Such flowers show what grand subjects Chrysanthemums are for outdoor as well as for indoor decoration.—E. Molyneux, *Swanmore Park, Bishop's Waltham.*

*** Grand flowers in every respect, and that, too, in the last week in November.—Ed.

Open-air flowers and leaves.—Herewith I send you a collection of seedling Chrysanthemums and green leafage from the open borders. This has been, so far as December 1, an ideal season for Chrysanthemums of all kinds, but these seedlings are so dwarf and sturdy, so hardy and withal so distinct and variable, that I consider they have before them quite a future as open-air flowers. They bloom so profusely and in such quick succession, that one can cut and come again for one's flower baskets. For leafage we use Ivy and Smilax latifolia or S. aspera, tamnoides or mauritanica, shoots of Veronica Andersoni (also in flower), Garrya, true Laurel, Acanthus, but darker, fresher, and more endurable than all, Ruscus racemosus and common Butcher's Broom. This last (R. aculeatus) is a grand plant for open woods, and its fresh growths cut long endure fresh for weeks indoors.—F. W. B.

*** A most interesting collection, bright and varied in colour, and a good illustration of the effect produced by the fine autumn with which we have been favoured. In the neighbourhood of London, too, Chrysanthemums are still in great beauty.—Ed.

THE POTATO TERCENTENARY EXHIBITION AND CONFERENCE.

December 1 to 4.

A celebration of the introduction of the Potato into England 300 years ago is being held in St. Stephen's Hall, Broad Sanctuary, Westminster. It consists of an exhibition of the Potato, of the products obtained from it, of appliances for cooking it, of books relating to it—in short, everything that could have the remotest connection with the Potato has been brought together on this occasion. The object of the conference appears to be the discussion of the origin, history, culture, uses, and diseases of the Potato, and the following list of papers read and discussed shows that the Potato has been well considered, whatever may be the practical outcome of it all. The first of the papers was the—

"Historic consideration of the question whence came the Potato to England," by W. S. Mitchell, M.A. Mr. W. H. Pollock's paper was "Drake's Expedition of 1586." The "Cultivation by the Incas and other Andean Nations" was dealt with by Mr. Clement R. Markham. "The Introduction of the Potato into France" was the subject of a paper by M. Henry L. de Vilmorin, of Paris. "Distinct Wild Species of the Potato as at present recognised" was dealt with by Mr. J. G. Baker, of Kew. Other subjects were "The Potato Disease;" "The Production of Varieties by Cultivation," by Dr. Masters; "Methods for Using Partly Diseased Potatoes," "Methods for Storing and Preserving Potatoes," and lastly, a conference of cultivators on rates of transit of Potatoes, a paper respecting which was read by Professor Hunter.

The botany of the Potato is well represented by illustrations and dried specimens. By far the most important is the exhibit from Mr. Baker, F.R.S., who, as is well known, has so long identified himself with the Potato question. He exhibits beautifully coloured illustrations of nearly all the tuber-bearing Solanums, of which there are five distinct species, while there are no fewer than sixteen geographical forms of S. tuberosum. The latter is, without doubt, the origin of the garden Potato, and a most variable plant it is. The two species most concerned in the Potato experiments are S. tuberosum and S. Maglia, and these are admirably portrayed in these drawings, the distinguishing characters of each being visible at once. The illustration of S. Maglia is from Sabine's drawing, and besides illustrating the foliage and flowers, the plate shows a tuber about the size of a marble, drawn from a wild specimen, and a larger tuber, the size of a hen's egg, produced, after having been cultivated one season. The great difference in the way of size between these two tubers, after having been grown one year, shows plainly what may be effected by means of cultivation.

The geographical distribution of the Potato is indicated by numerous charts and maps, including several quaint Elizabethan prints and an enlarged map of the western coast of South America. The exact locality of the wild Solanum tuberosum is indicated plainly, thus enabling the audience to follow the lecturer when dealing with the native countries of the tuberous Solanums.

Potato literature is very profuse in the exhibition, there being a large number of old works in which the edible Potato is figured and described. Those interested in old garden books may revel in rare copies of Gerard, Parkinson, L'Obel, Dodonæus, together with the life histories of Drake and Raleigh, both being intimately connected with the introduction of the Potato into this country. The exhibition, on the whole, is interesting, and should any practical result arise from the discussion of the various Potato topics at the conference of botanists, historians, and Potato raisers and growers, the tercentenary will not have been celebrated to no purpose.

The competition was on a very limited scale as regards the classes, there being but two—the first for a collection of not less than six, and not exceeding twelve, varieties; the second, for the best new seedling Potato. Three prizes, consisting of a gold, silver, and bronze medal, were awarded in the first class; while there was but one prize (also a medal) awarded in the class for new sorts. There were about thirty collections of twelve dishes shown, and these made a large display. On the whole, the quality of the tubers was fairly good, but it was evident that December is not the most favourable time for a Potato exhibition, as the tubers lack that fresh, plump appearance they have in September. The judges had no difficulty in awarding the gold medal, but it was a difficult matter to award the other prizes, and so many collections were nearly of equal merit. The gold medal for the best collection of twenty-four dishes was won by Mr. E. Chopping, Milton, Sittingbourne. This was an excellent collection in every way, the tubers being uniform in size, large, of good shape, and clean. The sorts were Adirondack, Schoolmaster, Reading Russet, The Belle, Purple Perfection, The Colonel, Chancellor, White Elephant, Reading Ruby, Sutton's Abundance, Village Blacksmith, and Rufus. The silver medal was won by Mr. J. H. Diver, Pitshill, Petworth, who also showed a capital collection, the sorts Washington Hero, Mr. Bresee, Vicar of Laleham, Reading Giant, The Dean, Purple Edgecote, and Snowflake being the finest dishes. The bronze medal was taken by Mr. W. Kerr, Dargaval, Dumfries, a well-known Potato grower. His best dishes were of Chancellor, Mammoth Pearl, Adirondack, Eclipse, Queen of the Valley, Mr. Bresee, Schoolmaster, Blacksmith, White Elephant. The other exhibitors in this class came from all parts, and prominent amongst them was Mr. Fidler, of Reading, who had three or four collections of twelve dishes; and Mr. Watkins, of Hereford, who showed no fewer than 150 dishes, not for competition.

There were but few new seedlings exhibited, and the judges in awarding the prize put the tubers to the cooking test, the result being that the medal was awarded to Mr. J. Lye, Cliffe Hall, Market Lavington, for his seedling named Clipper. This is a large, handsome, white, round tuber, considered by the judges to be of first-rate table quality. Amongst other new sorts, Messrs. Carter, High Holborn, showed their new Liputian Potato, a cross between Ashtop Fluke and Champion. Messrs. Vilmorin, of Paris, sent about a dozen French sorts of Potatoes including some sprouting tubers ready for forcing. Messrs. Hooper, Covent Garden, had a large collection of Potatoes, but the other great trade growers which usually show extensive collections were conspicuous by their absence.

OBITUARY.

CHARLES GREEN.

Many will learn with regret of the death of Mr. Charles Green, which occurred recently at his residence at Reigate. Few men of the present day possessed such an extensive knowledge of plants as Charles Green, and his love for all kinds of plants, especially those out of the ordinary run, was only equalled by his skill in growing them. For upwards of thirty years Mr. Green has been known in connection with garden botany. He was first gardener to the late Mr. Borrer, at Henfield, a prominent botanist at that time, whose garden contained one of the finest collections of plants, particularly of hardy perennials, then existent. Subsequently, Mr. Green had the charge of that famous garden at Hillfield, Reigate, in which the late Mr. Wilson Saunders had perhaps the most extensive botanical collection that has yet been seen in a private garden. Until within the last few years Mr. Green had charge of Sir George Macleay's garden at Pendell Court, Bletchingley, which also contains one of the richest private collections of plants in Europe. Unassuming in his manner, ever ready to impart information about plants, he won respect from everyone. His death is a real loss to horticulture, for it may truly be said that he was the means of preserving many a plant that would have been cast aside in accordance with the vagaries of fashion, and of rescuing other fine plants from the oblivion into which they had fallen. The records of the Royal Horticultural Society contain evidence of this, for many are the plants which Mr. Green used to bring to the meetings from Hillfield and Pendell Court.

The death is recorded of M. Auguste Van Geert, one of the oldest and best-known nurserymen in Belgium. For many years he has been a prominent figure in all that concerned Belgian horticulture, and was as well known in this country as our own nurserymen. He began to learn his business in the Chelsea nursery of Messrs. Knight and Perry (now Messrs. Veitch). He was sixty-eight years of age, but had retired from business for some years.

QUESTION.

5532.—**Romneya Coulteri.**—Would anyone kindly advise me how to grow Romneya Coulteri (Tree Poppy)? I have two plants in 5-inch pots in a cool house. They are certainly making some fine young shoots, but the leaves drop off the old shoots and the plants look unhappy. I have a very warm wall and a mild climate. Should I plant them out or plunge them in a cold frame? Iris stylosa, Gentiana acaulis, Primroses and Hellebores have been in bloom here for the last six weeks. Hepatica buds are showing colour.—C. O. Miles, *Sunnyhill, Shirehampton.*

Secateur (*G. T.*) is the proper way of spelling this word.

Cox's Orange Pippin is said to be realising 9s. per bushel in Covent Garden Market, and the supply of it is insufficient for the demand.

Names of plants.—*C. Dalby.*—1, Myrsiphyllum asparagoides; 2, Casuarina quadrivalvis; 3, Santolina incana.——*J. F. H.*—Common Spindle tree (Euonymus europæus).——*H. D.*—Scutellaria Hadweni.——*J. R.*—1, Blechnum cognatum; 2, Lastrea aristata; 3, Libonia floribunda; 4, Epiphyllum truncatum.——*R. Davies.*—Possibly the plant you send is an Armeria, but it is difficult to name accurately without further material. Send when it flowers next year. We thank you for the hint you give.——*Alpha, Rotherham.*—1, Davallia solida; 2, Lastrea glabella; 3, a form of Athyrium Filix-fœmina; 4, Asplenium bulbiferum.

Names of fruits.—*C. Earl.*—2, Beurré Bosc.——*Kidderminster.*—1, Beurré Clairgeau; 2, Madame Eliza; 3, Comte de Flandre.—*D. C. F.*—Numbers all detached from the fruits and mixed together, so that we cannot tell which is which. This is due to careless packing.—Others next week.

WOODS & FORESTS.

HOW TIMBER IS VALUED.

The note in last week's *Woods and Forests*, from "The Forester on the Duncombe Park Estate," is not sufficently explicit. I am prepared to admit that if his other expenses connected with the disposal of his Larch are as low as his felling price, viz., less than one farthing per foot, his profits may be larger in his neighbourhood than I estimated was the case, for I should think a lower, if as low a figure is not paid anywhere else in England. Your correspondent's frankness in these matters is, however, more apparent than real. There is much Larch in the neighbourhood of Helmsley, whoever it belongs to. Extensive lots of the same have been advertised publicly and by private circular and been sold, and the same has afterwards been delivered in South Yorkshire from one timber merchant to another, to sell again, at 1s. per foot, and who have re-delivered it at collieries near here by wagon or rail for 14d. or 15d. per foot—about the very highest figure given hereabouts for eighteen months back or more by the consumer. Now "The Forester on the Duncombe Park Estate" does not dispute the cost of transport from Helmsley to South Yorkshire by rail given by me, viz , 5d. to 6d. per foot, nor the cost of transport to railway stations at his end, both of which he knows as well or better than I do, although he only "hopes the figures I give" on that point "are reliable," and your readers may therefore reckon for themselves what the vendor gets for his Larch in the wood. When you take eightpence or ninepence out of a shilling, the remainder is threepence or fourpence, I presume. How, under these circumstances, the Duncombe Park prices for Larch have "not been anything like the ridiculously low price per foot I named," I leave the Duncombe Park forester to explain. It occurs to me that if the price had been much more than what I said it was, he would have told us the exact figure and not have left us to guess from his vague negatives. This is what I call going into "details;" let your correspondent follow suit if he can. I beg to correct an error of mine the week before last in reference to the lot of Larch which was being delivered here lately, as I understood, from near Helmsley, at 1s. per foot. This particular lot did not come from there, but from the neighbourhood of Scarborough, some 40 miles further north still, thus bringing the price still lower to the vendor in the wood than I stated. It should be known that the Larch growers in North Yorkshire depend largely for their market on South Yorkshire; hence, I suppose the keen cutting in prices amongst them. I may add, too, that under similar conditions vendors sometimes allow very ample measure when large lots are purchased, as well as discount, in which case the prices and quantities given can only be considered as nominal. In conclusion, it may interest "The Forester at Duncombe Park" to learn that two large purchasers, at least, that he deals with, from the neighbourhood of Huddersfield and Doncaster, dispose of his timber round here, and I know what price they deliver it at, so that by reckoning back to the wood I need not be far wrong as to the vendor's price. Y.

Are squirrels injurious?—The squirrel is one of the liveliest little animals we have; whether seen leaping from branch to branch, or on the ground, he is always engaging. It is said that this little animal lays up store for winter. I doubt this; though he may hoard up a few Nuts or Acorns, that can hardly be called a provision for winter, for, if he had nothing else to depend upon, he would soon fall short. By instinct, however, he inhabits woods that afford him ample supply in winter. The seed in the Fir cones are his favourite food, and in summer the young shoots of the same kind of trees, especially the Spruce Firs; and frequently much damage is done to the trees by losing their tops by these nimble animals. As the summer advances the shoots of trees get too hard for the squirrels: they then visit the orchard and garden in search of food. Their thefts in the former may be looked over, except there are Nut bushes, but not in the latter; for Apricots, that have escaped the frost, the grub, and decay at stoning-time, are too valuable to be carried over the wall to be eaten on the top of an adjoining tree; but the mischief does not end here, for the net that preserves Cherries from blackbirds and thrushes is of little consequence to the squirrel's sharp teeth; and, if not protected in time by trap or gun, there will be nothing left of a fruitful crop except stalks and Cherry stones. In justice, however, to the squirrel, I ought to mention that those misdeeds of his only happen when he is driven by necessity from the woods; and, except at nutting-time, he seldom approaches the garden; but the damage he does then is incalculable.—G.

PRICE OF TIMBER AND BARK ALLOWANCE.

I have been interested in "W. B. H.'s" notes upon timber measuring, but I do not clearly understand what he means when speaking of allowance for bark by saying that he was not aware that any allowance was made on any of the hard woods except Oak. If he really means that in the district from which he writes the merchant buys "bark and all," that is, takes such as Ash and Beech at the gross quarter girth without any deduction, it only shows how customs on matters of this sort vary in different parts of the country. Such a thing here, so far as I know, has never occurred, or has ever been contemplated. Wherever timber is felled with the bark upon it a proportionate allowance according to the kind is always made.

As a general rule, an inch deduction from each foot of quarter girth is what is taken, and this is the basis upon which the railway companies buy their round timber. Too strictly adhered to, however, such a deduction is unfair, as it is obvious that between large, rough-barked Elms and thin and smooth-barked Ash or Beech there is a wide difference. When the bark is allowed off each individual item as it is taken down, there is some difficulty in adjusting the figures to a nicety. A much better plan, and one which I have followed when possible, is to take the gross measurement upon the bark, and then deduct a certain percentage from the total number of cubic feet. It is not an easy matter to fix upon what this percentage on each kind of timber should be without taking into account the size of it and the character of its bark. Ash, for instance, would differ greatly. I may say, however, that on the average the following will be fair allowances: Oak, winter cut, with bark on 15 per cent., Elm 15 per cent., Poplar 15 per cent, Beech 10 to 12 per cent., small Ash 8 to 10 per cent., large, rough-barked Ash 15 per cent., and other woods in proportion, according to the nature of their bark.

With regard to the question of prices, I think it is a great pity that such statements as that to which "W. B. H." refers about the price of Ash in Sussex should be put forth. I happen to know a little of what Ash is worth in Sussex, as well as here in Wiltshire, and it cannot but be embarrassing to foresters who are doing their best for their employers to be told that such and such prices are obtained on such and such estates, when everybody who understands the business knows perfectly well that such a difference is impossible. I do not deny that now and again a merchant may secure a lot at a lower figure than usual when the sellers are not well up in the market value, but it is scarcely likely the converse will occur, and that the merchants who have values at their fingers' ends will be caught napping to the extent of 40 or 50 per cent. This must be the explanation if the prices talked about are really obtained, but I will at once say that they are not. A wheelwright who has the work of the estate to do, or a tradesman who has a chance of making it up in some other way, may possibly give a long price for a few trees, but it is quite certain that merchants will not give any such price as 3s. 6d. per foot, for the simple reason that they cannot. From what I can glean of "W. B. H.'s" figures, the values of timber with him are much the same as they are here, save and except that we allow for bark, whilst it appears he does not. In Sussex good Ash may be 20 per cent. higher, but certainly not more, and much of this difference may be accounted for by the greater part of the wood which grows in the plantations there with the Oak being tough and fit for cleaving, and therefore intrinsically worth more. D. J. Y.

TRUNK V. LIMB.

This is what the controversy, "To thin or not to thio," virtually resolves itself into, viz., thin if you wish to grow limbs; do not thin if you wish to grow timber. Of course, everyone must follow his own judgment, but to the ordinary mind it would appear more reasonable to grow that which there is some prospect of selling when it is grown. It is all very well to argue that the greater the leaf surface the greater the woody tissue deposited; but if it turns out in the end that the extra wood so grown is of little or no value, and seriously injures the parent stem, where is the advantage? It has been estimated that in the case of an ordinary isolated tree only a fourth of its bulk or weight is really trunk or first-class timber. This, of course, cannot mean that only a fourth of all that is large enough to be measured is of the first class, but includes, without doubt, the smaller branches and leaves. In practical calculation it is hardly fair to include the leaves and very small branches, but, at the same time, it cannot be denied that it is a great waste of Nature's energies to produce growth which is of little or no value when good timber may be raised instead. Leaving this, however, for the present, and only looking at the proportions of what is really wood, it will not be wrong to say that, in the ordinary tree which has been allowed free lateral development, not more than one-half will be really the best class timber and free from knots. Take an instance of a tree which, everything measured down to the smallest branch, contains 100 feet. Not more than 50 feet will be first-class timber; 25 feet to 30 feet will be top and limbs, and the remaining 20 feet or 25 feet too small for anything but firewood. On the other hand, we get a tree which, owing to having grown closely, has put on no lateral branches, and consequently has had less leaf-surface and only grows to 80 feet in the same time. Out of this 80 feet 70 feet is first-class timber, and the remaining 10 feet of very little use but for the fire. Suppose this to be a Beech, at 1s. per foot. In the first case we get £2 10s. for the first-class wood, and say a third the price for the 30 feet of top or limbs, viz., 10s. more. This makes £3 as against £3 10s. for the closely-grown tree, outside the very important matter of growing twice as many upon the same space of ground. It will be seen that on this calculation 20 per cent. has been allowed for the disadvantage the closely-grown tree has been placed in through not being able to throw out lateral branches, but in practice I do not think this would be so much.

I do not see how such logic as this can be argued away, as even if the closely-grown tree only put on 50 feet, whilst the isolated or thinly-planted one reached 100 feet, the balance would still be in favour of close-growing, assuming two trees to occupy the space of one. One wishes that for the time being the advocates of thin planting and pruning could be turned into merchants, or connected with the various businesses where timber has to be cut up and used. I venture to say that he would return to his duties a sadder and a wiser man, and very little would be heard of greater deposition of woody tissue from more extended leaf-surface. The theoretical must give way to the practical, and this is another instance of it.

D. J. Y.

Thinning plantations.—In thinning woods care should be taken to mark all the inferior, unhealthy, or badly-shaped trees that are likely to interfere with the full development of the better ones that are intended to stand permanently. In cutting young plantations for the first time, great care should be taken to use only good cutting tools and to finish off the work well. In thinning screen plantations the workman must, to a great extent, be guided by the depth or thickness of the belt. When it is narrow the removal of any considerable number of trees would mar its effect; but when its extent will permit of such treatment, the best way to secure a perma-

nent screen is to keep the front trees well thinned out from the commencement, so as to allow them to branch low. By such means also a gradual increase in the height of the trees from the front line to the centre is secured, as those in the interior, from being more crowded, are the more rapidly drawn up.—B.

DRAINING LAND FOR TREES.

The thorough and efficient drainage of land takes, or rather should take, precedence of all other estate improvements, and if the work is well done and conducted with skill and judgment, the capital spent on such work could not be better invested. On the other hand, should the drains prove defective from whatever cause, the capital spent will be merely thrown away.

In draining stiff clay land we have always derived the most satisfactory results by covering the pipes with about 12 inches in depth of small stones. These should be put into the drain carefully, and nicely packed and levelled on the top; then a tough surface sod, or Heather scraw, when it can be got conveniently, should be laid on the top of the stones, with the Heather side undermost, and the work finished by filling up the drains with soil. This makes a very efficient lasting drain, but in cases where stones cannot be had the drains should be filled up with soil of a loose open texture, by which means the surface water will be absorbed and get away, which is the principal point to be aimed at in thorough drainage. When the drains are filled with stiff clay the surface water is thereby prevented from percolating and passing through the adhesive substance and reaching the pipes, so that I have seen surface water lying in pools in hollow places right on the top of such drains, which was only removed by gradual evaporation. Such drains may, however, be used where it is only necessary to tap a spring and simply run off the water.

In the formation of drains in the vicinity of trees in the park or on the lawn, socket-pipes should be used opposite the trees, and the connections carefully filled with cement, in order to prevent, as far as possible, roots from entering and choking the pipes. This, however, does not always answer that end, as I have seen drains so constructed with great care become completely choked up by the roots, so that when the latter were pulled out of the pipes, they presented the appearance of thick ropes the exact size of the interior of the pipe. When once a root penetrates a pipe (which I cannot say I have ever been able altogether to prevent it from so doing), although it is only about as thick as a common thread, yet such a root will throw off fresh branches so rapidly, that the drain will soon become useless. It is sometimes necessary to build a tank here and there to catch mud and sediment. These should be occasionally examined and cleaned out, which will aid in keeping the drains clean and in proper working order, especially in cases where the water is impregnated with oxide of iron, which tends to close up the pipes if not removed, rendering them unworkable. The outlet of the leader drains should be built with stones or brick and lime mortar, and a brander fitted on the same to prevent rabbits from making burrows and destroying the drain. These should all be numbered, and a map drawn out indicating all the leaders and branches belonging to the same, and the positions occupied by the principal trees in the grounds marked by a small circle, thus O, and their names added. The distance between the trees and nearest drains in their vicinity should be measured and recorded on the map, so that when anything goes wrong with the drains, their position can be found at once without trouble or expense, and the defective drain opened at the exact spot, and the necessary repairs of whatever nature carried out. J. B. W.

Timber measuring.—"Young Forester" cannot perceive how the real contents of a tree or piece of timber 12 feet long and 19 inches the quarter-girth can contain 38¼ cubic feet. The problem is one of the simplest in mensuration. Should we measure this piece of timber as the frustrum of a cone, the operation would be somewhat elaborate, but if taken as a cylinder, 12 feet long and 76 inches in circumference, then the computation is simple and easy. The area of a circle whose circumference is 1 is ·0795. Now the square of 76 inches is=5776. And these figures, multiplied by the decimal ·0795, gives 459·192, and this multiplied by the length (12 feet), and the product divided by 144, the number of square inches in a square foot, gives 38·266, or a little over 38¼ cubic feet.

Circumference 76
76
456
532
5776
·0795 area of a circle whose cir. is 1.
28880
51984
40432
459·1920
12 the length of tree in feet.

Square inches in square foot. 144)5510·3040(38·266=38¼ cubic feet fully.
432
1190
1152
383
288
950
864
864
864

—A. P.

THE FUTURE OF SCOTCH FORESTS.

In the report which followed the visit of the inspector of French forests to this country, M. Boppe says: We venture to predict a great and prosperous future for the Scotch forests. It does not need that one should be a very great prophet to predict this for a country where the Oak and Beech, the Scotch Fir and Larch, flourish with equal vigour, and where the Abies Douglasi, Abies nobilis, and Abies Menziesi, the Sequoia, and the Cedar form mighty trees, in company with the Araucaria and various exotic shrubs, which only languish miserably under the climate of Paris. We would fain add a word of advice, for the moment appears to us a propitious one for deciding on the future welfare of the forests, which, owing to the rapidly increasing value of timber, runs great risk of being compromised. Ordinary Fir timber now fetches 8d. per cubic foot. Larch is worth nearly double that amount. We ourselves visited a forest of Scotch Fir which, at this rate, would be worth £120 an acre, and another of Larch worth considerably more; whilst a third forest of 1600 acres, composed of Scotch Fir, was purchased a few years ago for £52,000, or only about £30 an acre. The plantations on the Culbin Sands, near Forres, would readily find buyers at £50 an acre at the age of forty-five to fifty years. The very day we were at Grantown, the agent for the Strathspey Forest concluded a bargain to furnish Birchwood to the amount of £2000. All these figures are fraught with extreme significance for the future, and the large forest owners of Scotland will do well to pause before allowing their forests to be "overworked." No doubt, people are often frightened by the long names and big words they find in treatises on scientific forest management, but they may very well neglect the text if only they will adopt some of the principles which they contain. Let the owner of a forest, after having made a careful and detailed inspection of it, divide it off into blocks or compartments so arranged that they should be uniform as regards conditions of soil and of planting, and then proceed to count and measure all the trees of 3 feet girth and upwards, classing them in categories according to their diameter. He should then open a debit and credit account for each compartment, placing on the debit side the actual volume of the standing crop, and on the credit side the volume of timber removed at each successive felling. This register should always be consulted before undertaking any forest operation, and when the annual fellings fall due, it will show which compartments can best support the withdrawal of timber, and which require to be left untouched. Moreover, the balance-sheet will render an exact account, favourable or otherwise, of the condition of the forest. Ten years of such systematic treatment would form in itself the basis of a regular forest working plan, and the doctor's prescription would no longer frighten the patient with its long words.

AUTUMN FROSTS AND TREE FOLIAGE.

The question of the effects of early frosts upon tree foliage, more especially in relation to their influence on the colour of the leaves, has, on one or two occasions, elicited some interesting remarks in the pages of *Woods and Forests*. In the course of one paper the writer asked, who has not been struck with the beauty of the woods in autumn? and then goes on to describe the effects of a single night's frost in changing the uniform summer green to the varying colours of autumn. To this Mr. Hovey, of Boston, demurred, and, in support of his views, gave an instance as to the way in which the foliage of the Maples and other trees had changed colour in a very mild autumn. I think if any doubt remained as to the necessity of frost in the production of autumn leaf colours, it must have been dispelled during the last two or three months. A milder September, October, and November it has seldom been our lot to witness, yet the same changes have gone on in the same slow, but sure way, and now at the end of November there are few leaves left except in the Oak woods. This much, then, as to the effect of frosts upon leaf colouring, but there can be no doubt that they have their influence in another way, and that it expedites the process of detachment. To the mildness of the autumn, therefore, may be attributed the presence of leaves upon the trees later than usual this year. What slight frosts there have been have been duly recorded, as each morning, as soon as an appreciable rise in the temperature has taken place, whether the air is at rest or not, a greater leaf-fall than ordinary has been the result. If there is any considerable movement in the air, the effect of the frost is more marked, but the question of the influence of wind in connection with frost is only one of degree, the action of the former merely accelerating that of the latter. Independent of either of these agencies, it is perfectly certain that the leaf-fall would take place, but it would be very much more protracted. As the precise action which a fall in the temperature to below freezing point produces upon tree foliage does not appear to be too well understood, the present autumn has afforded a good opportunity for observing the way in which the fall occurs in the comparative absence of frost. That frost is not the cause of the production of autumn tints has been clearly demonstrated. Rustic.

Trees in parks.—There is nothing that adds so much to the importance and beauty of an estate as fine tree growth. A park surrounding a mansion unembellished by fine trees should never be seen in this country. Yet we could cite many examples of such. With our present wealth of trees so readily obtainable at almost a nominal cost, a treeless park should be a rarity, for if not favoured with patriarchal tree growth such as surrounds our noblest and oldest country seats, there is now such a choice of ornamental trees for every locality and soil, that there is no excuse for not planting. We have plenty of tried subjects for planting among our English forest trees without resorting to doubtful novelties. Compare, for example, the common Silver Fir and the common Spruce with some rare species. Neither the Silver Fir nor the Spruce is reckoned of much account as an ornamental tree; nevertheless, when planted in suitable situations, in a damp climate, and in a tolerably moist soil, either of them—especially the Silver Fir—far surpasses some of the more recent and popular introductions. Both are perfect in their shape, grow nearly 100 feet high, and retain their branches, even when grown thickly together, down to the very ground. Thousands of such examples are to be seen in the valleys of the west of Scotland. Then among other park trees we have the Holly; it will grow 40 feet high, and nearly half as wide, if it have room, and be perfect in shape, and when covered with fruit it cannot be surpassed.

Walnut trees.—We have a prime old Walnut tree here that we intend to dispose of. Would some of the readers of The Garden give me some idea as to its value. Its height is 13 feet, girth 8 feet 6 inches at 3 feet from the ground, and 6 feet 6 inches at 11 feet from the ground. Any information on this subject will be gratefully received.—Juglans.

No. 786. SATURDAY, Dec. 11, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

GLOUCESTERSHIRE ORCHARDS.

I SEND you a sample of our west midland Blenheim Orange Apples. They are not picked specimens from the produce of cordon trees under high culture, but a good selection from orchard standards planted thirty-five years ago. The grower, Mr. Phelps, Tibberton, near Gloucester, assures me that the trees growing on what I should term rolling or upland ground, deep and heavy, receive no special treatment beyond the annual thinning and manuring by young stock which is allowed to graze in his orchards. Further, he says—and having adjudicated at Gloucester for many years, I can substantiate his statement—that his fruit this year is far below the average in point of colour and regularity of outline. Want of colour this season is a general complaint, and imperfect shape all pomologists agree in thinking is due to the checks and chills to which the trees and fruit were exposed throughout the early part of the summer. Notwithstanding these defects, I think you will agree with me in saying that the sample sent is highly creditable to a Gloucestershire farmer who is by no means an isolated exhibitor. I assure you, with fruit very much better coloured, he was this year very closely run by several competitors. Sending samples of fruit to THE GARDEN is akin to sending coals to Newcastle, and as few act in this way without an object, I may as well, once for all, make a clean breast by harking back to statements which have been published in some of the horticultural journals. In some of those communications our west country orchards have been described by clever men, who must have wielded their pens upon hearsay, as wretched Moss and Lichen-clad relics of the past, as cumberers of the ground only fit for the faggot heap. Instead of holding out a helping hand the farmers have been told that their case is hopeless, and the sooner they clear out of the markets to make room for the colonial growers, the better will it be for the public. I do not for a moment lose sight of the fact that foreign growers have got the start of us, and we have powerful opponents to contend with, but I still assert that our soil and climate are favourable to the growth of excellent Apples; if not quite so bright and highly coloured, in density and quality they are certainly superior to those imported from Canada. Fruit growers in this and the adjoining counties are not only renovating their old orchards, but they are planting young trees by the thousand. Exhibitors like Mr. Watkins, of Withington, a cold, low-lying locality, are showing the public what can be done under adverse local and climatal conditions, and scores besides him, who do not venture into competition, are quietly working in the right direction. To these and all who own or rent an orchard, I still say, prune and cleanse, drain, subsoil, and top-dress. Cut down old and graft inferior sorts, and your ancient, Moss-clad plantations will yet pay their way. Do not rest at the attainment of this point, but supplement your old by planting young orchards on deep, suitable soils resting on the hillsides well above the line of fog and frost. Avoid endless variety, but plant in duplicate the best sorts for market or vintage purposes, those especially which do well in your own immediate localities. Do not be content with the old rule-of-thumb systems followed by your forefathers, who were safe from foreign competition, but study the modern theory and practice of culture, gathering, storing, and packing for market, selecting, blending of different sorts, and scientific conversion into genuine cider. Good books are now plentiful and cheap. Nurserymen's catalogues even contain a vast amount of information alike useful to the gardener and the farmer. Gardeners study their contents; farmers, their sons, and their managers should do the same. They will then soon discover that the wonderful crops grown by the former are neither more nor less than the outcome of well-directed skill and intelligence, which every farmer may imitate, not only to his own advantage, but also to that of the community.

Eastnor Castle, Ledbury. W. COLEMAN.

*** Excellent fruit of this useful Apple.—ED.

INDOOR GARDEN.

AMARYLLISES AND THEIR TREATMENT.

WHEN I last ventured to make a few observations on Amaryllises in THE GARDEN (p. 285) they had gone to rest, and, up till now, the soil in the pots has not received any water, nor has the temperature exceeded that of an ordinary greenhouse. The resting period, and also that of growth, may be altered according to the requirements of the cultivator. This is well known and understood, not only by growers of the present day, but the earliest cultivators of exotic plants. In Dr. John Hill's "Eden," cultural directions are given for the Amaryllis, and the time of "absolute rest" is put down as the end of May, June, and the beginning of July. Under this treatment the plants would flower late in autumn, and winter growth would be made in winter and spring; but at that early date, 1773, the species must have been few, and the natural habits of the plants but ill understood. Hill states that they never failed to do well in a hotbed consisting of tanner's bark; and his potting material was one-half mould, one-quarter rotted wood, and one-quarter sand. Another cultural detail was to shake the roots out of the soil, and to dry them for about two months. This has been practised at a much more recent date than that on which Hill wrote, but it is one that cannot be recommended. The fibrous roots shrivel and part from the base of the bulbs, which they do not do under the best cultural conditions. At no time has the Amaryllis been so well grown as during the last few years; but the advance in cultural requirements, great as they have been, has not kept pace with the rapid improvement that has taken place in the quality of the flowers produced. Some remarks on this subject were given in THE GARDEN (p. 285). My object now is to remind cultivators that preparations for repotting should be made at once where a collection of varieties is grown. Every bulb should be examined; all decaying matter near the crown should be removed and burned, as it may contain the eggs and, perhaps, live specimens of insect pests. The next process is to wash every part of the wood and glasswork of the house outside as well as inside. We mix the potting soil about two months before using it, in order that its constituent parts may be more thoroughly incorporated. From the beginning to the end of January the plants may be repotted; we shake off all the old soil, and during repotting half the bulb is left out of the soil, the mould being pressed in firmly amongst the fibrous roots and round the base of the bulbs. The potting soil being moderately moist, we do not give water until fresh roots have been formed. The pots we plunge in tan or in some other fermenting material, which will furnish a bottom-heat of about 85°. The bulbs will do as well in an early vinery as in any house specially set apart for them. It is a good old fashion to make up a bed of fermenting material in the early vinery, and in this the Amaryllis bulbs are plunged. The temperature of the house, which ought to range from 45° to 50° as a minimum, just suits Amaryllises starting into growth. It is also very desirable that the bulbs should be clean, as thrips, bug, or even red spider might spread from them to the vines and do much mischief. The temperature will, of course, be increased after the first two or three weeks, and by the time the Amaryllises are in flower, 60° as a minimum will be reached. Some varieties more so than others have a disposition to produce their flower-scapes before the leaves make their appearance; this occurs amongst crosses from Hippeastrum pardinum and A. Chelsoni. The heat from the tan bed will promote root action, and without this the flower-scape will not be strong, even if the leaves are produced with it. The careful cultivator will always maintain reciprocal action between the roots and leaf development, and will readily ascertain whether the root growth has been sufficient to admit of the plants being forced into flower at an earlier date than was intended at first without any falling off in the quality of the flowers. An Amaryllis bulb will produce a flower-scape even if scarcely any roots have been formed, but the flowers would be of very poor quality, and the bulbs, which are much exhausted by the production of the scapes even under the most healthy condition, would be greatly injured and perhaps killed outright.

Sometimes we are called upon to deal with certain choice varieties which are also scare and valuable; rootless bulbs of these would not be allowed to develop flower-scapes if they produced them. Good management under such conditions consists in removing the scapes in the very earliest stages of their growth, so that the entire force of the new root action would be spent in producing leaves, which, in their turn, if maintained in a healthy condition to the end of the growing period, would perfectly mature the bulbs and bring them up to a flowering state for the following season. It is most interesting and instructive to examine a bulb of an Amaryllis when the flowers on the scape have arrived at full development. The substance of the bulb has almost disappeared; it has been used up in the production of the scape or scapes, and the outer coatings of the bulb hang loosely over the internal remains. Usually the plants are well furnished with healthy roots and leaves, and no sooner are the scapes removed than the process of filling up commences. Root action has to be well kept up, and a warm, moist atmosphere is necessary to keep up a satisfactory relation between roots and leaves. The plants will take plentiful supplies of tepid water, as vigorous growth is most desirable, and any plants that may become dry at the roots receive a check from which they do not speedily recover; should they become over dry more than once the chances are that the leaves will prematurely lose their colour; decay having once set in cannot be arrested, and the bulbs will consequently ripen before the whole process of the internal formation is completed. The flower-buds are there in embryo; so are the leaves, closely embedded and secure from harm in the centre of the bulbs. Even after the leaves decay and are removed the period of absolute rest is very short, for changes are going on in the bulb all through the resting period, and with the first touch of heat and moisture, leaf and flower, or flower and leaf, burst forth with a rapidity truly marvellous.

Great Gearies, Ilford. J. DOUGLAS.

Flowerless Violets.—A too shady position and an insufficient circulation of air are generally the cause of Violets producing foliage out of proportion to the amount of blooms which they furnish. The flower-buds are, of course, formed on the crowns, and these cannot mature sufficiently if too much hidden by foliage. Thick planting, in conjunction with a rich soil, will drive out floriferousness, and this is one reason why old plantations often become sterile. When Violets are grown in fields in the open air, where they get an abundance of light, and where the breezes of early autumn play freely on them, they rarely prove flowerless. It is only in the confined precincts of a garden that they do

so. The remedy for a flowerless condition is plenty of room in which to grow, a moderately rich soil, and a position where the plants get abundant light. There may, of course, be other causes for the non-production of bloom, such as starvation, an over-dry atmosphere, and the attacks of red spider. The condition of the foliage will surely indicate if any of these adverse influences are the cause of infertility. Poverty is easily remedied by a top dressing of decayed manure in spring, and an occasional soaking of water in hot, dry weather will help to ward off insect pests. It is certain, however, that Violet-culture in some localities offers more difficulties than in others. In some places soil and climate combine to render Violets happy; in others it is only the care and skill of the grower that can do so. Violets are so fresh, so pleasantly fragrant, and so welcome during gloomy winter days, as to be worth any reasonable amount of pains to obtain them.—Byfleet.

Miniature Orange trees.—These are most useful in the case of those who have to supply plants for table decoration in winter. A few neat little bushes of Tangerine Oranges will last several years in serviceable condition as regards size with a very moderate amount of care. A temperature a little above that of an ordinary greenhouse suits them perfectly, and sponging the leaves and careful attention to watering constitute the rest of their requirements. In spring we turn them out of their pots and give fresh drainage, for if the soil gets water-logged they soon lose their roots. A good layer of fine crocks, and a soil consisting of turfy loam, a little leaf-soil, and sand, suit them exactly. When fresh potted, put them in a vinery just started. Thus treated, they will flower freely from every spray, and when in bloom look well in the conservatory. They never fail to set a quantity of fruit, which we thin out to a number sufficient for the bush to bear. In any of the vineries or Peach house these little bushes will perfect a capital crop of pretty little fruits; and a bush bearing a dozen or more of them, accompanied by bright shining foliage, looks well in a rustic vase on the dinner-table or sideboard. When flowering plants are scarce and fine-foliaged plants have become monotonous, a reserve of fruit-bearing plants such as these little Oranges are is most welcome. Where old-fashioned orangeries still exist, some of the large-fruited Oranges, cut off with sprays of foliage, make pretty table ornaments. Many fail with Oranges from want of a little timely attention to the roots; as long as they look fairly healthy they are allowed to remain in the same pots, but under such circumstances they often drop their leaves and show signs of distress. In such cases it is advisable to shake the plant out of the soil in which it is growing and repot in a smaller-sized pot, using rather lighter and more sandy soil than before, until fresh roots are emitted. A moist, genial temperature and frequent syringings will be helpful until a fresh growth of young leaves makes its appearance.—J. G. H.

FRUIT ROOMS IN WINTER.

The perfect preservation of fruit in winter is a subject in which all who have any fruit to preserve are interested. Apples and Pears are the most important occupants of fruit rooms in winter, and although it is difficult to destroy late-keeping varieties, attention is required to keep those in season good as long as possible, and it is important that they be kept in such a way as to retain their flavour in perfection. This is a point not always taken into consideration, the main object with many being merely to prevent decay. Apples and Pears keep well in close places; if this was not the case we would not see such fine specimens turned out of American barrels as we now do; but an Apple kept for some months in a close room and one kept in a sweet atmosphere are widely different in flavour, and Pears are still more liable to be affected by the state of the atmosphere; they absorb the impurities of close air and part with their own exquisite flavour. A fruit room which can be gently heated now and then in damp weather is very useful, and where no heat can be applied, it is of great advantage to admit fresh air on fine days. A dry atmosphere is very desirable, and no opportunity of securing one should ever be allowed to pass by. Decayed fruit should not be allowed to remain in any fruit room, as it creates damp and contaminates the air. The whole of the stores should be looked over weekly in order to remove bad fruit, and if the windows can be kept so close as to exclude damp, they need not be opened during December or January, unless the weather is very brilliant. Frost must be excluded, as if once fruit gets slightly frosted, much of it will decay before it is ready for use.

Cambrian.

NOTES OF THE WEEK.

West Indian Blood-flower.—Although tolerably well known as a plant for summer decoration, this Asclepiad is but little grown for winter display. It is, however, used with good effect for this purpose in Canon Bridges' garden at Beddington, where we recently saw it. It is the Asclepias curassavica of botanists.

Cestrum aurantiacum.—This is a yellow-flowered form of the plant better known as Habrothamnus elegans. It is a lovely object trained either upon pillars or rafters, and it makes a good bush in a conservatory bed. We saw it recently in full bloom in the Royal Gardens at Kew.

Australian Bean-flower (Kennedya Marryattæ).—This is an old-fashioned greenhouse climber too seldom seen now-a days in our plant houses, more especially as its bright red Pea-shaped flowers are produced during the months of December and January. We saw it recently at Kew, where its branches hang from the roof in beautiful festoons.

The blue Marguerite.—Blue flowers are not, as a rule, over-plentiful in winter, and therefore we were somewhat surprised to find this plant a few days back blooming profusely in one of the greenhouses at Kew. The species in question is the old Agathæa cælestis, a dwarf, compact plant, with opposite entire leaves and terminal flower-heads, the ray florets being bright blue and the centre yellow. It is a native of South Africa.

Luculia gratissima.—This in now flowering in great profusion at Kew, filling the whole greenhouse in which it is placed with its delicate fragrance. It is also blooming in perfection in the York Nurseries, planted at the north end of an old Camellia house. The plant in question is bearing considerably over a hundred heads of delicate pink blossoms. Its Hydrangea-like heads of bloom last several days in water after being cut. This grand old plant has been too much neglected of late years. A fine bush of it which flowered annually grew in the conservatory at Chiswick before it was converted into a vinery.

Cotoneaster affinis.—I have enclosed a few fruit-laden branches of this Cotoneaster. Imagine groups 40 feet or 50 feet across and 12 feet to 20 feet in height literally loaded with fruit and foliage, and you realise the value of this splendid shrub.—W. Coleman, *Eastnor Castle, Ledbury.*

*** Uncommonly fine specimens of what must be considered the most ornamental hardy tree of the season. The profusion of bright scarlet berries must, as Mr. Coleman remarks, produce a splendid effect at this season. Both C. affinis and its closely allied relative, C. frigida, are among the select shrubs or small trees that no planter should neglect. Both are natives of the mountains of Nepaul.—Ed.

Reinwardtia tetragyna is an old plant with a new name, it having been grown abont a century ago in English gardens under the name of Linum. It had, however, long since disappeared from cultivation, although it is a common weed in some parts of India, and has recently been re-introduced by Messrs. Veitch, and also by Kew. Another member of this genus is the old favourite winter-flowering plant commonly known as Linum trigynum, these two constituting the genus as described in the "Flora of British India." R. tetragyna is as good a garden plant as the better-known R. trigyna, its flowers being 2 inches across, sulphur-yellow (those of R. trigyna being almost orange); the petals crisp-edged and spreading, and they are borne in terminal umbels, strong shoots bearing as many as twenty flowers in a head; they open one or two together. In the other kind the flowers are produced on short axillary branches all along the main shoots. The plant is woodier than R. trigyna, and the leaves are 7 inches long, lance-shaped, with crenate edges. R. tetragyna is distinct enough from its better-known relation to be worth growing along with it. We saw a batch of it in flower in the **T** range at Kew, and in the greenhouse (No. 4) R. trigyna is also flowering freely.

East Indian Morning Glory (Ipomæa Horsfalliæ).—This very fine climbing plant is somewhat difficult to propagate, and hence it has never become plentiful, although always a favourite. The most successful method of increasing it with which we are acquainted is by root-grafting. The foliage is deep green, the leaves being somewhat hand-shaped, whilst the trumpet-shaped, bright rosy flowers are produced in showy panicles. In stoves here and there it is at the present time finely in flower.

Canary Island Bellflower.—We recently saw this plant flowering in a greenhouse at Kew. It cannot be called a very showy plant, but its large drooping, bell-shaped flowers are yellowish red—a remarkable colour amongst its near relatives, the Campanulas. The plant in question is called Canarina campanulata; it has a thick, tuberous root, which used to be dormant at this season; the stem is stout and branching, swollen at the joints, and the thin leaves are somewhat heart-shaped.

Ghiesbreght's Tree Groundsel (Senecio Ghiesbreghti).—The Groundsels constitute perhaps one of the largest genus of plants known; many of them are worthless weeds, but this plant which we recently saw in the greenhouses at Kew is a veritable Anak amongst its fellows. It is shrubby in habit, attaining a height of from 4 feet to 5 feet or more, and bearing large, alternate, dull green, coarsely toothed leaves; the summits of the stems are crowned with large, flat, corymbose heads of yellow flowers, which render it conspicuous at this season of the year.

Finely-grown Calanthes.—I have sent you a few spikes of Calanthes. Our mode of treatment is much the same as that given in The Garden last week by "Veronica." The only difference is, that we put the majority of our bulbs five in a 10-inch pot. I have at the present time one such pot with twenty-two spikes, with an average of thirty-two flowers to a spike.—H. Carter, *Downhill, Coleraine.*

*** The Calanthes received are very fine examples of culture, the spikes being some 4 feet in length, bearing three dozen flowers of exceptional size and colour. The varieties sent are C. Veitchi and the red and yellow forms of C. vestita. The colour of C. Veitchi is very rich, the result probably of such excellent culture in pure country air.—Ed.

Cattleya Mastersoniæ.—This beautiful new hybrid has recently flowered at The Dell, Egham, in Baron Schroeder's collection. The habit of the plant is in the way of Cattleya Loddigesi, but the bulbs are somewhat shorter and thicker, leaves being round and dark. The flower stands out bold, and has the distinct character of Cattleya Loddigesi, but much larger, partaking of its parent's rich hue; the sepals and petals are deep rose; the lip is a rich crimson, as in the old C. labiata, but is shorter and not so much fringed. It is a splendid hybrid, and a close rival to Cattleya exoniensis, if it does not actually surpass it.

Begonia socotrana is gay with flowers now, and is altogether a pretty and interesting species, which will be sure to hold favour as a winter-flowering stove plant, and one which is peculiarly attractive on account of its large Tropæolum-like leaves and singular habit. When this plant was first introduced we were doubtful as to its lending itself to the production of hybrids by crossing with other kinds; but all doubts have been removed by the Messrs. Veitch, who have already raised several distinct hybrids from B. socotrana and others; and success in the same direction has also rewarded several Continental growers. But the children of the Socotran Begonia may be left to speak for themselves; we wish here to

point out that wherever bright rose-pink flowers are wanted in winter, flowers, too, which among Begonias have the exceptional character of lasting well when cut and placed in water, B. socotrana is deserving of favour. It is a little peculiar in its cultural requirements, but particulars on this point may be found in The Garden, along with a coloured picture of the flowers, in Vol. XXI., p. 162. Several groups of well-flowered examples of this plant may now be seen in the T range at Kew.

Agathæa cælestis, or the blue Marguerite, is most useful when grown in pots out of doors all summer and not allowed to flower till winter, when it will produce a good crop of its delicate blue, Daisy-like flowers with bright yellow centres and of good lasting qualities. A batch of these plants, well flowered and very pretty to look at, may be seen in the greenhouse (No. 4) at Kew, and they are rendered still more attractive by being mixed with the Paris Daisy, the two going well together.

The Order of the Chrysanthemum.—The most exalted Order of the Japanese Empire is that of the Chrysanthemum, and this, with but one exception, has previously been bestowed upon reigning sovereigns only. On Tuesday last the Order was conferred upon the Prince of Wales by Prince Komatsu, the envoy of the Emperor of Japan. The Order of the Chrysanthemum is described as consisting of a star and collar, the former being in the form of a silver-fluted cross with a large ruby in the centre, and the latter being a "blaze," with a ruby, hung round the neck by a riband.

Strobilanthes Championi.—Although a large genus of Acanthaceous plants, and one which is said to comprise many ornamental flowered kinds, only very few species of Strobilanthes have found their way into gardens, and we may say not one has found much favour among cultivators. The genus is related to the Ruellias, and is mostly blue-flowered. Many of the species form large, handsome, herbaceous shrubs, and some of these have the peculiar habit of growing for an indefinite period without producing flowers till the flowering time comes, when they expend themselves in making a fine display, and then perish. Several of these are now represented by large plants in the stoves at Kew, but they are not yet showing any disposition to flower. S. Championi is a recent introduction from Hong Kong, and is now in flower. In habit it is suggestive of Dædalacanthus, being a stout herb with quadrangular stems, ovate-toothed leaves 5 inches long, and flowers in erect terminal racemes, each flower being tubular, curved below, spreading above like a Pentstemon, and about 1 inch across; the colour is pale violet with purple veining. Only two or three flowers open at once on each spike. Height of plant, 2 feet.

Garden Destroyers.

EUCHARIS MITE.

"J. C. B." publishes (p. 501) an experiment which he made in reference to the Eucharis mite, or what he presumes to be that destructive little pest, but the conclusion at which he has arrived, viz., that it can be successfully eradicated without the loss of the bulbs, is scarcely borne out by the facts which he gives. The remedy stated might have been effectual enough in the case of the Vallota, but, as he admits, it might, in the case of the more delicately constituted Eucharis, prove destructive to both bulbs and mites; consequently he is somewhat premature in asserting that there is yet a better plan than that proposed by me (p. 394). Then, again, the mite that "favours" the Vallota with its attention may be different from that which affects the Eucharis. We all know that the smallest forms of aphides are the worst to exterminate, and on these grounds I am reasonably sceptical of the success of the experiment recommended by "J. C. B." when it comes to be tested on the Eucharis mite properly so called. Any effectual remedy would be welcomed by all who suffer from this destructive mite; but until this is forthcoming and proved, I must still hold that a thorough clearance of the stock is the surest method of getting rid of it. Such a radical remedy may at first sight appear uncalled for, but when it is taken into consideration how much time and space have been taken up by experienced cultivators in their futile efforts to destroy this mite, it will perhaps be conceded that no better plan has yet been found. Mr. Cypher, of Cheltenham, one of the most extensive cultivators of Eucharis with whom I am acquainted, unfortunately imported the mite into his collection, and this soon spread. Every known remedy that has been tried and recommended by other cultivators has been given a thorough trial, and some that occurred to those in charge were also tried, but in every instance without an effectual clearance of the mite. The conclusion arrived at was that many who profess to have effectually exterminated the mite could not have had the true pest to deal with. Believing, therefore, that there is no remedy other than a thorough clearance, they burnt their plants; the houses were thoroughly purified and furnished with fresh stock. At present, therefore, they have a grand lot of Eucharis, and not a trace of the mite discernible. Nor need other cultivators hesitate to follow this example. A few healthy strong potfuls of bulbs may be rather expensive to buy, but then these may be rapidly increased by division. W. I. M.

Diseased Eucharis bulbs (*S. N.*).—Your Eucharis bulbs are attacked by the bulb mite (Rhizoglyphus echinopus). It is a very difficult pest to destroy. "J. C. B.," in The Garden of November 27, mentions that he has been successful in killing this mite with a strong solution of sulphide of potassium. No doubt, as he says, if the mixture be strong enough it will do so, and he has found that 3 lbs. dissolved in a gallon of water will kill the mites, and not injure the bulbs of Vallotas. Eucharis bulbs, as he suggests, might not, however, stand such a strong dose. The bulbs should be allowed to soak for some time in this mixture, as the mites often work down from the base of the leaves between the scales for some distance, so that no washing or dipping would bring the solution into contact with the mites. "J. C. B." is much mistaken if he thinks he is the first person to use sulphide of potassium for this purpose. Mr. E. Cameron, of Moffat, wrote to The Garden last year, on December 12, saying how successful he had been in killing these mites with it. Another correspondent recommended it in April, last year, for the same purpose. I am of opinion that the cure will be found in immersing the bulbs in hot water of 115° and 120° Fahr. This, as far as I have been able to experiment, will kill the mites, but I am uncertain as to the effect on the bulbs. I have not yet heard the result of some trials which are being made to test this theory.—G. S. S.

THE POTATO TERCENTENARY.

The conference which formed a part of the proceedings of this celebration had many features of interest, though the attendance was, unfortunately, during all its stages extremely poor. This probably arose from the fact that there was a kind of mystery attached to the preliminary proceedings, and many held aloof because the names of the promoters were kept a studied secret. It was not until the eleventh hour that a few well-known Potato raisers and cultivators were invited to assist. Still, a great deal of very valuable information came out in the course of the discussions, and it is a pity that a larger number of professional horticulturists was not present.

The conference opened on the morning of the 2nd instant, Mr. William Carruthers, F.R.S., presiding. The first paper read was by Mr. W. S. Mitchell, M.A., on "The historic consideration of the question, whence came the Potato to England?" The tenor of this paper was to show that the Potato, though regarded as a Virginian importation, could not be so. He believed that the Potato had been introduced into England by Sir Francis Drake in 1586; that he obtained it on the coast of South America, either by purchase from the natives, or by plunder from some Spanish ship, and conveyed it to England on the conclusion of the voyage in which he relieved Sir Walter Raleigh's colony in Virginia. Then followed a paper prepared by Mr. W. H. Pollock, M.A., on "Drake's Expedition of 1586," read by Sir R. Pollock. This gave an account of Drake's voyage in 1586, showing the various places he touched at and the enterprises carried out, and that in some of the places touched at in the Pacific Ocean it was possible he took in a supply of Potatoes for his crews.

Next came a remarkably able, complete, and highly interesting paper by Mr. Clements B. Markham, C.B., F.R.S., on "The cultivation of the Potato by the Incas of Peru and other Andean nations." It is impossible that any abstract can do justice to a paper that should be read in detail, so full of information of a specially appropriate character was every part of it. Mr. Markham said that the original home of the Potato was in the Cordilleras of the Andes, in South America. There it had been cultivated from time immemorial over an extent of 3000 miles. When the Spaniards first arrived, the Potato was a domesticated plant in the kingdom of the Chilchas, in the province of Quito, throughout the empire of the Incas of Peru, and in Chili. This fact of its immemorial cultivation rendered it difficult to ascertain with certainty the localities where the Potato was indigenous. It was most probable, on the whole, that the Potato originally grew wild in suitable localities throughout the Cordilleras of Peru and Chili. A description of the physical geography of these districts, and of the system of government under which the inhabitants lived, then followed. Mr. Markham observed that the government was practically a theocratic socialism, which secured an almost complete absence of distress and pauperism among the people, and under which the Potato became a cultivated plant. The Potato was unknown further than the highlands of Bogota, in Columbia; and it was there that one of the three American civilisations had its root, viz., that called by the Spanish conquerors the Mysca nation. Its people spoke a language called Chileha, which is now extinct. But vocabularies have been preserved, and they revealed the fact that the ancient people of Bogota cultivated the Potato extensively, and had produced several varieties.

Mr. J. G. Baker, F.R.S., of the Royal Gardens, Kew, contributed an interesting paper on "The wild species of the Potato as at present recognised." He said that the well-marked, thoroughly distinct species of tuber-bearing Solanums were five in number, and were all natives of America, viz., tuberosum, Commersoni, cardiophyllum, Jamesi and oxycarpum. The Potato of cultivation originated from the first-named species. S. tuberosum, in one form or another, extended down the western side of the American continent from the Rocky Mountains, the latitude 30° north, to the Chonos Archipelago, off the coast of Patagonia, in latitude 45° south. Within this area there were found no less than sixteen forms, so far different from one another that they had been named by some botanical writers as distinct species. They were not so, however, in any comprehensive sense. S. tuberosum was therefore one of those polymorphic types, of which we have very similar examples in the old world in the genus Rubus—Raspberry and Cloudberry—and in R. saxatilis. The extreme forms looked very different from one another when they were placed side by side, but in the whole series there was to be found no very decided gap of character. Though the Potato had been cultivated in Europe for 300 years, we knew very little about the deterioration that might be produced in the distinguishing characters by changes of climate and soil. He wished that someone would undertake to monograph the tuberous Solanums in the same thorough way that Mr. George Maw had just monographed the Crocuses. We did not know whether S. tuberosum, the commonly cultivated esculent, was really an original type or a form produced by man's agency, and in investigating the relation to it of the other fifteen types that were regarded as non-tuberous, there was scope for the labour of a lifetime. He would add that Mr. Markham's paper was of exceptional value and interest, and, if nothing more came from the conference, a new era in the history of the Potato had been inaugurated by Mr. Markham's contribution. It contained an enormous flood of information which would put the botanical and historical bearing of the question in an entirely new light. Botanists had not had the least idea of the large extent to which it appeared the Potato was culti-

vated at the very early period Mr. Markham had mentioned. Mr. Baker illustrated his address by coloured illustrations of as many of the reputed species as he had been able to obtain.

The conference adjourned to the afternoon, when Mr. J. G. Baker presided. Mr. George Murray, F.L.S., of the British Museum, read a paper on "The character and operation of the Potato disease," his remarks being illustrated by a number of diagrams of the fungus in its various stages. He said that the history of the disease was a recent one as compared with the history of the Potato itself, notice having been first called to it in 1845, when it was probably brought to this country from Belgium. After describing the nature of the fungus, Mr. Murray said he had satisfied himself that the disease was propagated by the spores being distributed by the wind. A number of glass slides, such as those used with a microscope, having been covered with glycerine and placed on the lee side of a field of infected Potatoes when a slight breeze was blowing, it was found, after an exposure of a few hours that the slides each contained a number of these spores. From continuous microscopic investigation it had been seen that the complete fungus was produced in three hours, and this accounted for the sudden and disastrous spread of the disease. No system of earthing up Potatoes could, he believed, be efficacious in checking the disease; neither could confidence be placed in any legislative enactments regulating the planting of Potatoes.

Earl Cathcart said that it would be interesting to know whether the Potato disease was an effect or a cause. With regard to the degeneracy of the Potato, he might mention that it was a fact that no supposed standard Potato had ever existed. That in itself he considered to be an argument in favour of the theory that plants are liable to degenerate when over-cultivated.

M. Henri L. de Vilmorin, of Paris, then read a paper on "The introduction of the Potato into France." M. Vilmorin said that the Potato was first introduced into the Dauphiny from Switzerland. At first it was not extensively grown, and was used as fodder for cattle, and there existed a strong prejudice against it. But a bouquet of its flowers being presented to the king, who greatly admired them, the prejudice was gradually overcome, and the Potato became more generally grown. In 1830 the Agricultural Society of Paris sent to him a large collection of known varieties which were grown and compared, and resulted in their reduction to 120 distinct kinds. Since then some 2000 named varieties had passed through their hands, and they had reduced these by about 550 distinct sorts.

The conference was resumed on Friday, the 3rd inst., Mr. Mitchell presiding, when a paper was read by Dr. Masters on "The production of varieties by cultivation." At the outset, he said the methods now resorted to for the production of new varieties were not of a nature to reach the end sought. One general method of obtaining new varieties was by selection, but he was of opinion that nothing could be derived from this method. Another process was that of cross-breeding, or the production of new varieties by the application of the pollen of one variety to the stigma of another. The third method was that of hybridisation proper, or the crossing of two reputedly distinct species. This process had not been much attended to in England until it was adopted by Messrs. Sutton, Reading. There was yet another mode by which new varieties might be obtained—namely, by grafting. Very many cultivators absolutely denied the possibility of anything like grafting, but he believed it to be a practicable idea. He had himself obtained intermediate forms by the process, and he had seen remarkable results follow the grafting of the Potato on to the Tomato and other species. These were all the methods at present practised for gaining new varieties of the Potato; there might be more, but he did not think it probable. What he would wish to emphasise is the fact that all these modes, except that practised by Messrs. Sutton, were merely "ringing the changes" on the old varieties over and over again. If any really important result was to be obtained in the future in point of greater adaptability to our climate, power of resisting disease, or general robustness, we should have to infuse a new strain into our varieties; the only way to do this was by hybridisation of species. It was not necessary to confine the experiments to tuberous Solanums only, but other hardy species might be put under requisition. The process, however, would be very long and tedious, and it would hardly be within the power of private individuals to undertake the experiments, which would require quite twenty years of patient attention.

Mr. A. Dean, Bedfont, said, with regard to the process of obtaining new varieties by selection, he could say, as one having much experience in the matter, that the only practical result was obtaining a slightly better stock for a year or two, which, however, would soon degenerate. The only real means by which distinct varieties had been introduced was by cross-breeding, and by this means, from a simple Solanum tuberosum, a thousand distinct varieties had been obtained. They had also produced many varieties entitled to be termed disease-resisting, and had put themselves in the position to say that Potatoes were never better or cheaper than at present.

Mr. Arthur Sutton, Reading, said he did not wish to claim for his firm any credit for having originated the experiments referred to by Dr. Masters. The idea had emanated from Lord Cathcart, and he believed that in its execution they had a pleasing example of the union of scientific and practical knowledge. He had never known any new variety to be originated by selection, and he believed such a thing to be impossible.

Mr. William Earley stated that while he did not assert the possibility of obtaining new varieties by the process of selection, the fact was not to be overlooked that by continually choosing the best specimens of a variety, a better standard of excellence was maintained.

Mr. R. Dean, Ealing, said that on the previous day he had asked Mr. J. G. Baker whether it would be possible to carry out a series of experiments at Kew with the different species of Solanum, but he said it would be practically impossible to do so, as a new department would have to be created; and there was the further disadvantage that a constant change was going on in the personality of the staff, which greatly interfered with the continuity of such work.

Mr. Charles ap Thomas said that he had resided for twenty-five years in Chili and Peru, and was conversant with the edible plants there. There were three varieties of the Potato, one of them, the Yellow Potato, being very suitable for introduction to England. Its name was given to it on account of the colour of its flesh, and it was very similar to the Rector of Woodstock variety. It was indigenous to the soil, and had been found in the country by the Spaniards when they first arrived.

Mr. R. Dean, Ealing, then read a paper on the "Cultivation of the Potato," recommending autumn manuring and trenching, a choice selection of sets, and care in the process of earthing-up. Mr. A. Dean, Bedfont, followed on "Raising new varieties," detailing the various crosses he had attempted, and the character of the varieties he had obtained therefrom. Mr. W. Earley, Ilford, read a paper "On the advantage of early lifting of the crop as a preventive to disease," and illustrated the same with samples of tubers.

At the evening sitting, the subject considered was the rates of transit of Potatoes by railway. The chair was taken by Mr. T. H. Bolton, who said that it was generally admitted that the railways had hardly answered the requirements of the public, either as to accommodation or cheapness of transit. In the last Parliament a measure had been introduced, on the responsibility of Mr. Gladstone's Government, to place the railway companies under greater supervision, and to require that they should more fully discharge the duties which had, under Parliamentary sanction, been entrusted to them. The measure was not then carried through, but its passing into law was only deferred, and the railway companies would have finally to submit to Parliamentary control. There existed great reason to complain of the unfair preference that was practically given to foreign producers in connection with the main trunk lines unto the great cities. It was useless for the railways to plead that they could not afford to satisfy the demands of the public, for it could be seen from returns that most of the chief lines were paying good dividends.

Prof. W. A. Hunter, M.P., then read a paper on the subject under discussion. He said that the subject of railway charges for the conveyance of Potatoes might be considered under the following heads: (1) preferential charges in favour of foreign as against home-grown Potatoes; (2) irregularities in the charges compared with the service rendered; (3) charges by railway companies exceeding the maximum; (4) excessive proportion of the charges to the value of the article; (5) suggestions for cheapening the rates for conveyance. With regard to the last consideration, could cheaper rates be obtained? It was first to be remembered, that as it stood now the law could do nothing to help the Potato grower. On the Brighton line the rate charged per ton per mile, exclusive of collection and delivery, varied between 4d. and 6d., while in America the Pennsylvania Railway Company charged less, and ½d. per ton per mile on the average of its whole goods traffic. This was lower than the English average for the coal traffic only. The secret of the low American rates was not in the unremunerative character of the work done, but in the mode of conducting railway business. What was required was a truck rate as well as a tonnage rate. By such an arrangement the trader could have the option of sending by the present system, or of having a truck and loading it as he pleased and with what he pleased up to the full carrying capacity of the wagon. At a rough guess he would say, then, an 8-ton or 10-ton truck ought to be charged 6d. per mile for short distances (say under forty miles), and a diminishing rate for long distances; so that for 200 miles it ought not to exceed 4d. per mile. It might be said that, though this system would be beneficial to the large trader, it would not be so to the small trader. Indirectly it would, however; for the moment a fair truck rate was established, a class of carriers would spring up who would collect the traffic of small men and make their profit by sending full truck loads. Under the present system the independent carrier had been exterminated, and the railway companies had established a monopoly. If a truck rate were fixed the business would be made more profitable to the companies, and, at the same time, the railway monopoly would be smashed.

A lively discussion ensued, a general agreement being expressed with the conclusions drawn by Prof. Hunter.

A COTTAGE DOOR.

There is a charm about an English cottage home with its little strip of carefully tended flower border, that no other country can show its travellers by road, and that this is not a vain insular boast is frequently proved by the pleasure expressed by our foreign visitors at the pretty pictures, such as the one we now engrave, so frequent in our villages and scattered by our country roadsides. The double flower border, leading from the road to the Vine-clad porch, is filled with good hardy flowers, tended with watchful care by the mistress of the little dwelling—the home of an honourable family of labouring people. Next the flower border is a line of fruitful Gooseberry bushes, and then a good bit of vegetable garden and Potato ground, or, according to the local wording of the older folk, "a bit of ground to grow sauce in."

QUESTIONS.

5533.—**Market Hydrangeas.**—Would some reader of The Garden kindly give me a hint or two on the culture of common Hydrangeas for market, also the best means of propagation?—E. F.

5534.—**Open-air Chrysanthemums.**—Will some reader kindly give the names of the best sorts of Chrysanthemums suitable for open-air planting? Locality, Lancashire coast.—J. R.

Book.—Rivers' "Orchard House"; obtained of the author, the Nurseries, Sawbridgeworth.

Rose Garden.

PLANTING ROSES.

In a general way Roses are planted at any time between the 1st of November and the 1st of March; but as regards standard Roses, I think, when November is over and the work of planting not completed, it is better to defer it until the severity of the winter is over. If we could depend on the winter not being severe, I should say there is no reason to wait; on the contrary, I should say plant at any time when the weather is open from November to the beginning of March; but when planting has been delayed to mid-winter, and the position the plants are to occupy happens to be an exposed one, I say by all means wait until the end of February. My reasons for advocating delay in such cases is, that recently planted standard Roses are sometimes seriously injured by severe frost, and not unfrequently great losses are experienced when they are standing in nursery quarters. It is not, therefore, difficult to understand that when they are subjected to removal and planted out singly in exposed situations that they should suffer if overtaken by unusually severe frost. I have never known 20° to injure Roses to any serious extent, but on more than one occasion I have seen a good deal of the young growth killed by 26° of frost. I have known long lines of standard Roses in fairly sheltered places to escape unharmed, even when the thermometer had been down to zero; therefore I am not in any way anxious about the safety of established plants. It is newly planted Roses about which I am most concerned, and if I resided in the north of England, I should adopt some plan of protecting them, *i.e.*, if I was compelled to plant before severe weather had left us. My advice is, therefore, that those who have delayed planting should get their plants home and prune them as soon as received. They may be pruned just as well before being planted as afterwards, and by doing the work now the wounds made will have time to heal, and when planted they will have nothing to do but to start into growth. As soon as pruned, a fairly sheltered border should be selected to receive them where the soil is light and moderately fine. Where some fine leaf-soil is at command it should be preferred to anything else in which to lay the roots; any way, the plants must be laid in very carefully. The stems should be nearly upright and sufficiently far apart to keep the roots of one plant from touching those of another. There is no need to tread the soil about them very much; if it lies about the roots close enough to prevent the ingress of air, that is all that is wanted. It has been stated more than once that root-disturbance means root-formation, and in no instance have I seen the statement better exemplified than in the case of some Roses which, owing to some alterations, I was once compelled to move early in November, and for the same reason they could not be replanted until quite late in the spring. In the meantime they were well cared for, the roots were laid in in a heap in some rich soil, and when the time came to plant them they were bristling with long white fleshy fibres, which being carefully planted enabled the plants to quickly lay hold of the new soil, which they did, and soon started into growth, yielding the same season quite a satisfactory number of flowers. Deferring planting also affords an excellent opportunity for the thorough preparation of the soil. With regard to positions for Roses, I do not agree with draining them, except where absolutely necessary, for, in a general way, during the summer Roses suffer more from want of root-moisture than from an excess of it; at the same time, I admit that in low-lying situations, where the soil inclines to clay, it is desirable to provide moderate drainage.

A cottage door in West Surrey. Engraved for The Garden from a photograph.

Planting Roses on dry banks and in raised beds is another feature in Rose culture to be avoided in the majority of cases, more especially where the soil is naturally light and well drained. In regard to the height of the soil above the surrounding surface, there is a happy medium to be aimed at, and that is, the surface of Rose beds should be on a level with the ordinary surface of the ground, except in the case of Tea Roses; these, on account of their being more tender and less vigorous in growth than Perpetuals, require a drier and warmer medium for their roots; therefore, in some cases it is desirable to raise the surface of the Rose bed to from 9 inches to 1 foot above the surrounding level.

Manure for Roses is a question that often perplexes the inexperienced cultivator, and I think unnecessarily so. There can be no doubt that well-rotted farmyard or hotbed manure is best; but even this must be used with discrimination. A soil that is already fairly rich should have less than one that is deficient of sustaining matter. The practice of putting a little manure round the roots and leaving other parts of the bed without any is not the way to ensure lasting and satisfactory growth. The manure should be distributed regularly all over the bed, and in the case of a poor soil plenty of it should be used; a good quantity of it should be mixed with the soil 1 foot below the surface. As a general rule the roots of vigorous-growing Roses are few in number, but when they have a good deep soil to grow in they travel a long way in search of food. It is, therefore, important that they should find plenty of it in whatever direction they may take. This they cannot do if the manure is only placed in certain places and the bulk of it near the surface.

J. C. C.

Rose stocks.—I was surprised to see (p. 497) that "D. T. F." had so much affection for the Manetti as a stock for Roses. He still clings to the idea that Roses worked on the Manetti root as freely from above as from below the point of union. They certainly do so, but in a much less degree than "D. T. F." gives them credit for. Such is my experience, and if that is incorrect, how comes it that so many thousands die annually? Too many have, I fear, started with the idea of forming own-root Roses on the lines "D. T. F." has delineated, with the result that at the end of three years the beds or borders have been terribly thinned by the natural propensity of the stock to die before it has fulfilled its mission. That the Manetti has been the means of carrying the Rose into thousands of gardens, into which it could not otherwise have found its way, I am willing to admit, but, although it has done so, it has not been an unmixed blessing. I knew of instances in which gardeners have been blamed for neglecting their Roses, when, in fact, the blame rested entirely with the stock. No one knows better than "D. T. F." that when once the Manetti refuses to sustain the Rose worked on it, no after treatment, however skilful, will save the Rose from its inevitable doom—death—unless the Rose has made roots of its own. My advice to those who are about to plant Roses worked on the Manetti is, that at planting time they should peg down the strongest and longest Rose shoot and bury a portion of it 3 inches under the surface; then, with a stick and a tie, bring up the point of the shoot so as to raise it several inches above the soil. The buried portion of the branch will in time emit roots, and ultimately form a plant of itself, so that in the event of the stock dying, a plant on its own roots

will be secured, and thus disappointment be prevented. Should the stock live and the Rose develop into a vigorous plant, that raised from the branch can, if desired, be taken up and planted elsewhere. Such a course is quite practicable, and has to my knowledge been successfully carried out in large beds first planted with Roses worked on the Manetti, but now converted into own-root plants, and as vigorous as anyone could desire.

TAUNTON.

GRAFTING ROSES ON THE MANETTI.

APROPOS of the value or otherwise of the Manetti stock for Roses, it may be well to direct attention to the amazing rapidity with which Roses may be grown on it through grafting. The simplest mode of procedure in this, as in many other matters horticultural, is no doubt also the best. Procure any number of Manetti stocks one or two years from cuttings. Size is of little moment, provided they are rooted. Trim off the tops and bottoms, *i.e.*, roots and shoots, so as to leave the whole of the stock from 6 inches to a foot long; some would even prefer stocks shorter. So soon as trimmed, lay the stocks in by the heels, covering the whole overhead, or leaving an inch or so of the upper extremity exposed. Leaf mould or a mixture of equal parts leaf mould and loam is the most suitable plunging material. The place to plunge for the mode of procedure now under notice is a pit or house with a bottom heat of from 65° to 70°. Leave the stocks plunged for ten days or a fortnight; at the end of that time, under such forcing conditions, the roots and tops will be beginning to move. The cut roots and tops will also develop symptoms of beginning to callus. The stocks are then ready for grafting. Scions should have been taken off the Rose bushes about the time the stocks were laid in by the heels in heat, or indeed earlier. But assuming the stocks were trimmed and set to work in January, the scions should have been cut off, the useless parts removed, and the whole of the portions fit for scions buried in the ground in the open air, there to remain till wanted, which may be a fortnight, three weeks, or a month, according to circumstances. The stocks and scions being thus both prepared, the simplest and safest mode of uniting them is as follows: Choose the two of about equal dimensions, if practicable, and whip-graft on to the root or root-stock. Tie the stock on to the scion with from three to five rounds of bast or matting. The tie should be firm, but the tying material by no means close. The reason for this will appear as we proceed. Before fitting the scion on to the stock, a thin slice should be taken off the bark on one side of the scion. So soon as the scion is placed, replunge the stock and scion, only leaving one or two buds of the scion exposed. The stock will at once proceed to form roots almost as rapidly as if it had not been disturbed. While this process of rooting is proceeding, the scion along both sides often, but especially on the side from which the thin slice of bark is removed, will also be callusing for roots; so that by the time the union of scion and stock is perfected, the embryo Rose plant will already be furnished with two sets of roots either in embryo or in fact. At this stage stocks and scions may be manipulated at will. The one bud or more that may have been left on the stock beyond the Rose scion may be removed, and the stock, in fact, cut back bodily to the scion. The bud or buds on the latter will now be breaking, and, as already seen, will be furnished with roots sufficient to furnish it with supplies of food. It is possible even to dispense also with a portion or a whole of the Manetti roots at this early stage, though safer to leave them till afterwards. At this stage the plants should be potted up, keeping the point of union between scion and stock wholly buried. A mixture of leaf-mould and light sandy loam, with a sixth part of rotten manure, is the most suitable for this potting; but any light soil that encourages free rooting will answer; 4-inch or 6-inch pots will suffice, and they should be plunged after potting in a hotbed of 60° or 65°. The tops of the plants may be kept a few degrees cooler but the great object at this stage is to encourage rapid growth of roots, so as to complete and consolidate the union, and encourage the rapid emission and multiplication of roots, especially from the sides and base of the scions.

As these processes are completed and the Roses get established, the temperature may be gradually lowered and more air admitted. Under such treatment, Roses on the Manetti may be rushed forward into well-established plants and planted out in the open air within less than six months from the time of working. There are many other different modes of procedure, such as graft-budding with a single bud with the wood intact; also a species of saddle-grafting, by which all the raw edges of the scions may be utilised more effectually to force the independent rooting of the scions. But the illustration given will suffice to show with what amazing rapidity Manetti stocks may convert Rose scions or buds into Rose plants on their own roots or otherwise.

HORTUS.

Own-root Roses.—I have been preparing a large quantity of cuttings of Maréchal Niel for making own-root Roses next year. I have had very fair luck with cuttings of this kind in previous years, but this season I shall keep them laid in thickly in a frame, at least until after the severest frosts are past. Without doubt a warm south border is the most fitting place for such cuttings during the winter, but it is rather too hot in summer; hence I shall put out the cuttings towards the end of March on a west border, where they will be encouraged to make good growth during the summer and be protected from the keenest winds. Maréchal Niel, budded on strong kinds such as Lamarque and Madame Berard as well as on the Brier, makes great growth here and affords an abundance of stout wood for cuttings. I find Reine Marie Henriette to be the freest rooter; indeed not one cutting of this seems to fail; these soon make capital plants. Apart from its value as a climbing Rose, either for house or wall, the latter especially, it should make a good stock for weaker growing trees, as it strikes freely, thus enabling anyone having a strong plant always to command stocks. Early buds of this Rose, especially those under glass, seem to rival buds of General Jacqueminot in depth of colour. It is without doubt, if a robust grower, a beautiful blooming kind, and especially merits wide culture.—A. D.

LANCASHIRE GARDENING.

THE remarks made under the heading "An English Celery Show" (p. 527) brought to my mind some pleasant reminiscences of visits paid to various small gardens owned by working men in Lancashire. Copper kettles are favourite prizes in that county, but these and Britannia metal tea-pots are not the only prizes. The districts visited by me were Rochdale, Oldham, Middleton, and neighbouring towns, the mill operatives of which labour under considerable disadvantages, which, however, do not prevent them from following garden pursuits with a zeal far too uncommon elsewhere. The gardens are necessarily small, but large enough for a man to manage during his spare hours. In winter he has not much daylight, except on Saturdays; he therefore has to do the best he can by the aid of moonlight. The spirit of rivalry amongst the operatives is fostered by the numerous exhibitions that are held, and, as far as I could judge, gardening had a much firmer hold amongst the men than other amusements of a questionable character. In many districts fruit does not produce satisfactory results, *i.e.*, with the exception of Gooseberries, which are not influenced so much by the impure atmosphere as Apples and Pears. Hardy flowers are well understood and tended with great care. Celery and Onions are the principal vegetables grown. I was carefully instructed in the art and mystery of Onion and Celery culture by Mr. James Fallows, one of the workmen in the Stakehill Works of Mr. Samuel Barlow. Fallows uncovered a head of Celery to show me the process of blanching. None of the exhibition Celery is earthed up. It is grown on level beds of deep, rich soil, and the art of watering consists in giving enough without overdoing it. Too much water causes it to become pithy. Every plant of Celery in the garden was swathed separately in several sheets of brown paper, and, as it was near the time of exhibition, it was perfectly blanched, clean, and in capital condition for use.

Onions are equally well cared for. In each case there is ample space for the plants to develop themselves; all the leaves are tied up to a trellis to prevent injury to them. Onions, like the Celery, must be watered by someone who knows when they have enough and when too little, as an overgrown Onion will burst, and its chance of success on the exhibition table is then at an end. Exhibition Onions must be sown in the same year in which they are exhibited. The seeds may be sown on the first day in January, but not earlier. The exhibitions, of which I have notes, were held one at Middleton, and the other more recently at Failsworth. They are either held in a public-house, or in premises adjoining one. Red Onions seemed to be merely a selected strain of the blood; but many good gardeners will be surprised to learn that single specimens have been grown to weigh 36 ozs. after the roots and tops have been removed. Ten prizes were awarded for red, and the same number for white, Onions at the Middleton exhibition. Mr. Job Siddall, Crab Lane, Blackley, gained the first prize with a specimen weighing 32 ozs. In white Onions the heaviest was 19½ ozs., and the lightest 8½ ozs.

The Celery was very fine indeed; I have not a note of the weights, but Mr. Barlow told me that three heads have been known to weigh 40 lbs. untrimmed. Mr. Thos. Kay, of Stakehill, gained for Celery the first prize, which was half a load of flour. A recent exhibition, held in the Sun Inn, New Road, Failsworth, was visited by 1200 people who paid for admission. On that occasion forty-six red and white Onions were exhibited and won prizes. None of them weighed less than a pound; the heaviest red weighed 34 oz., and the heaviest white variety 24 oz., the prizes being useful articles or cash.

Roses are the favourite flower of some of the cottagers; and it is worthy of remark that the Rose does not flower well in the usual midsummer flowering-time, but does well in September, the flowers being large, and the plants healthy and free from mildew. The little bit of garden is made the most of. The ground where the Roses are planted is deeply trenched and well manured, pig manure being easily obtained.

I spent some time, also, amongst the Auricula growers. Some of the most enterprising cottagers would grow many different varieties of the choice garden varieties of the Auricula, Tulip, Carnation, Pink, Ranunculus, &c. In many cases the rude structures, covered with wooden shutters instead of glass, have been done away with, and good houses put up in their place. Some of the growers are adepts at propagating scarce varieties, which are so because of their seldom producing offsets. The plan, first adopted, I think, by the Rev. F. D. Horner, of cutting off the head of the plant and encouraging the stumps to sprout effected quite a revolution in the propagation of slow-growing varieties.

The showy, late-flowering Tulips are still greatly valued, and as well grown as they used to be in the palmy days of this noble flower. Mr. David Jackson, an excellent representative of the silk hand-loom weavers and Tulip growers of Middleton, is still alive. Their ambition was to win premiums at the annual Tulip show with their carefully tended blooms, and their occupation of hand-loom weaving in their own houses gave them an excellent opportunity to attend to all the details of their work at the right time. Many of them are also seedling raisers, and to their industry we owe many of our choice named garden varieties. The Auricula, Carnation, and Tulip exhibitions are held under the auspices of the Botanical Society of Manchester. The council give a grant of money to each and find a place for

the exhibitions, which are held either in the town hall or in the gardens of the society at Old Trafford. In these days of special societies it is just probable that a society formed for the special culture of Onions and Celery having its centre in Manchester would be very successful. The growers could take their products to the town hall, and at the usual date at which such exhibitions are held, a goodly number of visitors would be expected to attend. It would at least have the charm of novelty, and that would be something in these days. I would object to anything that would take working men inside a public-house, however laudable in other respects the object might be.

J. Douglas.

NOTES.

Primroses, or Peas.—Mankind has been divided in many ways, but I sometimes think there are two classes only—those who like Primroses, and those who prefer Peas. Sentiment is in favour of beautiful Primroses, but those who pride themselves on their sterling common sense select the Peas, all of which signifies merely this, that the one prefers utility, and the other things wholly beautiful. There is a quiet, unpretentious, middle-class set of people who say nothing, but enjoy both. "I remember once seeing a white satin spencer of Queen Elizabeth's, embroidered with butterflies and Green-Pea pods half-open to show the rows of Peas within," and there are "Pea-pods beautifully sculptured on the great bronze gates of the cathedral at Pisa" [E. V. B.]. So that, even the prosaic Peas of the kitchen garden have a higher use than the mere pot-boiler can put them to. But when we come to the sweet hedge or wood Primrose, what shall we say of it? It is the most lovely of all our flowers of spring, and the latest of all flowers taken as a party badge or ensign. Lilies, Irises, Broom, Crown Imperials, and Violets, to say nothing of the Rose, have each and all been degraded in their turn as party symbols. Somehow one must regret the fate of any wild flower that is singled out in this way to be torn up by the million, and then brought into the towns to fade and die. Alphonse Karr tells us something of the political flowers as used in France, all of which were in turn proscribed and recalled, or multiplied to excess, or piteously rooted out of the flower beds in the Tuileries garden. Gone now the Violets and the Crown Imperials which are painted on the old state coaches at Versailles, and those who planted them carefully are gone along with those who proscribed them and threw them away, and yet every year they return in private life, and are quite as happy, certainly much less tormented, than when at the zenith of their political power.

Ruskin's garden at Denmark Hill.—Mr. Ruskin, now of Brantwood, thus describes in his "Reminiscences" the garden he inherited on the death of his father. "I have round me here at Denmark Hill seven acres of leasehold ground. I pay £50 a year ground rent, and £250 a year in wages to my gardeners, besides expenses in fuel for hothouses and the like. And for this sum of £300 odd a year I have some Peas and Strawberries in summer, some Camellias and Azaleas in the winter, and good cream, and a quiet place to walk in all the year round. Of the Strawberries, cream, and Peas, I eat more than is good for me, sometimes, of course, obliging my friends with a superfluous pottle or pint. The Camellias and Azaleas stand in the anteroom of my library; and everybody says when they come in, 'How pretty!' and my young lady friends have leave to gather what they like to put in their hair when they are going to balls. Meantime, outside of my fenced seven acres numbers of people are starving; many more dying of too much gin; and many of their children dying of too little milk." I know not whether Mr. Ruskin has a garden at his present home or not, but certainly no man of our time has in his speech and writings shown deeper sympathy for beautiful trees and Grass and flowers than he has. His definition of the vegetable kingdom is quite different from the definition of botanists generally, but perhaps not on that account less true. "Corn for the granary, timber for the builder's yard, flowers for the bride's chamber, and Moss for the grave." In a word, food, shelter, and beauty for all of us, living or dead, are the sum total of a world's vegetation.

Impatiens coccinea.—Can anyone learned in garden plants tell us where seeds of this old rosy-flowered Balsam can now be obtained? It is a tender annual introduced years ago from India by the late Dr. Roxburgh, and it is figured in the *Botanical Magazine* (t. 1256). It was cultivated by Mr. Salisbury, who grew it along with many other rare and beautiful plants in his botanical garden in Sloane Street, but is, as I now apprehend, extremely rare in gardens, even if it exists therein. The flowers are large in proportion to the leaves and slender stems, and at first sight colour and leaves alike remind one of Begonia Marti, another lovely species not so often seen as it deserves to be. So far we have no Impatiens so free and floriferous as is I. Sultani, but, judging from the *Botanical Magazine* figure, as cited above, this I. coccinea would run it very hard in the favour of cultivators generally. I. Hawkeri bears magnificent individual blossoms, brilliant in colour, but it is by no means so free as I. Sultani. If Impatiens coccinea does not exist in gardens, we must ask our Indian friends at Calcutta, Bombay, or Madras to look it up for us, and to send us a few of its seeds.

Vegetative vigour *v.* fertility.—The very foundation of good gardening depends in a great measure on our distinguishing sexual vigour from mere vegetative growth in the garden. We find the rankest of wood and the largest of leaves on young trees or seedling plants that rarely, if ever, yield a flower or a fruit. This is vegetative vigour, and the natural result of a plentiful supply of nutrition of plant-food in the soil. Now, if we find this rank woodiness in our fruit trees, what does the gardener do? He root-prunes, or he plants the trees in a restricted area or in poor soil, or he engrafts scions on a restricting stock; in a word, he withholds all superfluous nutrition until the flowering and fruiting limit of fertility is ensured. Nature obtains the same results in other ways, not being in a hurry for results, as we generally are in the garden. So we manure the ground heavily when we want fine leafage, but if we want fruit or flowers as early as possible, we curtail the root supplies until such time as we are sure of a crop. We must never forget that there are two kinds of vigour present in every plant, and one of these forces is apt to counteract the other. By systematic starvation a Chinese gardener will grow half-a-dozen little fruit trees, and present them to his admiring employer on his birthday, all growing and flowering or fruiting in a punch-bowl; while, in Japan, an Umbrella Pine, fifty years old, is often seen growing in a half-pint bit of porcelain. In a word, a free larder in the garden practically means leafy growth, but if supplies are by any means kept down to the right limit, flowers and fruit will be obtained years earlier than when free-root scope is allowed. Every plant has its fertility line, and it is the business of the gardener to find this line by wasting as little vegetative growth-force as is possible.

Scented-leaved Pelargoniums.—It is now a long time ago since these were novelties, and, in consequence, much run after in gardens, to which they had been introduced from the Cape. But after passing through the dark ages of neglect it is now pleasant to know that they are again being valued at their true worth. They are for the most part evergreen, and so always fresh, sweet, and many of them are very distinct and beautiful when in flower. All the old Stag's-horn forms are useful for cutting, affording fragrant fine cut leafage for grouping along with cut flowers. Then the peppermint, lemon, and rose-scented kinds are not less valuable in their way. A cool greenhouse temperature suits them, and they are easily propagated from cuttings or slips inserted in sandy soil. For window culture they are admirable, although not now so popular as formerly amongst the cottagers and others, who threw them away to make room for the large-blossomed Pelargoniums of Hoyle, Foster, Beck, Turner, and other raisers. There is to-day, however, a deep-laid desire for fragrant leafage of all kinds in most good gardens, and so these old favourites are again valued, and are brought back to the greenhouse and garden along with the thousand-and-one old-fashioned flowers of other days.

Outdoor Grapes.—I am glad this subject of Grape-growing in the open air has again been opened, believing as I do that within certain limits much may be done with Grape Vines in particularly warm and sheltered places. The sorts are a most important consideration. Black Cluster and Chasselas de Fontainebleau are two of the best, and these generally do well if duly trained, pruned, and tended on sunny walls or in sheltered warm yards in Southern England. Restricted root-space and frequent watering with liquid manure also go a long way in the race for a good crop. Even in the cold midland counties of England I have seen good crops of outdoor Grapes. I remember a Vine—Black Cluster, I believe—which grew on a mud wall in a garden alongside Petch's tanyard in the town of Melton Mowbray, and I have often seen it laden with Grapes of really good quality. They were good to eat, but the bulk was made into wine. If open-air Vine culture should revive, we must rear hardy seedlings, as the Americans did years ago. We have in recent years lost our luck, I am afraid, in the careful culture of other open-air fruits as well as Grapes—gone now the old flue-heated fruit-tree walls, and I wonder how many young gardeners of to-day thatch down the Fig trees every autumn as I had to do when a boy. The introduction of cheap glass structures is "mighty convenient," to use an effective expression; but they have led to the neglect of many efficient practical dodges by which fine wall fruits were secured in days gone by. If we took as much care of our Vines as they do at Thomery, and attended to our Peach walls as they do at Montrieux, we should succeed in getting good fruit. As it is, an open-air Peach is a luxury, and the Vine and Fig tree make us afraid.

Satisfactory little gardens.—I am very much obliged to "North-west Cheshire" for giving us all such a very interesting account of what I am quite sure is a very satisfying garden. Great gardens are, like big books, a great trouble, and great gardeners, I feel fully assured, are by no means the happiest ones. Some of the most interesting gardens I know are those managed by ladies, or gentlemen themselves, with the assistance of a gardener now and then or of a labourer for digging, and who will do carefully all that he is told. Of one thing "North-west Cheshire" may rest fully assured, and that is that no great gardener who reads his description on p. 511 will depreciate his well-directed endeavours to make a good and produc-

tive garden around his house. Personally, my own feelings in the matter are that he has made good use of his opportunities, and I am sure possesses a garden worth the seeing and of which he may well feel proud. Some of the most satisfying of gardens are small ones, where a few good things are focussed as it were instead of being scattered and dribbled over acres and acres of space. In little gardens you can concentrate both labour and growth force, and I trust the pleasant picture drawn at p. 511 will prove an encouragement to those who are ever longing for an angel's wings—that is to say, for more space or more labour power in the garden.

Names *v.* things.—"What's in a name? That which we call a Rose, by any other name would smell as sweet;" and this is, after all, a truth demonstrated in the garden every day in the year. Call a plant this or that, superbissima or tristis, but the plant so called is yet the same, despite all our naming and awarding of honours. The Arabs have a proverb, "Man gives names, but the Creator gives things;" and we may differ over names like the *savans* in one of Molière's plays, but Nature never changes from her purpose, call her children whatever we will. One may freely grant the scientific minority the right to use Latin or Greek names in so far as these are understood all the world over, but the use of dead languages of this kind will always prevent the majority of readers from understanding anything of botany as so described. We say to the *savan*: Use Latin if you will, but give us at least the crumbs which fall from the table, viz., plain English also, for plain people. The use of Latin may inform foreign botanists; but think how many people at home are blinded by its use. As it is, more botany is concealed than is revealed. Latin, as used in science, becomes a locker, of which only a few hold a key. The business of real students of Nature is to interpret her secret writing and to publish her mysteries simply and plainly, so that all who run may read. People who are not botanists do not care to ascend the difficult winding stair of Latin and Greek words in order to look at a Daisy in the Grass. We have in plants the most pleasant of all the sciences, but we are asked to study them barefoot and among thorns.

Dahlia imperialis.—Someone has written the couplet—

> To grow in size just like a tree
> Does not make things better be;

and the same applies to this gigantic species of Dahlia from Mexico. Soon after its introduction it flowered at Chiswick, but I think it was the late Mr. John Salter of Chrysanthemum fame, then of the Versailles Nursery, Hammersmith, who solved the difficulty of flowering it at 5 feet or 6 feet in height, and this was effected by grafting scions of D. imperialis on to the tubers of a Dahlia of the ordinary dwarf-growing kind. As a noble-flowering plant for a warm, airy conservatory this giant Dahlia deserves notice, and it is to be hoped that by the more general adoption of Mr. Salter's expedient this plant may be more often seen. Dahlias generally, and this rampant species in particular, become too gross and leafy if grown in deep, rich soils. A compost of lime rubbish and road scrapings, or any poor sandy loam is better than a richer compost. The plant should be grown in a sunny position in the open air, and just as the flower-buds appear a little liquid manure may be given with advantage, but not before the buds are seen. Its flowers are as big as those of white Lilies, and are very effective late in the year.

Ferula conspicua.—This is an ornamental plant of the Carrot or Hemlock tribe totally unknown to me except by name. I find it described as "a lovely gigantic evergreen Fennel," and as retaining its bright foliage for three or four consecutive years. It is further described as a picturesque plant on the lawn, withstanding the roughest weather. Height 2 feet to 2½ feet, and the same in diameter, and the flower-spike of the third year is said to attain a height of 8 feet. All the Ferulas are noble plants, and I trust that some kind reader may be able to inform me as to the above. Years ago, in the old college gardens at Dublin, Mr. John Bain used to grow a very beautiful plant under the name of Ferula persica (see *Botanical Magazine*, vol. xlvi., t. 2096). The plant was, I believe, unique, and, so far as I now know, is unknown in gardens to-day. F. communis and some other kinds are just commencing their growth, and during the early months of spring, when Crocuses, Snowdrops, and Daffodils gleam out here and there from the fresh young Grass, these finely-cut Ferulas are as beautiful as the Crape Ferns or Todeas, and, moreover, much less difficult to cultivate. We sow Ferula seed every year from various sources, but to ensure the best results it should be sown during the late summer months as soon as ever it ripens. Some of the seed collected in Asia Minor by the officers of the Russian army, which reached us through Dr. Ed. Regel, of St. Petersburg, has grown well, and the seedlings are of great promise. I wish some traveller in the north-eastern parts of Asia would send home seeds of the gum-producing Umbellifers, such as the true Narthex asafœtida, Euryangium Sumbul, and Darema of various kinds, all of which would be most welcome additions to many modern gardens.

Veronica.

Flower Garden.

HARDY SPRING-FLOWERING PLANTS.

There seems to be a lack of information, especially amongst owners of small gardens, as to the best way in which to fill their beds or borders with spring-flowering plants. The popular notion of bedding is straight lines of different coloured Violas, Daisies, or fine-foliaged plants. The garden of which I have charge is a very large one, and contains thousands of spring-flowering plants, but none of them are planted in straight lines, angles, crescents, circles, or parallelograms. Hardy plants of all kinds in a state of Nature grow in masses. For instance, the Cushion Pink (Silene acaulis) has been found on the Westmoreland mountains forming tufts, or rather beds, 5 feet across, and the wood Anemone (A. nemorosa) may be found besprinkled in English woods in great masses. Some of our best gardeners have disregarded Nature in this respect. I have been recently reading a work on spring flower gardening, by one of the foremost of British gardeners, and in that we are told that the old-fashioned Crown Imperials are excellent for back lines. The striped-foliaged Iris we are also told "is a very ornamental plant, admirably adapted for back lines in ribbon borders, panels, and centres of large beds." Even concerning the planting of the Snowdrop, the loveliest of all our vernal flowers, directions are given which no one with any love for natural beauty could adopt; on grass it is said it may be planted in stars, crests, and in numerous other designs, by making holes 4 inches deep with a dibble, and dropping in a bulb or two. It is also added that "few plants remove better than Snowdrops, and when planted as edgings or lines, they can be lifted immediately they have done blooming with balls, and be put in any out-of-the-way corner to mature themselves." It is scarcely necessary to state that Snowdrops removed twice a year will give no satisfaction. Like most other spring-flowering plants, they like to be undisturbed. Plant them in a suitable position at first, and they need not be moved for a decade at least. I dislike double-flowered Snowdrops; some, however, like them best, and as they are as cheap as single ones, it is easy enough to obtain them. Our mode of treating Snowdrops is as follows: We selected a part of the lawn that could be left unmown up to the end of May, and as it was also an uneven part, we stripped off the turf, levelled the soil, and added some fresh material. The whole of it was planted with Snowdrops, Crocuses, and winter Aconites in masses. The roots were merely pushed into the soil, scarcely covering them, and the turf was rolled over them and beaten down quite level. They did not flower well the first year, but they were better the second; and last year, though the season was unfavourable, they flowered most profusely. We grow also in isolated clumps in the borders four other species of Snowdrops, viz., Galanthus Redoutei, G. plicatus, G. Imperati, and G. Elwesi. The last named I consider the most beautiful of all Snowdrops. When planted in borders there is no need to remove them. The leaves die down naturally about the end of May, and if summer-flowering plants are required to take their place, they may be planted close to the clumps of Snowdrops, over which they will spread and do no harm whatever to the bulbs underneath.

Another favourite spring flower is the Wallflower. Of this sweetly perfumed plant we grow thousands, and as there are numerous beds which have to be filled with summer and autumn-flowering plants, we fill them in the autumn with Wallflowers, which are removed in May when their flowers are over. Two varieties are grown (both dwarf); one has golden yellow flowers, the other blood-coloured ones. It is easy to save seeds of Wallflowers, but only one kind should be seeded in the same year, and by keeping the dwarfest and brightest flowering varieties for seeds a strain of great excellence can in a few years be obtained. The Wallflower is quite at home on old crumbling walls, in the crevices of which seeds may be sown, the result of which is better than that from transplanted plants.

Double Daisies, white, pink, and crimson or deep red, are lovely in beds; they like rich soil and frequent transplanting. In dry, light soils they have a tendency to die off during hot weather. This tendency can be overcome by giving them deeply-worked soil to grow in and a fair supply of water at the roots. I do not know whether Christmas Roses may be admitted as spring flowers. They are decidedly winter-flowering plants, beginning as early as the last days of October and flowering well into the new year. Helleborus altifolius and H. angustifolius are our two favourite varieties, and most lovely they are. We tried some of them under handlights, and others without them, and the uncovered plants were the most healthy. It takes a sharp frost to harm the flowers, protected as they are by a canopy of noble foliage. Christmas Roses are best left undisturbed for years and years in the same place.

Anemone apennina and the earlier flowering, as well as more beautiful, A. blanda are charming plants for masses. They both increase most rapidly, and can be speedily multiplied a hundredfold in deep, well-worked soil. In borders we leave them alone for about five years; the leaves die off, early summer-flowering plants are planted over them, and as the ground where they grow was trenched at planting time about 18 inches deep and well manured, it does not require more than a light surface dressing of rich soil once a year. There are no such lovely blue flowers as those of these Anemones to be found, and they open well in cold weather. I have seen them when in full flower covered with snow, and when it has melted and disappeared they have come out in the sunshine as bright as ever. The white form of A. apennina is now plentiful, and, notwithstanding the fact that some of the plants revert to the normal blue form, the mixture of blue and white is very pretty. The double form of the common wood Anemone is a charming plant. The yellow wood Anemone (A. ranun-

culoides) has rich yellow flowers that are freely produced, and which can now be easily obtained. The numerous hybrids of A. coronaria, especially those which produce self-coloured forms—scarlet, purple, rose, violet, blue, &c.—are most valuable. They are the most charming plants imaginable, and mixed varieties of them can easily be raised from seeds. Who, too, would be without the pretty little Adonis vernalis, which produces its pretty yellow flowers freely in light, deep soil? That earliest of spring flowers, likewise the little winter Aconite, grow like a weed on Grass or in borders. It grows well on bare banks, and covers them with a golden sheet of glistening colour before the Snowdrops appear. The Aubrietias are much esteemed for filling beds in early spring, but they require occasional curtailment. Indeed, I saw a rock garden entirely overrun with A. Campbelli, everything else being smothered.

Another spring flower beloved by everybody is the Hepatica—red, white, and blue. The double red is easily grown, but the double blue does not take kindly to ordinary culture, although it can be grown freely in some places. H. angulosa grows as freely as any of the Hepaticas, and is surpassed by none of the single forms of H. triloba.

Chionodoxa Luciliæ may now be grown in every garden and can be plentifully raised from seeds, which vegetate as freely as those of Onions. The seeds scatter of their own accord, and the young plants appear very thickly round the parent bulbs. Tulips, Hyacinths, and Crocuses may be grown in quantities. I cannot conclude without a word in favour of late-flowering Tulips—the bizarres, byblœmens, and roses of the old florists. They are the gayest flowers of the spring garden, and require no great care to produce a grand display. We plant the bulbs early in November in rich, deep soil; when grown somewhat, a mulching of decayed manure is placed over the surface, and they need no more attention. The bulbs are ready to be dug up about the middle of June; the places in which they were grown are forked over and planted with Asters. I have omitted Pansies and Violas of many colours; also Forget-me-nots, Narcissi, Grape Hyacinths, Squills, Saxifrages, Primulas, and alpine Auriculas, none of which need the least assistance from glass. J. Douglas.

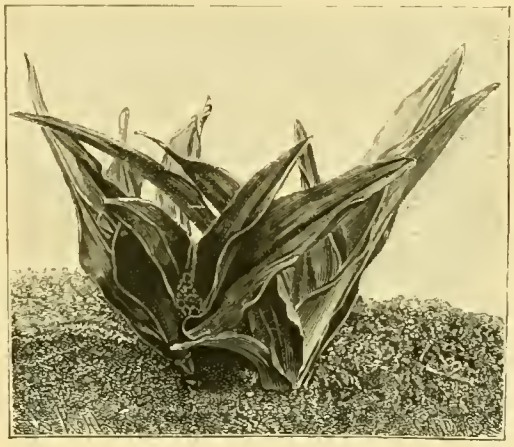
Salvia Pitcheri.—Good blue flowers are so scarce in autumn, that this Salvia ought to be found in every garden. I do not suppose that it is quite hardy in any part of the country, but it is so nearly so, that if wanted it can be easily protected during a severe winter. Here it has not been exposed to more than 22° of frost, but that amount of cold has done it no harm. It commences to flower at the end of September, and remains in bloom for several weeks. In our strong soil it grows to a height of 4 feet and requires supports. The spikes of flowers are sometimes 9 inches long.—Taunton.

Are Centaureas hardy?—Inquiry was recently made in The Garden as to the power of Centaureas to stand the winter out of doors. In the west of England I find that when left out of doors they are not hardy enough to be depended upon. I have known them to pass through a mild winter unharmed in a well-drained soil and in a sheltered situation, but in our elevated position they cannot be trusted. In our case damp kills them before frost has touched them. We had more than a score of plants in the centre of a bed of Verbenas this year, but the Centaureas were all dead by the middle of October, although the Verbenas kept healthy and full of vigour.—Somerset.

—— In some districts, no doubt, this plant will withstand the winter out of doors; two years ago in the lower part of Suffolk I saw some very fine plants of it which had been out for three or four years. I have tried leaving it out myself, but have found the result anything but satisfactory. Some plants of it generally die off during winter, and when replaced by young plants the plantation looks uneven and does not compare favourably with annually propagated stock. Some years ago it was customary to propagate Centaureas in autumn in the way in which Calceolarias are propagated, but the best way with which I am acquainted is to save a few plants of the previous year's stock and pot them in 5-inch or 6-inch pots, grow them out of doors during summer, and late in autumn and winter they will be useful in the conservatory. Early in spring place them in a higher temperature and remove the tips of the shoots; the result will be an abundance of cuttings, which, if taken off with a heel, will strike root quickly. "Cambrian" appears to think that the plants stand the winter better as they get older, but my experience is just the reverse with both Centaurea ragusina and Cineraria maritima. While young the plants seem to stand the winter fairly well, but as they get older they go off wholesale, even though the weather is not severe. —E. B. L.

ROHDEA JAPONICA.

Though devoid of flower beauty, the varieties of Rohdea japonica deserve a place in the garden as dwarf foliage plants. The leaves are of great substance, and of a fine glossy, deep green colour,



Rohdea japonica. Engraved for The Garden from a photograph.

boldly waved at the outer edges. There is a large kind, and one or two variegated. It likes a warm nook, and looks well about the lower parts of rockwork.

Border edgings, Speedwells, &c.—I do not know whether Gaultheria procumbens has ever been suggested as an edging for a border. I tried it a year or two ago at Oakwood round a bed containing principally deciduous plants, and now at this dead season the bright red berries and glossy green leaves have a very pretty effect. I was struck with the frost-resisting power of a Veronica with narrow leaves and white flowers which I have as V. salicifolia, but which a good authority tells me is wrongly named. The thermometer at Oakwood last night went down to 23° Fahr., yet I could cut sprays from plants in full exposure perfectly untouched. The narrow leaves and feathery white flowers made a useful addition to a table nosegay, chiefly consisting of Pernettyas with different coloured berries and the open seed-pods of Iris fœtidissima, both very pretty, but rather solid.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Balm of Gilead.—This old-fashioned, scented-leaved plant is wonderfully green and fresh this autumn. I never remember having seen it looking so well at the end of November as it does this year. Absence of frost is, of course, the cause of this, but there are many other much hardier plants that are not looking so well. We have kept a few plants of it for some years by taking up the smallest before frost reached them and placing them in the greenhouse during the winter. Where much greenery is required to mix with cut flowers, a few sprays of this Balm are always appreciated on account of its agreeable fragrance. With us it seeds freely in the open borders.—J. C. C.

HAWKERS' "ROOTS."

A somewhat favourite resort of these peripatetic dealers is in and about the village of Feltham, situated between Hounslow and Staines, and where not only certain trade or market growers produce "roots," as they are called, specially in large quantities, but even many of the cottagers utilise their gardens profitably in the growth of certain recognised things, which, if cheap, are easily raised, and they usually find ready buyers. A few rods of ground only in each case may be so devoted, perhaps, to double Daisies, Pinks, Sweet Williams, or Pansies, but several hundreds of plants are perhaps grown upon so small an area, and it pays better than Cabbages or Potatoes. One of the largest growers has several acres of land filled entirely with all kinds of hardy "roots," and that his trade is very considerable is evidenced in the breadth of single Carnations, *alias* Jacks, annually laid down. These are, of course, raised from seed sown in April, the result usually furnishing many thousands of extra strong plants at this time of the year. Differing from the commoner forms of double or continental Carnations, which have long, narrow leafage, these Jacks have usually broad, reflexed leafage, which imparts an air of quality to the plants. The bloom is, however, very disappointing, as it is but single and small. The growers of these make no pretence whatever that these Jacks are better than they really are. They are sold cheaply, at perhaps about 6d. per dozen, but there are found not a few dealers, gifted with strong imaginations, who think these single Carnations look like good doubles, even if they are not, and do not refrain from selling them as such to unwary purchasers. At 6d. per dozen Jacks are not dear, but at 4s. per dozen they are very expensive. Still, it is a fact that many thousands of these find purchasers every year. There is a class of clever people who apparently like to be "done," and these seem to be fond of single Carnations. At present the root trade is not brisk in spite of the fact that the season has been very open and the material is wonderfully good. We have, indeed, rarely seen it better. Of course, the spring is the chief sale season, but some considerable trade is usually done before Christmas. Possibly the usual purchasers of hardy plants have of late devoted their spare pence to the purchase of Orchids, as these seem to be the fashionable flowers of the day.

How good the roots are may be evidenced by a look over the Pansy breadths, the plants being strong, and in some cases fancies and yellows considerably in bloom. We do not often meet with such fine strains of blotched or fancy Pansies as are seen here, except at some of our leading trade growers'. If the crafty dealer in Jacks would drop them and turn his attention to fancy Pansies, naming them right and left from the Queen down, he would at least find in them good things to offer to his patrons. These plants are all from seed, the best being selected and divided, pulled apart again and replanted more than once in the year, and are now first-rate plants. Then come in large quantities of commoner or second-rate material, the flowers of which are good and showy, but not first-class. Still follows a big belted kind, named Goliath, for it is a huge flower; and Aurora is another, less in size, but very showy and free. These seem very popular sorts, as they are found in large quantities. The best of the self-coloured kinds are Pride of Rufford, really a selected seedling—so named and better than its old namesake—and Golden Prince, both fine yellows; Primrose Queen and Sulphur Gem, good lemon hues; Dickson's

Queen, a good white; and of blues, Blue King and The Tory, both very early and free. Violas are not extensively grown, but the two most favoured are Yellow Gem and Blue Bell. The chief self-purple flowers are Cliveden Purple and Annetta, both good of their kind. Daisies are well represented by the Double Giant, white, red, mottled, and crimson or blood-red. Other forms or colours do not find favour, although some of the pink-flowered kinds are very pleasing. Forget-me-nots are the common blue sylvatica and the white and blue forms of dissitiflora; but these two latter are much less satisfactory growers than the former. Pinks, really good double kinds, are in great force, that very fine white, Mrs. Sinkins, being specially so; so also are the old white and pink-flowered kinds, and also the once highly-favoured Anne Boleyn. Some other kinds tried have not proved sufficiently robust, as it is obvious that only stout, free-growers will thrive under the field culture here given.

The old red Clove is very abundant, and there is also a good selection of double French Carnations. Violets are very largely grown, especially the singles, such as Czar and Russian Superb; these are hardly favourite hawkers' plants, as they lack showiness when in bloom, but some firms purchase largely of them, and specially so of the double kinds, of which the plants are very good indeed. Of whites there are fragrantissimus, flore-pleno albus (reputed the best white), Belle de Chatenay, and Queen of Violets; Marie Louise and Neapolitan, mauve; and King of Violets, deep blue. All these thrive well out in the open field, being much aided during the summer by ample waterings from an adjoining river. Polyanthuses are in good form, also the old and late-blooming blacks, now taking second place to the earlier whites and yellows, which seem to be so much more appreciated. These produce fine blooms and flower very early in the spring. The soil does not seem holding enough for Primroses, whether double or single, and in regard to these it is not possible to compete with the Irish or Scotch growers, who have suitable and moister climates. Amongst Sweet Williams the most favoured is the dark, broad-leaved kind; this is a very robust grower, and has foliage of the hue of Perilla, which makes it an effective winter and spring plant, but the flowers are poor. Good Sweet Williams now are grown, but the fungoid pest which attacks these favourite biennials has been very active during the year, and plants have largely suffered. Columbines, both of the common garden varieties, and the yellow chrysantha are well done; so also are Foxgloves, their fine leafage rendering them popular with dealers, although comparatively late bloomers. Delphiniums consist chiefly of the rich blue formosum, and there are blood-red and golden Wallflowers. Thrift consists chiefly of the old alpina, giving pretty tufts, and close by is a good breadth of Creeping Jenny, always so favoured as a window plant with town dwellers. Yellow Alyssum, Arabis albida, lucida, and lucida variegata are in abundance; and we noted Lad's Love in good stocky plants, Ragged Robin, and the spotted Pulmonarias; whilst in lesser quantities are the beautiful golden Valerian and Doronicum austriacum. There are, too, big breadths of yearling Hollyhocks, reputed good doubles, single Rockets, very strong; also Canterbury Bells, French Lavender, variegated Thyme, and last and least in height, Sedums, in small clumps of the golden tipped acre, already showing colour, and the bright green Lydium and the silvery glaucum. This list by no means exhausts the plants found here and awaiting a visit from the hawkers. A. D.

Dwarf Chrysanthemums.—I have grown for some years a number of dwarf Chrysanthemums, and I find them useful for decorative purposes. My plan is to take cuttings about the middle of July from plants growing in the open ground, putting three in a 3-inch pot, and placing them in a mild hotbed, which should be carefully shaded from the sun. The cuttings should be frequently damped with the syringe till rooted, which will be in about three weeks; they should then be gradually hardened off and removed to a cold frame. When the pots are filled with roots shift into 5-inch pots, a size in which they will make nice plants for vases indoors, or for side stages in the conservatory where plants grown in the ordinary way cannot be utilised. This season I have tried layering with good results, and in future I shall adopt that plan. A number of old stools should be planted out a good distance apart, in order to allow plenty of room for pegging down the shoots, which should be done towards the end of July, using good strong pegs for the purpose, and bringing the shoots within an inch or two of the ground. In a day or two the tips of the shoots will take an upward direction, and may then be layered in 3-inch pots, using a good rich soil; sprinkle with a fine-rosed pot night and morning, and in about three weeks they will be sufficiently rooted to allow of their being severed from the parent plant. Afterwards place them in a cold frame and shade them for a few days, gradually inuring them to sun and air. When they require it, shift onwards, as advised in the case of cuttings, over which layers have this advantage that they require less attention during the rooting process. Our plants grown in this way average a foot high; some have been disbudded to one flower, but the majority are carrying three moderate-sized blooms.—E. B. L.

Helleborus niger lacteus.—This is a very beautiful wild variety of H. niger. Years ago I got it by chance under the name of niger laxus; there is, however, nothing lax about it, and on account of the colour of its flowers I now call it lacteus; they are of good texture and roundish in outline; their colour is a beautiful creamy white, slightly flushed with rose, colours which contrast well with the large bright green eye. If kept under a hand-glass the flowers are slightly red, but if exposed in the open they take the same red shade as those of H. altifolius of English gardens. The principal value of this variety lies in the period at which it flowers, which is immediately after that of niger præcox (sinensis), and thus it fills up a gap between præcox and altifolius; it is just now in full flower here. N. altifolius of English gardens is, however, a very different plant from the type, which also flowers much later.—Max Leichtlin, *Baden-Baden*.

Chrysanthemums on north walls. — I lately saw in a small forecourt garden quite a good show of Chrysanthemums, where the amount of sun the plants got through the summer was less than I should have considered necessary to perfect their growth. They were planted against a north wall, and on the east and west were buildings sufficiently high to keep the sun from them. In spite of these apparently adverse conditions the show of bloom was very good, and they lasted longer in good condition than those in more open situations. This is one more proof of how well adapted the Chrysanthemum is for places where flowering plants generally would fail to perfect themselves.—Byfleet.

SHORT NOTES.—FLOWER.

Chrysanthemum Dr. Sharpe.—If Mr. Douglas (p. 517) will kindly refer to "The Chrysanthemum," 1st ed., p. 79, or 2nd ed., p. 100, he will admit that I am not, nor have I been in time past, unmindful of the history of this variety. Mr. Forsyth (now in Australia), struck with my having referred Dr. Sharpe to Chrysanthemum indicum of the *Botanical Magazine*, t. 327, years ago in The Garden, sent me the history as it stands in my book just named; but there remains the fact that no other Chrysanthemum now grown approaches the figure in question so exactly.—F. W. B.

Anemone japonica.—If "A. D." or anyone will read carefully what I wrote at p. 449 on Japan Windflowers, they will find that I speak of the white and rosy forms of this plant only so far as their European history in gardens is known. There is no reason why a plant raised in gardens as a hybrid should not be wild somewhere or other in the world, or a natural hybrid, or sport in its native wilds. Fortune did not introduce the white, but the purple A. japonica, but I still believe that a white A. japonica exists in China or in Japan.—Veronica.

Crocus bulbs.—Mr Douglas tells us (p. 518) that in the garden he believes Gladiolus bulbs grow downwards at the rate of an inch every three years. If this were true in Nature, some of the Gladioli at the Cape ought to be pretty deep down in the ground, but I imagine there are natural checks on their downward growth when wild, just as when under cultivation. Bulbs and other plants have, within certain limits, the power of adapting themselves to different soils and climates, and this, no doubt, accounts for our Croci growing upwards, while in other cases they go downwards. White Lilies always come to the surface here in a year or two after planting.—Veronica.

ABUSES OF FLOWERS.

Baron Bezecany, the director of the imperial theatres, Vienna, has prohibited the presentation of bouquets and other floral tributes to actresses on the stage. This practice, which has become more or less ridiculous throughout the theatrical world, seems to have degenerated in the Austrian capital into an intolerable nuisance. If a popular *prima donna* appeared in a new *rôle*, or re-appeared after a short absence, it was customary to throw on the stage immense bouquets, or to hand baskets of flowers and wreaths over the footlights, the donors of these emblems of admiration being usually purse-proud financiers. The reason given for this hard-and-fast suppression of the custom of throwing flowers over the footlights is that the performances at the imperial theatres have frequently been interrupted thereby. The director will not, it may be assumed, object to leaving nosegays and baskets of flowers at the stage door. The florists may be expected to make wry faces at what cannot but prove a serious check to the prosperity of their trade; but the persons who will feel perhaps most bitterly disappointed and aggrieved by the sensibly arbitrary action of Baron Bezecany will be the actresses. It remains to be seen whether the flower-throwing prohibition will spread to Russia, where the nuisance has long since attained colossal proportions. Indeed, full thirty years ago, it is said, the directors of the imperial theatres at St. Petersburg had a serious conference with Count Orloff as to the expediency of abolishing the offering of bouquets across the footlights. It was ascertained that in many instances the nosegays contained something else besides flowers—*billets doux* to wit—and, in some instances, very wealthy admirers of genius or beauty placed jewelled bracelets in the flower-basket, or enriched the bouquet-holders with diamonds. Count Orloff, however, did not by any means approve of the putting down of that which he thought to be a ridiculous, but harmless proceeding. "Let it alone," said the astute minister of police; "it is one of our safety-valves." He was quite right. The boiler of Russian despotism is kept at such very high pressure, that were it not for a few social "safety-valves," explosions might from time to time occur.

If we turn to the nations of the west, it will be found that the theatrical bouquet nuisance has been for a long time not only as flagrant as it has been in Austria and Russia, but has mainly lost that gracefulness which it once possessed, and has been made almost repulsive by the vulgarity which has been imported into the bouquet-flinging system. The unseemly spectacle has been witnessed not so very long ago at a London theatre of the nosegays offered to an actress on the stage being collected in a wheelbarrow and so removed to the side scenes; it is notorious, too, that artistes ambitious to take the citadel of popularity by storm, instead of waiting for the stronghold to capitulate to the *artistes'* genius and worth, have purchased on their own account the biggest of bouquets and have had them flung on the stage by hireling hands. It should, nevertheless, be understood that this throwing of bouquets to favourite female performers is not by any means a new thing. If we seek the origin of the practice, it will probably be found to be an Italian one, and of the remotest antiquity. Decoration with flowers, and the presentation of flowers, have been for many ages a conspicuous feature in Italian daily life. From the Italian opera the custom, at first a very tender and pretty one, spread slowly to the theatres dedicated to the performance of the British drama. Ere long it had ceased to be pretty; and did not escape the lash of the satirist. That the practice is carried to excess in our days is undeniable, and it would be unwise to expect its immediate decline, unless some London managers unanimously coalesced to discourage, and even to forbid it. Meanwhile, it may be pointed out that the florists have done very well by the largely additional demand for flowers caused by the bouquet mania, and this demand has led, of course, to a very extensive increase of employment among working men and women engaged in the rearing and the sale of flowers. The development of commerce in these beautiful productions has, within the last half-century, been simply astonishing. Fifty years ago, at a funeral in a country churchyard, a

few posies of Primroses or Violets used to be laid on the coffin of the deceased; at present, the bier of our dear brother or sister departed, if he or she have been rich or distinguished, is heaped high with wreaths or crosses of the very rarest flowers. In America the rage for flowers at funerals has been more violent than in England, and repeatedly has the American press denounced the floral craze, but scarcely with any practical effect. For half a dozen sensible people who are willing to forswear flowers at funerals, there are at least a hundred impulsive people who will not cease to send floral emblems of their love or their admiration for the dead to the house of mourning. Finally, the student of civilisation will remember that two generations ago only the festive boards of the great were adorned with flowers. From very few of the dinner-tables of those who enjoy even to a moderate extent the refinements of life are flowers absent now. These embellishments in all the cases which we have adduced have been carried to excess, there are too many flowers at funerals, too many bouquets thrown at the theatres, too many flowers and too much fernery at ostentatious dinners. The universal exercise of common sense would alone suffice to modify these excesses; but folly, frivolity, and the fashions are a very formidable trio, and against them common sense, backed even by literary and artistic satire, has always to tilt long, and often tilts in vain.—*Daily Telegraph.*

DRAINING LAWNS AND WALKS.

The rainfall this autumn has been such as, in the case of lawns and pleasure grounds, to show where any defect in the way of drainage exists; and, where work of this nature has to be done, there is no better time than the present for carrying it out. Here, as in other parts of the garden, the depth to which the drains should be cut must be regulated by the character of the land. On lawns where the soil is retentive, enough open material, such as clinkers, brick rubbish, or burnt clay, should be placed over the pipes in such quantity as to fill up to within 10 inches or 12 inches of the surface. By this means water will much more quickly find its way into the drains. The necessity for removing all stagnant water consequent upon badly-drained walks is equally pressing. It frequently happens that, however well such work has been done in the first instance, the drains get choked up in the course of time by the roots of trees. Where there are indications of any defects of this kind, they should at once be remedied, in all cases putting in tiles large enough to carry the water off as fast as it falls, even during the heaviest thunder showers. Any insufficiency in this respect entails a great deal of labour by the displacement of the gravel and the accumulation of soil and sediment upon the surface, after which a walk never looks well until the gravel is turned or some fresh material added to the top. For drains in paths the pipes should be always laid sufficiently deep to be out of the reach of the severest and most protracted frosts, for when unglazed pipes are used, if frozen with the moisture which they must have absorbed in them, they are certain to be destroyed. Nothing less than a depth of 12 inches or 14 inches is enough to keep them out of harm's way from this cause. It is very common, especially in small suburban gardens, to see the walks so badly made in the first instance, even when enough gravel has been used, as to render them soft and uncomfortable after any considerable amount of rain has fallen. This generally arises from the gravel being spread on them without care, rough and fine being indiscriminately mixed together. Where such a state of things exists, the best way is to begin at one end, and sift the whole over again, passing it first through a 1½-inch meshed riddle, and afterwards through a second of ¾-inch mesh, putting the large stones at the bottom immediately over the drains, the second size upon them, and the fine gravel on the surface. By this means one of the greatest comforts in a garden may be secured—an efficient path, through which the water can quickly penetrate, leaving the surface dry and pleasant to walk upon. An essential in all walk-making is to have a sufficient number of "eyes" or gratings to carry off the surface water. Where the ground is hilly these should be placed at short intervals apart, as, when the descent is quick, there is the most danger of the gravel being washed up during heavy rains. The formation of new walks, where required, should now be proceeded with, for at no time during the whole year can such work be carried out with greater advantage than at present, before the winter frosts set in. B.

White Daffodils.—I see no good reasen why the white varieties of Daffodils, wild in Europe, should not be very variable, as are their yellow prototypes, and if we are to include Narcissus pallidus præcox in the white section, then indeed, as Mr. Dod leads us to infer (p. 511), will the variations be well-nigh endless. But if we exclude N. pallidus præcox, N. variiformis, and one or two others of the sulphur-flowered group, we shall not get so far beyond Haworth's four white kinds after all. Of course, when we leave the purely wild plants and come to consider the garden seedlings, we at once find considerable additional variations. But, after all, it is of no practical use our wasting time in arguing this matter in print, since the best way of settlement will be for us all to agree to send bulbs to Chiswick next July and August, and let us decide on their differences and merits as grown side by side and under the same conditions. Mr. Barr, who knows more about white Daffodils than most of us, agrees to do this; so also does Miss Wemyss; and I trust that Mr. Wolley Dod will kindly send there at least a tithe of the many variations he has obtained. I hope also that Miss White and Mr. Englehcart, who seem to hold a little aloof from the Chiswick trial, will also agree to send bulbs there; and Mr. Hartland, of Cork, Mr. Poë, and other cultivators will doubtless also send bulbs. In this way we shall get a little more light on a much-vexed question. It seems pretty certain that an actual trial will be by far the best means of our settling disputed points as to these beautiful flowers and their variations, whether wild or cultivated.—F. W. B.

PREPARING FOR FROST.

Although the thermometer and the barometer are now used in many, even if not in most, good gardens, that particular and most useful combination of two thermometers, the one having a wet and the other a dry bulb—viz., the instrument known as a hygrometer—is by no means so constantly utilised as it deserves to be. The cost is only a few shillings, and by its aid it is possible to foretell the severity of frost with considerable accuracy. In the matter of frost, to be forewarned is to be forearmed. The way in which the hygrometer is of service is to ascertain the dew-point, and this, as Buchan tells us in his "Text-Book of Meteorology" (p. 96), "is of great practical importance, particularly to horticulturists, since it indicates the point near which the descent of the temperature of the air during the night will be arrested; for when the air has been cooled down by radiation to this point, dew is deposited and latent heat is given out. The amount of heat thus set free being great, the temperature of the air is immediately raised. But as the cooling by radiation proceeds, the air again falls to or slightly under the dew-point, dew is again deposited, heat liberated, and the temperature is again raised. The same process continues to be repeated, and thus the temperature of the air in contact with plants and other radiating surfaces may be considered as gently oscillating about the dew-point. For if it rises higher, the loss of heat by radiation speedily lowers it; and if it falls lower by ever so little, the liberation of heat as the vapour is condensed into dew speedily raises it. Thus, then, the dew-point determines the *minimum* temperature of the night. This suggests an important practical use of the hygrometer. If the dew-point be ascertained, the approach of low temperatures or of frost may be foreseen and provided against. Thus, suppose on a fine clear day, towards evening, that the dry-bulb thermometer stands at 50°, and the wet-bulbed one at 40°, the dew-point is practically 29°, and frost on the ground may be predicted with certainty, and no time ought to be lost in protecting such tender plants as may be exposed in the open air. If, on the other hand, with a sky quite as clear, the dry bulb was 50° and the wet one 47°, the dew point in this case being, say, 43°, no frost need be apprehended. The raising or depressing of the dew-point during the night by a change of wind is the only circumstance that can happen to interfere with predictions founded on the hygrometer. In the United States the weather bureau has of late years afforded valuable aid to cultivators by the general accuracy of their predictions, and the following table, by the use of which the probable severity of frost may be predicted from the two readings of the hygrometer, has been compiled by Lieut. Allen, an officer in the service to which reference is made above. By the intelligent use of a good hygrometer and this table, no gardener need be taken unawares by frost.

ALLEN'S HYGROMETRICAL TABLE.

Air temp.	0	1	2	3	4	5	6	7	8	9	10	11	12	13
30	30	27	24	21	17	13	7	−1	−11	−30				
31	31	28	25	22	18	14	9	+2	−7	23				
32	32	29	26	23	20	16	11	5	−3	17				
33	33	30	27	24	21	17	13	7	−1	−12	−32			
34	34	31	28	26	22	19	15	9	+2	−7	−23			
35	35	32	29	26	24	20	16	11	5	−3	−17			
36	36	32	30	27	24	21	18	13	8	−1	−12	−32		
37	37	34	32	29	25	21	19	15	9	+3	−7	−23		
38	38	35	33	30	26	23	19	17	11	6	−3	−16		
39	39	36	34	31	28	24	20	16	14	8	−0	−11	−31	
40	40	37	35	32	29	21	22	18	12	10	+3	−6	−22	
41	41	39	36	33	30	27	23	19	14	8	6	−2	−15	
42	42	40	37	34	31	28	25	21	10	10	3	+2	−9	−29
43	43	41	38	35	33	30	26	22	18	13	6	−3	−6	−20
44	44	42	39	37	34	31	27	24	20	15	9	+1	−12	−13
45	45	43	40	38	35	32	29	25	21	17	11	4	−7	−27
46	46	44	41	39	36	33	30	27	23	19	14	7	−2	−18
47	47	45	43	40	37	35	32	28	25	21	16	10	+2	−11
48	48	46	44	41	39	36	33	30	26	22	18	12	5	−6
49	49	47	45	42	40	37	34	31	28	24	20	15	8	−1
50	50	48	46	43	41	38	36	33	29	26	22	17	11	3
51	51	49	47	45	42	40	37	34	31	27	23	19	13	6
52	52	50	48	46	43	41	38	35	32	29	25	21	16	9
53	53	51	49	47	44	42	40	37	34	30	27	23	18	12
54	54	52	50	48	46	43	41	38	35	32	28	24	20	15
55	55	53	51	49	47	45	42	39	36	33	30	26	22	17
56	56	54	52	50	48	46	43	41	38	35	32	28	24	19
57	57	55	53	51	49	47	45	42	39	36	33	30	26	22
58	58	56	54	52	50	48	46	43	41	38	35	31	28	24
59	59	57	55	53	51	49	47	45	42	39	36	33	29	26
60	60	58	56	54	52	50	48	46	43	41	38	35	31	28
61	61	59	57	56	54	52	49	47	45	42	39	36	33	29
62	62	60	58	57	55	53	51	48	46	43	41	38	35	31
63	63	61	60	58	56	54	52	50	47	45	42	39	36	33
64	64	62	61	59	57	55	53	51	49	46	44	41	38	35

The manner of using the table above is as follows:—

Read the "wet" and "dry" bulb thermometers and subtract the reading of the wet bulb from that of the dry one. Find the reading of the dry bulb in the left hand (or air temperature) column of the table, opposite which in the column that is marked on the top with the figure which denotes the difference between the dry and wet bulb is to be found the dew-point or probable degree of frost to be expected.

Example.—Towards 5 o'clock the dry bulb reads 51°, the wet bulb reads 42°=difference 9°, so that the dew-point is 27°, this denoting at least 5° of frost as possible during the night.

F. W. B.

Ferns in small pots.—Where much decoration has to be done, some of the free-growing, hardier kinds of Ferns kept in small pots are very useful. By small pots I mean such as do not exceed 2 inches across. Such kinds as Pteris serrulata, the Maidenhair, Pteris cretica albo-lineata, P. scaberula, and others of a similar nature may be grown to nice little bushy specimens in pots of the smallest size. In furnishing jardinières and similar plant receptacles, I found this came in very handy, as they could be turned out of the pots and be worked in wherever there was a little space round the edge, thus giving a finished appearance.—J. C. B.

White variegated Adiantum macrophyllum.—A gardener at Montmorency has, it is stated, raised from seed a white variegated Adiantum macrophyllum. The effect of the variegation is said to be very striking.—H. P. B.

MARKET GARDEN NOTES.

Potting plants.—There is a general concensus of opinion among market growers in favour of potting plants firmly, the degree of firmness being, of course, varied according to the nature of the plant. There is more than one good reason in favour of firm potting, but that which has weight is the diminution of risk in watering. The closer the particles of soil are packed together the less room is there for water. Consequently there is less chance of a sufficient body of it lodging about the roots. Where many thousands of plants have to be watered and the work is done at high pressure, it is important that the soil should be as far as possible guaranteed against becoming soured through over-watering. With some market growers the season regulates the way in which the potting is done. Thus plants that are potted in the early portion of the year are made very firm about the roots, the firmness diminishing as the season advances, so that by the time the weather becomes warm and growth is rapid, the compost is not pressed in with the fingers; the pot is simply tapped sharply several times on the bench. The duller the weather and slower the growth, the greater necessity is there for taking precautions against over-watering. In late spring and during summer the soil dries out so quickly and root-action is so lively, that there is comparatively little danger of stagnant moisture remaining about the root. Another reason for rather loose potting at that time of year is the rapidity of growth that it favours. Plants may be grown in far less time to the requisite size when the roots can ramble freely among the compost than when they have comparatively to force themselves through it. Top growth is in exact proportion to root-production. This may be laid down as an axiom in the culture of pot plants. The plant grower who wants primarily solidity of tissue will at all times pot firmly, for a very rapid growth will not give this. It may not be out of place to remark that this is a detail much insisted upon by one of our best Chrysanthemum growers. He asserts that the solid, well-ripened wood that gives first-class blooms cannot come from loose potting. The market grower has two things to keep in mind, *i.e.*, quantity and quality. He must grow a plant well enough to take the popular fancy, but he has to make the most of his space, and this can only be done by inducing a rapid growth. Market culture under glass, especially that branch which relates to plants in pots, can only be made profitable when space is made the most of, and this is done by pushing the plants along as quickly as is compatible with their health. It would surprise many plant growers to know how short a space of time it takes to bring many things to a marketable size. It is no exaggeration to say that Fuchsias, Bouvardias, Cyclamens, Pelargoniums, &c., are grown to decorative size in half the time that it takes to do so in private gardens generally. As much food and water as they can take with houses specially designed to meet their wants, as well as unremitting attention, form the main elements of successful and rapid plant culture.

Solomon's Seal forced.—Passing through the Central Avenue on a gloomy day in last February, I was almost startled by the quite vernal freshness of some sprays of this hardy flower. Everything else in the market in the way of flowers unmistakably bore the impress of an abnormally cold, dark winter, but the Solomon's Seal looked as bright and pure in colour as if grown under a clearer sky. It seems strange that such a graceful-habited plant as this, and which apparently lends itself to hard forcing better than most things, should have remained so long in obscurity. I advise all who have not yet forced this plant to try it. Plants potted now will come in by the end of February.

Zonal Pelargoniums.—I have often thought that there is nothing in Covent Garden Market that has such a fresh, lively appearance in the early spring months as nicely grown, well-flowered plants of Vesuvius and other bright-flowered kinds. These are grown mostly in 5-inch pots, bearing about two trusses of well-developed blooms. One grower with whom I am acquainted grows many thousands of zonals for the London markets. At the present time his houses are filled with robust, healthy plants in all stages of development, from the newly-inserted cutting to bushy plants in 4½-inch pots. Through the winter these plants are gone over several times a week, and the blooms that are ready are cut for market, so that they afford a weekly revenue all through the dullest months of the year, and then the plants are sold. For plants in 4½-inch pots the ordinary market price is 4s. per doz. In this place all the watering is done with the hose, cold water from the outside being used, which seems to prove that water of the temperature of the house is not absolutely necessary, for the plants are remarkably healthy. Cuttings are taken all the year when they can be got, and in the case of zonal Pelargoniums this is absolutely necessary to keep up a large stock of saleable plants. For cutting in winter, no variety commands so much attention from market growers as the double scarlet E. V. Raspail, which, up to the present, seems to be the only double-flowering kind that possesses all the necessary requirements of a winter flowerer. It is remarkably free. As regards bloom production, it has a robust constitution, fairly dwarf habit, and the colour is just right. What is wanted is a white variety differing in no other respect than colour from this. We have a good many whites, but not one of them is sufficiently profitable. Every market grower has a different way of treating his plants for winter bloom; some grow them along from cuttings, others use older plants, and some plant them out for a month or two and lift and pot them early in August. One large grower in the home counties turns his plants out of their pots in July, shakes away some of the old soil, and re-pots in pots a little larger. I have no doubt that this is the best way, as old specimens of the double kinds flower more freely than young ones, and the repotting at that time gives an impetus to root action. The double kinds need rather more warmth than the singles. These latter will expand with 50° of warmth in winter, but the doubles want quite 5° more; 60° by day is not too much for them, but they must get plenty of air in mild weather. Only decided colours will do for market; intermediate tints will not do. There are many admirable pink kinds very free and good in all respects, but the public will not have them.

Late Chrysanthemums.—I fancy that the Christmas markets will this year be more bountifully supplied with Chrysanthemums than usual. A friend remarked the other day, "There will be plenty of Chrysanthemums at Christmas this year," and I think he is right, as from what I have seen and heard they are lasting longer in bloom this year than they do generally. It is probable that this is owing in a great measure to the fine sunny autumn, which induced many growers to keep their plants a fortnight longer in the open than usual. Moreover, the summer was cool, and many varieties showed buds late. I have a house full of a late white kind from which I expect to cut quite 7000 blooms. I thought that they would have been nearly all out by Christmas, but I see that I shall be cutting from them quite up to February. I am not sorry for this, as I think there is likely this year to be comparatively a glut of Chrysanthemum bloom at Christmas. My plants have had special treatment with a view to keeping them back, and are therefore no criterion as to the general condition of Chrysanthemums in the country. I believe, however, they are a fortnight later than in average seasons, and this seems to be the case in many places.

Red spider on Vines.—Painting hot-water pipes with sulphur to destroy red spider is a well-known remedy, but the way in which the operation is carried out in a market garden in the eastern counties would appear extremely hazardous to the major portion of Grape growers. When other means, such as syringing, fail, the pipes are coated with as thick a paste as can be laid on, and for several nights in succession the pipes are heated to their utmost capability. The fires are kept going all night, and the house gets so filled with the sulphurous fumes, as to render it impossible to remain in it for any time. In a house about 100 feet long as much as 42 lbs. of sulphur were used in the course of a single season. Few would probably think of using sulphur to this extent, but it is well to know that such a lavish employment of it is free from danger. The present appearance of a house of Alicantes that has been this year treated in this way is a proof that no harmful effects have followed. This house of Alicantes is one of the best in the country, the crop being uniformly heavy, the berries well coloured and highly finished. For years past this free employment of sulphur has been practised in the market garden in question, with results equally satisfactory both as regards the health of the Vines and the destruction of the spider. Red spider is such a fearful scourge and so difficult to deal with at times, that sure means for its destruction are welcome. J. C. B.

GARDEN FLORA.

PLATE 574.

THE CLUB-STEMMED DENDROBES.

(DENDROBIUM THYRSIFLORUM.*)

Our plate represents one of the most beautiful of a small group of drooping panicle-flowered Dendrobes from India. It may popularly be called the club-stemmed section of the genus, and contains four or five species only, the best known of these being D. densiflorum, a free-growing plant, of which D. thyrsiflorum may ultimately prove to be a white-petalled form. D. Farmeri, D. Palpebræ, D. Griffithianum, and even D. chrysotoxum (although the last has different-shaped bulbs) may all be grouped together here for convenience sake. All these species (if we except D. Palpebræ) are very variable from a cultivator's point of view; and even botanical authors have thought some of the geographical varieties worthy of specific names; hence we find the usual array of perplexing synonyms. All have club-shaped pseudo-bulbs, thin towards the base and much thickened towards the apex, and it is on this upper portion above the swollen part of the bulb that the leaves and their flowering panicles are produced. As well grown, their bulbs are more or less quadrangular in section, most so, perhaps, in D. Farmeri, and least so in the long and thin-bulbed variety of D. thyrsiflorum, which our artist has represented in the present illustration. In the case of D. chrysotoxum and its forms, the bulbs approach a more equal spindle shape or are fusiform, narrowing more or less abruptly, and the bulbs are fluted longitudinally. The arrangement of leafage and inflorescence, however, remains nearly the same.

With the exception of D. chrysotoxum, all the golden-flowered species in this group produce white-flowered forms, and one whitish variety of D. Farmeri has its blossoms suffused with warm, rosy colouring. Both Lindley and Reichenbach allude to another dwarf, yellow-petalled Dendrobium of this group, viz., D. Griffithi or D. Griffithianum, a plant somewhat resembling the rare D. bicolor or Palpebræ, but neither are by any means common plants in modern collections.

The accompanying table will show the nomenclature, colour, and prevailing distribution of this group at a glance, those usually considered

* Drawn in Mr. W. Soper's garden, 307, Clapham Road, May 4, 1886.

to be the typical species being printed in a larger type.

THE CLUB-STEMMED DENDROBES.

Name.	Colour.		Native Country.
Species and varieties.	Sepals and petals.	Lip.	All Indian.
Dendrobium			
densiflorum	pale yellow	orange	India, Nepaul.
Guiberti	yellow	,,	,,
pallidum	sulphur	yellow	,,
albo-luteum (=thyrsiflorum)	white	,,	,, Moulmein.
Schroederi	blush-white	orange	,,
Walkerianum	white	,,	,,
palpebræ	,,	yellow	? Ceylon and Moulmein
Griffithianum	yellow	orange	India.
Farmeri	,,	,,	,, Arracan.
aureo-flavum	,,	,,	,, Moulmein.
albiflorum	white	,,	,, Burmah.
roseum	rosy white	yellow	,,
chrysotoxum	yellow	orange	,, Arracan.
superbum	,,	,,	,, ,,
suavissimum	,,	orange with crimson blotch	,, ? Burmah.

It is a matter of extreme regret that so little is really known as to the exact localities in which the species and varieties of Orchids are found. A type species may have a very wide distribution, but the variations of a species, which, as a rule, are more highly valued by the cultivator, are in the main confined to more or less restricted areas, these localities seldom being near the central or focus spot of the type, but more generally occurring at a tangent to the outer circle, or they represent the type at some one or more points at or near its margin. But there are reasons why the ordinary plant collector suppresses definite information as to the *locale* of the rarest or most marked variations from the typical species, and until the students of Orchids can obtain definite knowledge of this kind there is not much hope that work amongst Orchids of a really live and practical nature can be done. True, if they are introduced we can grow them and enjoy their beauty in our glasshouse gardens; but without knowing precisely how their distribution varies, we can never hope to know the physical or physiological reasons why they vary, as we know they really do. If the merely negative suppression of localities were the only difficulties, it would not matter much; but we have often been positively told that plants came from one place when they really come from somewhere else. Often the port of shipment is named as the habitat. For example, many of the Orchids mentioned in books and now lying in herbaria, as from Singapore, let us say, really were brought from Borneo, the Philippines, Java, Sumatra, or the main land of Johore, or even from Malacca, not to mention any one of the thousands of islets which lie within 500 miles of Singapore. Hence, when we come to even such a small group of four or five species like the present, we find any reliable statement of their precise geographical distribution quite out of our power. A few remarks may be devoted, however, to the characteristics of these plants as they are displayed in our gardens at home.

D. densiflorum.—This is a strong-growing plant, with stems 10 inches to 18 inches or more in length, and more or less thickened towards the apex where they are clothed with three to five broadly ovate, dark glossy green leaves. The dense racemes of orange and yellow blossoms depend from the upper nodes of the two or three-year-old bulbs, and each spike endures fresh for five or six days, but as all of them rarely open at the same time, it follows that the flowering season is prolonged from a fortnight to three weeks by irregular development of this kind. Specimens 4 feet across or even more, bearing from thirty to seventy spikes of flowers, were not uncommon in the old exhibition days, and even now are occasionally seen in collections. It generally flowers from March to June, sooner or later, according to the heat and aspect or light in which the plant has been grown. The flowers are deeper or paler in colour, and vary in size also according to cultural conditions. Of course, I admit that there are frequently initial variations between the imported individuals of this or any other species, but at the same time nutrition or good culture often adds much to the size and brilliancy, as also to the texture of all flowers. This is one of Nathaniel Wallich's species, and a figure is given (t. 140) in his Plants. Asiat. Rariores; more modern illustrations are those in Bot. Reg., t. 1828; Paxton's Mag. of Bot., vol. v., 121; and in "Flore des Serres," t. 1397. A strong-growing form of this species has been called D. Guiberti in Continental gardens, and it is figured in *L'Illustration Horticole*, series 3, t. 258; also in *Revue Horticole*, 1876, t. 431, and in M. Puydt's "Les Orchidées," t. 16.

Apart from the above yellow-flowered forms of the species, there are at least three white-petalled varieties, these being D. thyrsiflorum, D. Schroederi, and D. Walkerianum. Although distinct enough for garden culture, the botanist could only consider these as variations from the yellow blossomed type; the structure or anatomy is the same, but there has been some variation in the chemistry, although the chemists have not as yet told us why colour or aroma may vary in plants which physically seem precisely alike. The two last named variations are considered more beautiful than D. thyrsiflorum; they are certainly more rare, and, as a natural consequence, they fetch more in the market where "beauty" under the name of Orchids is sold to the highest bidder. In some cases we have seen a lovely soft, flesh tinting, a mere suffusion of delicate rose, so subtle as to be scarcely visible except in certain lights, on the crystalline segments of this thyrse-flowered Dendrobe, and this would seem to indicate a further struggle upward in the colour scale. The introduction of this fine plant has been the subject of controversy. The following is, I believe, a true statement of the matter. In 1855 or 1856, the Rev. C. Parish sent to Messrs. Hugh Low and Co., of Clapton, a Dendrobe, which appeared to be D. densiflorum, but which, as he said, had a white perianth and a shaggy, orange-yellow labellum. Mr. John Day obtained a plant of it, which flowered at Tottenham in 1866—that is to say, ten years or so after its first introduction—but it was not until July, 1869, that its portrait appeared in the *Botanical Magazine* (t. 5780), under the name of D. densiflorum var. albo-luteum. Then on April 6, 1870, Messrs. Veitch and Sons exhibited the plant before the floral committee of the Royal Horticultural Society, and were awarded a first-class certificate. There are thick and thin-bulbed varieties, the tall, thin-bulbed form with long spikes, as shown in our illustration, being generally preferred to the form with short, dense ones. It has been illustrated in *L'Illustration Horticole* (t. 207), and in the *Floral Magazine*, 2nd series, t. 449.

Schroeder's variety is a rather dwarf kind, and flowers in May, bearing delicate blush-tinted flowers, the lip being yellow and orange. It is a rare and valuable form, figured in the *Floral Magazine* (t. 502). Walker's variety of our plant would, however, appear to be the Anak of its race. I never saw it, but Mr. Williams says it produces pseudo-bulbs a yard high, the longest raceme on a well grown plant being 2 feet in length, and producing more than fifty individual flowers. It is figured in Warner's "Select Orchidaceous Plants," iii., t. 21.

As to culture, one need say but little, but there is a peculiarity about these Dendrobes I have not seen alluded to in books. This is anent their season of growth, which is more rapid and shorter than that of any others known to me. Soon after flowering the young growth appears, and at that time heat, moisture, and light can scarcely be too intense for their vigorous development; whereas, on the other hand, after the growth is made they enjoy a longer period of rest than most other members of the genus. These plants are not unfrequently placed in cool conservatories during their flowering season, after which they should be at once returned to a warm, close, light house before their growth appears, or it is apt to be checked and stunted, for that season at least. A good, vigorous plant of Dendrobium thyrsiflorum bearing ten to twenty or more spikes is so lovely when at its best, that one might almost be excused for apostacy from the flowers of the open air.

F. W. Burbidge.

WORK DONE IN WEEK ENDING DEC. 7.

December 1 to 4.

A week of dense fog has, as usually happens at this season, been followed by severe frost, the mercury on the mornings of the 2nd and 3rd falling as low as 18°—14° of frost—and with vegetation quite saturated with moisture. Broccoli, Lettuce, Endive, young Cabbage, and Celery will, it is feared, be injured. We have been busy putting Bracken protection over the Celery rows, as also over Lettuce and Cauliflower plants on south borders, and over the crowns of Broccoli just turning in; the large leaves have been bent. Globe Artichokes have been thickly surrounded with long stable litter, and Jerusalem Artichokes, which as yet are not dug up, have also had some litter spread over them, not for protection of the tubers, which is really unnecessary, but rather that we may be able to dig up supplies when wanted. Parsnips and Horse Radish we usually serve the same, but the frost came on us so suddenly, that we had no time to do the work, and now the ground is so hard that it would be labour in vain. As yet we have had no snow, and therefore the last three days of sharp frost have given us the desired opportunity of wheeling manure on to the various vacant plots of ground, and also we have been able to thickly cover early autumn-planted Strawberry plots with good manure, which is worked well up to the crowns of the plants, and thus it protects as well as manures. So long as other profitable work can be done, *i.e.*, work that will have to be done, and can be done just as well in severe weather as at any other time—pruning and nailing, and any other jobs that one cannot keep warm at are postponed in favour of more active labour, which, besides the foregoing, has been the clearing out of shrubbery clumps in pleasure-ground, and raking leaves off woodland walks. Work in the glass department has been the making of bedding plants in cold pits safe by surrounding the walls with Bracken or litter, as well as over the mats that cover the glass. Violas, Calceolarias, Leucophytons, Verbenas, Echeverias, and the like may remain covered for two or three weeks in such weather, and will take no harm, provided that when the frost is over the covering is left on for a couple of days or so, that the plants and soil that may have got frozen may thaw slowly. Sudden light, and particularly sunshine, before the frost is out of the frames is far more destructive than is a fortnight's frost. Pruned another vinery, and gave both Vines and house the usual cleaning. Tied Peach trees to trellises. Picked over plants. Cut down Chrysanthemums that had done flowering, and put in the first lot of cuttings. We strike them under hand-lights placed on the floor of the early Peach house,

the temperature of which ranges from 45° to 55° in the coldest weather. Though our Pine pits are well heated, an excess of fire-heat whilst the daylight is so short draws the plants, and also tends to cause premature shows, which, as a matter of course, make poor fruit, and to obviate these evils as well as to economise fuel, we cover the glass nightly with stout oiled canvas, that makes a difference to the temperature of the pits of from 8° to 10°. Apart from its being better for the plants, such covering is worthy of adoption on the ground of economy in fuel alone. Put more Seakale into forcing quarters, and placed Early Ashleaf Potatoes in boxes of leaf soil to root preparatory to planting in frames.

December 6 to 7.

The frost departed as suddenly as it came, which, if we could have foreseen, what an amount of labour of covering up might have been saved. However, it is not all labour lost, as the material is there, and partial uncovering is only requisite, such as opening out the Bracken immediately over the heads of Celery, and rolling up the litter tidily beside the pits and frames in readiness for the next occurrence of frost. Endive to blanch, and roots of herbs that are required for forcing we are now getting up as well as supplies of Parsnips and Horse Radish. Recommenced the pruning and nailing of Plums and Morello Cherries. Raspberries are being tied, the stools having been freed of all weakly, unripened canes, and those left shortened back to a height of 4 feet 6 inches. Peach borders are being trenched for early vegetables, as per last week's notes. Rolled walks. This work we always strive to do both after heavy rain and frost, and thus the gravel is kept firm and smooth. The ground is too wet for transplanting of shrubs, of which work we have a considerable amount on hand; hence it is that gravelling and walk-mending are now being done, that transplanting operations may go on without interruption as soon as ever weather conditions are favourable. Indoors the work of fruit-tree tying still goes on, Figs as well as Peaches now being in hand. Picked bad flowers off Chrysanthemums; cut down such as had done flowering, which gave more space to others yet in good flower. The flowers of Bouvardias and Carnations have damped off somewhat for want of a drier atmosphere, but, not having a suitable one at command, more heat has now been turned on the pit, and water will be more sparingly applied and the ventilation increased whenever the weather is mild and drying. Roman Hyacinths in flower have been brought out of heat and stood in a cool vinery; other Hyacinths and Tulips have been put in the forcing pit, and so has a third lot of Strawberry plants. Fruit-rooms and Grapes hanging on Vines have regular attention in respect of removing every trace of decay. Consequent on the sudden change to mildness from severe frost, both Apples and Pears are quite wet, and some few of the choicer varieties of the latter we are having wiped with a dry cloth, and as soon as the outside air is anything like drying, full ventilation will be given.

Hants.

HARDY FRUITS.

Planting this year, owing to the heavy falls of rain, has been delayed, and, much as many object to the performance of this work in December, the dry weather now prevailing will not only induce, but leave many people no other alternative than to go on with it. A wet late autumn tells unfavourably in many ways, for it prevents the nurseryman as well as the gardener from pushing on with his work. Trees lifted and planted in the wet never winter and start so well as if moved when the soil is in good working condition, and slender-rooted examples, owing to the low temperature of the ground, not unfrequently perish altogether. The trade, much as people complain of trade, seems overwhelmed with work; consequently late-comers must be late-served; but there is a way by which this difficulty may be avoided, or certainly reduced, and that is by establishing a small home nursery, and keeping it well stocked with trees for drawing from when weather and convenience favour planting. By a home nursery I do not mean a manufactory, as very few home-made trees are equal to the clean, healthy stock purchased from the leading nurserymen, but simply a well-cared-for spot, in which newly-bought stock can be grown and trained until wanted. Land, like trade, being slack, until even in these times a farm is to be let, every gardener should have all he requires for the asking; but should a difficulty arise—for these men are looked upon as suspicious characters when they begin to talk about old turf and soapy loams—they have only to explain that nurserymen's rents, very high, are paid by the purchasers of their trees, and, notwithstanding the fact that maidens at a cheap rate are perfect, disease not unfrequently follows the hard pruning back practised in nurseries. The nurseryman is in no way blamable so long as purchasers will have cut-backs; but I maintain that perfect trees can be formed without cutting back at all—that is, provided they are transferred to the home nursery when a year old, and, as a matter of course, before the maiden shoot is cut back to within three or four eyes of the union. The proper way, however, is pinching out the point of the leader when it has grown some 12 inches to 18 inches from the junction; side shoots are then formed, and the framework of a good tree is formed by the end of the first season from the bud. Some Rose nurserymen who exhibit allow maiden plants to throw a single shoot several feet in height for a single bloom, leaving their customers to cut back to the base buds, but being unripe and buried in crude sapwood, they never break, and the plants, transferred to poorer soil, perish. Others, who do not exhibit, pinch out the points when they have made a foot or two of growth, and secure bushy plants with four or five shoots of moderate strength, and well ripened by the end of the season. Fruit trees can be manipulated in the same way, and are infinitely superior to cut-backs, which not unfrequently make their *début* with a piece of dead wood rankling within a few inches of the union.

Orchard Planting

may still be pursued—that is, if the weather continues dry, open, and mild, and the land is in suitable condition. The old-fashioned mode of digging pits or water traps in Apple-sick orchards is not a good one, for no matter how carefully the compost may be prepared, the roots soon find their way to the solid subsoil, where, starved and poisoned by water teeming with decaying vegetable matter, they become inactive. The heads make little, if any, progress, a few feeble flower-buds instead of bright, healthy shoots are formed, the trees languish, canker and Lichen claim them for their own. Old orchards must, as a matter of necessity, be filled up, pruned, and renovated, but a young tree should never be planted on the spot from which an old one has been removed. The first operation in the renovation of old orchards is a clearance of all worn-out or useless sorts, thinning and cleansing of those retained. Then comes thorough draining, and finally planting, not immediately over the main drains, but where lateral drains will keep the roots free from stagnant water. The compost used in old orchards should consist largely of fresh loam, road-scrapings and parings from the sides, old lime rubble, and burnt earth or clay. All the old roots, prunings, and trimmings of the hedges, and as much more rough wood as can be obtained, should be used for burning the clay, and if all is not wanted for making up the planting compost, the surplus will be found the best of all top-dressings for the old trees.

Pruning.

When autumn planting is finished old trees should be judiciously pruned and thinned to throw the heads open to the influence of sun and air. If densely interlaced and matted together, as we too often see the branches, this work should be performed piecemeal—that is to say, the thinning of old, enfeebled trees should extend over a couple of years. The removal of very large branches should be avoided—certainly the first season, but small spray and crossing boughs should be cut out to inure the heads gradually to the light, and at the same time to form the largest possible external area of well-balanced fruit-bearing wood. By adopting this plan numerous dormant buds will be forced into activity, and young growths at the commencement of the second season will act as safety valves where the removal of extra large branches is decided upon.

Top-dressing.

Until quite recently the roots as well as the branches of old trees have been left to take care of themselves. Year after year has passed by, but nothing has been done to stimulate the roots or draw them to the surface. Draining alone has a wonderful influence on the growth of the trees, but something more is needed. All the refuse wood, as I have just stated, reduced to ashes and cast over the surface of Grass orchards soon tells; manure, the scourings from ditches, even the cake or "must" from the cider mill, thoroughly mixed and spread about, restore to the soil the salts and other elements so essential to free growth, and, as a matter of course, good fruit. If the whole surface of the orchard cannot be top-dressed in one season, a wide circle round each tree should receive a good supply of stimulating food, to be washed in by winter rains. Town-made manure, which not infrequently contains a little of everything, is excellent, and bone-dust is a host in itself; but, judging from the kind growth of trees in cottagers' pig-runs and the farmers' paddocks, animal manure is an excellent fertiliser. A Grass orchard is very pleasant to walk in, and convenient for gathering the fruit, but on no account should it be laid for a crop of hay, if grazing is practicable.

Cleansing.—As neglect, poverty, and Lichen generally go together, a word upon this head may be acceptable. The old Moss covered stems of trees in the first instance may be well scraped with a piece of hoop iron, when scrubbing with strong lime-water, brine, or soapsuds may follow. If more convenient, a quantity of fresh-slaked quicklime cast up into the branches on a damp day will answer equally well in the destruction of Moss and Lichen, and will help the roots after it has opened the pores of the bark to the influence of sun and air. Where American blight, the greatest pest in our orchards, has gained a firm hold, a pint of paraffin added to six gallons of strong soapsuds will be found a safe and certain remedy. This may be syringed over the parts affected, always, of course, when the trees and buds are dormant; but the most effectual and economical method is as follows. To this or any given quantity of the wash add as much stiff loam as will produce a thick paint; then, with a stiff brush, work it well into the haunts of the enemy. If well applied, one dressing may clear a tree, but every bug in old trees is not easily reached, and for this reason infested orchards should be looked over annually.

The Fruit Garden.

The principal work in this department now is pruning, nailing, and training. With the exception of Peaches and Nectarines, which will not require further attention until they are released from the walls in January, all other trees may be operated upon when the weather is suitable. Some fruit growers prune through all weathers, but by commencing early and taking advantage of every fine, mild day, exposure of the pith in frosty weather may be avoided. Moreover, the men who have to perform the work not only get on much faster, but do it better. With us bush fruits, also Currants against walls, are taken in hand first, and when finished they are well syringed with soapsuds, or dusted with quicklime to destroy Lichen and the larvæ of insects. Manure is then wheeled out in frosty weather, and although we do not believe in deep digging, it is lightly forked in at leisure. Raspberries come next, as early mulching is one of the main points in securing good crops of fine, juicy fruit. If the

formation of new plantations is contemplated and the planting of young canes was neglected in October, they may be put out now and well mulched with rotten manure to keep the roots moist and safe from frost. Raspberry plantations under good management last a number of years, but, like the Strawberry, they give the heaviest crops of the finest fruit when four or five years old. This method of rotation is very simple, as we only have to plant one or more rows every year always on fresh, deeply trenched ground, and destroy an equal number of the oldest stools. Few people care for many varieties, but rest satisfied with one or two good sorts which do well on their soil. With us Carter's Prolific on the five years' course is an especial favourite, as the fruit is extra fine and the flavour delicious. In low, damp situations subject to severe frosts, it is a good plan to defer topping the canes, or at least a portion of them, until the buds commence swelling in the spring. If Strawberries have not received their winter mulch, a good dressing of manure or rich compost should be placed between the rows at once, that is, provided they are free from weeds and the crowns of the plants are not frosted. Like the preceding, whose roots run along the surface, the beds should be kept clean by hand and hoe or smothered by heavy mulchings, but on no account should fork or spade be introduced amongst them.

Pears, Plums, and Cherries,

both on walls and open quarters, having at last lost all their leaves, may be pruned, nailed in, and washed. The first and last being so subject to green and black aphis the walls should be well scrubbed with brine during the time the branches are detached, or they may be syringed with soapsuds after they are nailed in. Where good soapsuds are plentiful, this washing may be repeated at short intervals throughout the winter, as it not only cleanses the wood and walls, but acts as an excellent manurial agent when it reaches the roots. Pears are not often attacked by aphis, but the oyster scale is often very troublesome, and, being the exact colour of the bark, sometimes does much mischief before its presence is detected. When badly infested, the main stems and branches should be well scrubbed with strong soap water and afterwards painted with a mixture of Gishurst compound and stiff loam, one pound of the first to a gallon of the second, to which half-a-pint of paraffin may be added when reduced with hot water to the consistency of thick paint. The tar mixture, half-a-pint of gas tar to a gallon of loam, as recommended for Vines, may also be used. Either of these will very soon cleanse the trees and leave the bark bright and free, when generous culture, including good mulching and copious watering in summer, will generally cause the trees to grow out of it. We have in this part of the country a very loathsome, slimy caterpillar called the slug worm, which attacks the foliage in August and September. If left alone it eats away the foliage and renders the fruit of little value. The best summer remedy is dusting with quicklime or syringing with lime water, but, prevention being better than cure, the scale paint with a little fresh lime added applied to the wood and walls in winter will destroy it most likely at one dressing. The month of December is perhaps the best time to apply insecticides to hardy fruit trees, as the sap at the present time is inactive, and the buds as well as the wood can be dressed without fear of injury. Many people attach great importance to the use of strong ingredients, but this is a mistake which often leads to mischief, and it is questionable if a well mixed solution of stiff clay, soot, and lime, with a very small piece of soft soap to make it work and adhere, would not prove a safe and certain destroyer of all scale to which fruit trees are subject.

Figs.

The weather up to the end of November having been so mild, Fig trees have not required covering, but 19° of frost on the morning of the 2nd reminds us that this precaution must no longer be delayed. We have accordingly placed a moderate layer of dry Fern in front of the trees, and may add more with a broad coping board above should unusually severe weather set in. When Fern cannot be obtained, a thatch of small Spruce or Yew boughs tucked in between the main branches and the wall, with their tips hanging downwards and overlapping each other, make an excellent covering not only for Figs, but also for Apricots in exposed situations. Some unnail their Fig trees, and, after tying the branches up in bundles, encase them in wheaten straw; but this is carrying protection to an extreme, as trees so treated become extremely tender, and frequently suffer after they are uncovered in the spring. Moreover, this snug covering forms a safe retreat for mice, which do irreparable mischief by barking the shoots during a long continuance of severe weather. In the south and western counties, also in South Wales, where trees attain a large size as standards, the covering of trees against walls is considered superfluous, if not positively, injurious. Next to covering the branches, it is well to prepare the trees by root-pruning early in the autumn, as the sap by this process is checked and the embryo Figs near the points of the shoots do not get too forward. It is needless to say a good mulch of dry leaves kept quiet by a covering of long litter is an important factor in low, damp gardens.

W. Coleman.

Eastnor Castle, Ledbury.

Fruit Garden.

THE PEAR CROP.

It is seldom we have to complain of having too many Pears, but this season has been an exception to the rule, and as a consequence the fruits individually are smaller than usual. Besides being abundant, too, the fruit is of exceptionally good quality, some sorts always previously sent to the kitchen being this season fit for dessert purposes. I am now alluding to fruit produced in our western counties, where the soil is in most instances of a moisture-holding, fertile character.

The earliest Pears we have is the Summer Doyenné, a small sort which rarely fails to crop heavily, but must be eaten fresh from the tree. At Rood Ashton, Wilts, it usually grows much larger than I have seen it elsewhere, and many handsome dishes of fruit I have gathered from it late in July or early in August. The Jargonelle is a delicious Pear, and the tree being a vigorous grower it is particularly well adapted for covering high walls or the gable ends of buildings. It forms an ugly pyramid, nor with us does it do well as a cordon. A fine standard may be formed by re-grafting a tall tree of any other variety with the Jargonelle. It is in season towards the end of August and early in September. Williams' Bon Chrétien nearly everybody is acquainted with. It has only one fault, viz, it keeps for a short time only after being gathered. It does well on walls of nearly all aspects, and succeeds equally well as a pyramid or as a standard. We prolong the season by gathering at different times, and by ripening the first in gentle heat. Beurré d'Amanlis, which forms a good succession to the Jargonelle, is also a favourite, and is of a very accommodating habit. It is free-growing, generally bears well, and is well adapted for any method of training or culture. With us its fruits are better from a pyramid than from a cordon against a south-west wall. Flemish Beauty is another excellent September Pear. It forms a good espalier and good average pyramid, and as a cordon usually yields moderately heavy crops of large, handsome fruits, which, if not left too long on the tree, are, when ripe, of excellent quality. Beurré Superfin is perhaps the least known of any yet mentioned, but it should be included in every collection. On the Quince it does well cordon-trained, but for espaliers and pyramids I prefer it on the Pear stock, no difficulty being experienced in growing fine, handsome and prolific trees. The fruits, which are of good size, are most delicious in flavour, and hereabouts ripen late in September and early in October. Fondante d'Automne ripens at much the same time, and is a most free-bearing serviceable variety. The best examples of this Pear I have yet seen were grown on wall trees in Kent, and a rich soil appears to suit it perfectly. We have quite a wealth of good October Pears to select from, but I would on no account omit Beurré Hardy. This variety also does well on heavy soils on the Pear stock, and forms handsome pyramids and espaliers. The best crops of this Pear that have come under my notice were growing in Derbyshire, the fruit being large, handsome, and extra good in quality. Beurré de Capiaumont, though of poor quality, forms a fine pyramid or standard, and rarely fails to bear well, but it is not good enough for wall culture. It ripens late in October, and sometimes keeps a month longer. Duchesse d'Orleans may well be included in large collections of Pears. We have a cordon of it on the Quince, and in this neighbourhood there is a fairly good espalier or horizontally trained tree on the Pear stock, and in both instances good crops of medium-sized fruit are usually obtained, the quality being very good. It is an October Pear, and keeps well into November. Jersey Gratioli is of good habit and bears well, but I am not an admirer of it, one cordon being the extent of our stock of it. Louise Bonne of Jersey is a well-known variety and a favourite in most gardens. We have good cordon, horizontally, and pyramidally-trained trees of it on both the Quince and Pear stocks, and all bear well. The fruit is usually of good size, handsome when ripe, and of a very distinct flavour, not, however, pleasing to all palates. This, again, unfortunately is another October Pear; so also is Marie Louise d'Uccle, but I would yet recommend it, especially where pyramids are in request. It is a sure bearer, quite distinct from Marie Louise, and very good to eat. Urbaniste appears to be of a very variable character. With us it is seldom so good as it has been this season. It forms a fine pyramid, and bears well.

Mid-season sorts include several extra good Pears—some of the very best, in fact. Beurré Bosc is not a high-class variety, but it is a free grower and heavy cropper, and if given a sunny wall, its quality is seldom found fault with. This season but little grittiness was discernible, the fruit being melting and quite delicious. All these remarks are equally applicable to Gansel's Bergamot, though the latter does not possess so good a constitution as Beurré Bosc. It ripens late in October or early in November, and does not keep long. Of all the 660 recognised distinct varieties, I fancy none would be found to equal Marie Louise, and none to surpass it in point of quality. It is, however, an uncertain bearer, trees of it growing side by side varying considerably. We have it against three differently situated walls and very rarely fail to secure a crop from some of them. Our finest fruit are from a sunny wall, but pyramids and standards give us quantities of medium-sized, deliciously flavoured fruit. By gathering at intervals and leaving some on the trees as long as it is safe to do so, a succession of fruit may be maintained from the middle of October to near the end of November, during which time this variety may safely be pitted against any other sort in season. Conseiller de la Cour ripens and is in season about the same time as the foregoing, and is frequently grown considerably larger in size. With us, on a south wall and on the Pear stock, it is never very large, but usually yields a good crop of fruits which, when ripe, are almost as buttery as those of Marie Louise. It also succeeds as a pyramid, cordon, or standard, and may well be more generally grown than it is. Pitmaston Duchess, also in season during the month of November is perhaps the largest Pear of good quality in cultivation. Mr. Garland, at Exeter, usually secures very fine examples of it, and in the neighbourhood of Bristol and Bath it is extensively and well grown, though at the Bath shows it is frequently and wrongly labelled Prince Imperial. It appears to be amenable to any kind of training, and where large fruits are prized it certainly ought

to be cultivated. Doyenné du Comice is in season about the same time or only a few days later than Marie Louise, and is nearly equal to it in point of quality. The very finest fruit of it I have yet seen were grown in the neighbourhood of Exeter; hereabouts it is smaller, has more colour, and is most melting and otherwise good. The Quince stock, whether the tree is cordon or horizontally trained, suits it best, and a friend has strong and profitable pyramids on the same stock. Nouveau Poiteau with us as a cordon on the Pear stock is mealy and worthless. It usually crops freely, and ripens early in November. Thompson's produces rather small fruit, which ripened early in November, and is of excellent quality. It is a moderately strong grower, and is best on the Pear stock, as, when worked on the Quince, the trees are apt to grow stunted and be of little service. Van Mons Léon Leclerc, a November Pear, I can speak highly of, as it possesses a good constitution and may be trained any fashion; it is a good bearer, the fruit sometimes attaining an extra large size, and is of excellent quality. I prefer it on the Pear stock. I have seen it trained over garden archways, where, when in full bearing, it presents a most imposing appearance. Huyshe's Prince Consort, though described as a large variety, only attains a medium size, but it is a sure bearer, and the fruits are frequently very serviceable at the end of November. We have a cordon trained against a sunny wall and on the Pear stock, and I have seen good pyramids of it. Huyshe's Princess of Wales if worked on the Pear stock forms a good pyramid, and from one tree we gathered two bushels of fruit. They are rather small, but the quality is excellent, and altogether I am much pleased with it. We commenced using it late in November, and it will be available nearly throughout this month. General Todleben, according to some authorities, is in season from December to February, but with us it is over by the end of November. In the midlands I have never tasted it in good condition, but hereabouts it is most delicious. Some of the fruits are not unlike Marie Louise in appearance, but there is no mistaking it when cut, the flesh having a distinct rosy tinge. We have a strong pyramid on the Pear stock, but for cordons or small horizontals I should prefer the Quince stock. Napoleon does not bear well here, but in other gardens I have had it good on both wall trees and pyramids, and always found it profitable. It is very distinct in appearance, and when fully ripe or late in November is very tender and juicy, bruising too easily for fruiterers to do any good with it. Beurré Clairgeau, a November Pear, I had almost omitted, is more remarkable for its size and attractive colouring than for any other quality it may possess. It is a sure bearer, but, as a rule, it ought to be included in the list of stewing Pears. Nor can I speak very highly of the quality of Duchesse d'Angoulême, which, with us, ripens during November. It is a robust yet free-bearing sort, and succeeds under any method of training, small pyramids on the Quince stock usually perfecting a heavy crop of large, extra heavy fruit, which, however, is usually very gritty and poor in flavour. Passe Colmar, a medium sized sort which ripens late in November, lasting sometimes till late in December, has long been a favourite of mine. To have it in perfection, it should have a sunny wall, though it crops well as a pyramid or standard. It is apt to produce large clusters of fruit, but these should be freely thinned out. Forelle, or the Trout Pear, is a small, but very handsome sort, of excellent and distinctly good quality. It is suitable for either pyramids or standards, crops heavily, and is in season during December and Janury. Beurré Bachelier is a capital grower, and is good on either Quince or Pear stocks and for any system of training. It is a good bearer, but should be freely thinned out, otherwise the size and quality are materially lessened. Large, well-grown fruits are usually buttery and sweet when ripe, in December. It is a noble Pear, and may well be given a good trial in most gardens. Winter Nelis is a small and quite distinct variety, but, although it forms a good pyramid, it is seldom first-rate from any but wall trees. With us it is in season during December, and double-grafted trees are found to give the largest fruit.

Late varieties are, unfortunately, comparatively few in number, and it is to this section that raisers of novelties should turn their attention. Chaumontel promises to be exceptionally good this season, but only from a wall tree, and those from a pyramid will be stewed as usual. It is a free-growing, heavy-cropping sort, the fruit being of good size, and is available during December and January. Large quantities of this variety are annually sent from Jersey, but the fruit is rarely so good as we have it. Beurré d'Aremberg is one of the heaviest croppers I am acquainted with, and is especially well adapted for pyramids. The fruits are of medium size, of fairly good quality, which may sometimes be improved by being subjected to a gentle heat. With us it is a good January Pear. Glou Morceau is simply invaluable. It forms a good standard or pyramid, but on heavy land the fruit cracks badly, and it is only on the wall trees that sound fruit is produced, the Pear stock being chosen. On shallow soils, however, the Quince stock is preferable. Our fruit, which we always gather late, commences to ripen in December and lasts till February, Josephine de Malines does not grow strongly here, but is a sure bearer, and the fruit is very good for several weeks early in the year. It is almost impossible to form a good pyramid, and I prefer a fan-shaped wall tree on the Pear stock. Bergamotte d'Esperen is a valuable late Pear; it may be grown either as a standard, pyramid, or espalier. It is a good bearer, and ripens during February and March. Easter Beurré seldom keeps good till Easter, but all the same it is one of the best very late sorts in cultivation. With us it is a failure in the open, the fruit being quite worthless, and it is the wall trees, cordon and horizontal, that we depend upon, and they do not often fail. I prefer Beurré Rance, this succeeding admirably either as a standard or pyramid, as well as against walls, keeps longer, and is of excellent quality. Ne Plus Meuris when grown against a wall is a sure bearer, requiring to be thinned out freely, or the fruit is small and all core; and thus treated it is of fairly good quality during February and March. Ollivier des Serres has been strongly recommended to me for the purpose of affording a late supply of good fruit, and is being given a trial. It is said to do well either as a pyramid or standard, but is of best quality from wall trees.

I find I have omitted two varieties marked in my list for commenting on, viz., Beurré Diel and Althorp Crassane. The former, owing to its very accommodating disposition, is included in almost every collection, but I cannot speak very highly of its quality. It is in season in November and early in December, and never fails to bear or to bloom freely. Althorp Crassane forms a grand pyramid and crops heavily. The fruit are rather small, and in point of quality are by no means to be despised. Season, November and December.

Stewing Pears are as much appreciated here as the dessert sorts, and one of the most profitable of these is the Vicar of Winkfield. This season it happens to be fit to eat, but as a rule it is best stewed. It forms a good pyramid or standard, and is a good cropper; in use at present time. Calebasse Grosse, which is a month earlier, is also a good cropper and is a capital stewing Pear. Black Worcester grown as a standard crops heavily. Its fruits are of good size and are fit for use any time during December, January, and February. Uvedale's St. Germain grows to an immense size, but ought not to occupy so much wall space as it does in various parts of the country, not being generally a heavy cropper. It keeps to April. Catillac, also keeping about the same time, is a more profitable sort and does well in the open. W. I. M.

Peach-growing out of doors.—Many seem to think that Peaches and Nectarines cannot be so successfully grown on open walls as they used to be thirty or forty years ago. I have grown good crops of Peaches out of doors in the Peak of Derbyshire, and for the past twenty-eight consecutive years I have never failed to secure good crops in West Cornwall. In some seasons they have certainly been better than in others, but I have never experienced an entire failure, though I have never protected them in the least, and I have gathered this year considerably more than the number said to have been grown at Ditton Park. Their quality, too, has been equal to, if not superior to, that of fruit grown under glass. Our first Peaches this year, Early Beatrice and Hale's American Early, were gathered on the 20th of July; our latest, Princess of Wales and Sea Eagle, on 15th October. The last I consider to be the best late Peach in cultivation. It is an excellent cropper, fine in flavour, large in size, and good in colour. Nectarines have done fairly well, but not so well during the past five or six years as formerly—a circumstance which I attribute to lack of sunshine and too much moisture. If Peach trees were pinched more and disbudded less, there would be, I think, fewer failures. I have seen many trees completely ruined by early and indiscriminate disbudding. Another important matter is periodically lifting the trees, as directed by Mr. Coleman—an operation which prevents rank succulent growth. I see nothing to prevent our growing Peaches on open walls quite as good as our forefathers. With the varieties now in cultivation, it should be by no means difficult to obtain good ripe fruit out of doors for at least three months in most seasons. —Sanguinea.

FRUIT TREES ON THEIR OWN ROOTS.

M. Jean Sisley, Monplaisir, Lyons, writes: "As The Garden has been the first to publish something about the advantage of fruit trees on their own roots, I send you herewith the translation of a letter on the subject I have just received from the celebrated Austrian horticulturist, Daniel Hovibruck, who is the president of the Austrian Horticultural Society of Vienna. I think it is our duty to endeavour to convert all agriculturists to the right way to produce the best, the most, and consequently the cheapest of all produce necessary to our wants."

M. Hovibruck writes to M. Sisley: "You ask me my opinion respecting the value of fruit trees on their own roots. I have grown thousands of them for many years, and now possess Peaches, Apricots, Cherries, and Prunes of twenty and twenty-five years old which are beautiful trees, producing yearly abundant crops of excellent quality, and a great deal more so than the same grafted. They are also more durable. This must also be the case with Apples and Pears."

Madresfield Court Grape cracking.—Mr. Castle says: "No doubt weight of crop is one step towards prevention of cracking." During these last four years I have grown on my Madresfield Court Vines two comparatively light crops and two rather heavy, and with the two heavy crops I have not experienced nearly so much cracking as with the light ones, although in each case they have coloured and finished off well. When I first took this Grape in hand I experienced no little vexation and anxiety through its cracking so badly during the ripening-off period. But this year I am glad to say I have had scarcely any crack at all, and I can only account for it in the following way: In the first place, I grow more foliage, by leaving one more leaf at the end of the bunch, making three in all. I have also paid greater attention to ventilation after colouring has commenced by way of avoiding as much as possible sudden rises of temperature in changeable weather. I think this has a great deal to do with it. And then from my experience, as stated above, I am inclined to give the Vines enough to do in the way of a crop. I think, by the way, that growers for markets now-a-days will be disposed to do this without being told. I believe with this variety there is something in having sufficient channels to carry off its luxuriant supplies of sap. I have taken over 30 lbs. per rod of good quality Grapes from mine this

season. Of course, to do this, every attention must be given at the roots in the way of liquid manure, &c. Mine receive adequate supplies in that way to the end of October. I omitted to water the Madresfields one season after the commencement of colouring, as I thought to prevent cracking, but I should not do that again. The cracking continued all the same, and red spider got ahead a great deal too much for my liking.—J. Hilling, in *Gardeners' Magazine.*

PRUNING DAMSONS.

The Damson is considered by many to be but little better than a wild fruit; consequently, when planted, no further attention is given it. That it is, however, a most valuable fruit few will deny, and that it is more profitable than many of the choicer Plums one would not need to go far to prove; its lateness alone entitles it to great consideration, and when we take into account the many culinary purposes for which it is used, I think we ought in return to give it the best of culture. I have myself proved that it will grow anywhere, and that it is tolerably fruitful even when planted in hedgerows! It can hardly, however, be expected that a tree with its roots in a dry bank can produce fruit equal to what it would do if planted in good soil. It succeeds well both in cultivated gardens and in orchards laid down with Grass. In the former half-standard trees should be employed, but in the latter 6 feet stems are not too high, to keep the heads clear of cattle that graze beneath them. The only way to keep orchards laid down with Grass fruitful is to graze them closely, and in winter feed young stock under the trees. Damsons in many parts are totally neglected as regards pruning. Under such circumstances the trees are thin; they push up a few strong shoots that eventually form the main limbs, and the centre of the tree soon gets full of dead twigs, starved by the gross shoots and smothered by their foliage. They bear heavy crops sometimes, but the fruit is not nearly so fine nor the crops so regular as that from pruned trees. I have no hesitation in saying that we cultivate no fruit which pays so well for timely and judicious pruning as the Damson. The best time for the annual pruning has now arrived, and therefore anyone sceptical as to the merits of pruned and unpruned trees can easily test the matter by pruning a few trees and leaving the rest to grow as they like. The way in which we proceed with standards is to form a rather spreading round head by shortening the top or erect-growing shoots more than those that spread out horizontally. The latter rarely grow too strongly, and just taking the tips off them, so as to induce every back bud to form a spur, is enough to ensure fruitfulness. The erect-growing branches will develop moderately strong shoots for several years after they have been planted, but if shortened to about half their length in winter, they will soon become so densely furnished with fruit-buds, that their load of fruit will be sufficient to check their superabundant energy. For dwarf-stemmed garden Damsons, we plant young maiden trees, and allow them to grow naturally for a year or two. The lower branches are then cleared away, and the tree formed into a sort of bush pyramid; every winter afterwards the strong shoots are cut in quite to half their length. Strong pruning-scissors or secateurs are the best implements for the purpose, and as the trees get large, a long-handled pruner can be employed. The difference between trees of the same kind pruned and unpruned is very great. On the former may be seen in the neighbourhood of Maidstone astonishing crops of the Farleigh Prolific. This kind is truly called the Cluster Damson, for its clusters of fruit are like unthinned bunches of Grapes, so tightly packed together are they—the result of continual stopping of the shoots. J. G.

Market Pears.—My information given in The Garden (p. 471) was supplied to me by the very man who grew, sent to market (Covent Garden), and realised the prices set forth. He has a large fruit garden in West Middlesex, Pears being his largest crop. He attends the market himself, and so his statement can be accepted as reliable. I know my informant to be a man of integrity.

Fairie's Lady's Slipper (Cypripedium Fairieanum)

But to perfectly understand the matter, some insight into the inner life of Covent Garden Market is necessary. There are, no doubt, "tricks of the trade" there. Thus I was informed a few days ago that a number of Marie Louise Pears was sent up to Covent Garden and the price returned was 3s. 6d. per bushel, there being a glut just then. They were bought by one of the salesmen, who, finding that they were scarcely ripe, housed them for ten or twelve days and then sold them at nearly five times the value returned to the grower. And there is no doubt that a grower in the habit of sending to the market, and being known there, fares much better than one who is unknown.—R. D.

ORCHIDS.

FAIRIE'S LADY'S SLIPPER AND ITS HYBRIDS.

This somewhat small-growing species was introduced to this country about the year 1855 or 1856, and flowered with Mr. Fairie, of Liverpool, in the autumn of 1857. It was tolerably plentiful in this country for some few years, but it may now be reckoned amongst the rarest and most valuable of the Slipper-worts. Its leaves are narrowly strap-shaped, arranged in a two-ranked fashion, from 3 inches to 5 inches in length, and of a uniform dull green colour. The scape is erect, furnished with a coat of short woolly hairs, and bears a single flower. The dorsal sepal is large and somewhat heart-shaped, greenish white, streaked and striped with dark green and rich purple; the lower sepal is smaller and less brilliantly coloured. The petals are deflexed and curved upwards towards the ends, resembling in shape the horns of a bison. In colour they are white, streaked and lined with green and bordered with purple. The lip or pouch is large, greenish brown, with purple reticulations. This plant is a native of Assam, probably the extreme north, so it thrives best in a cool house. This Lady's Slipper, being so thoroughly different in shape from that of any other known kind, has led to its use by the hybridiser in order to obtain new forms; but hitherto we have only met with two varieties which claim their parentage from it, *i.e.*, C. vexillarium and C. Arthurianum; both retain the deflexed petals peculiar to C. Fairieanum. C. vexillarium is the result of a cross between C. Fairieanum and C. barbatum. In the size and colour of its leaves it resembles the first named, but it has the reticulations of C. barbatum, although in a less marked degree. The peduncle is single-flowered. Upper sepal dull white suffused with purple, and veined with deep claret colour; lower sepal much smaller and duller in colour. Petals broad, deflexed, waved and hairy at the edges, where there are a few warts, but not curved upwards at the ends. In colour they are purplish, veined with green. Lip soft brown, tinged with green. It is a summer-bloomer, like C. barbatum. C. Arthurianum is the result of a cross between C. Fairieanum and C. insigne, both plain green-leaved species, and the offspring appears to be exactly intermediate. In size the flowers are about as large as those of C. insigne. Upper sepal yellowish green, dotted and spotted with deep crimson. Petals deflexed, wavy at the edges, suffused with purple and veined with crimson. Lip greenish yellow mottled with brown. It is an autumn-blooming plant. W. H. G.

Angræcum bilobum is one of the smallest species of a genus which contains some of the largest of cultivated Orchids, viz., A. eburneum, A. sesquipedale, &c. We have seen several widely different Angræcums named A. bilobum, but the true plant is well marked, and cannot be mistaken when once seen. It may now be seen in flower at Kew, the whole plant being about 3 inches high with distichous leaves; each leaf is half an inch

wide at the base, and widens gradually towards the apex, where it is 1 inch wide, and split into two rounded lobes; the texture is leathery and rather rigid; colour green above, pale brown below, and punctured over with black dots. The flowers are produced on a short decumbent spike, which springs from the base of the stem and bears three flowers, each 1 inch across, the sepals, petals, and lip being about equal in size, and they are ivory-white with fawn-coloured tips; the spur, which is straight and 4 inches long, is also fawn-coloured. A. bilobum is a native of Zanzibar, and was sent to Kew by Sir John Kirk, the British representative there, who, whilst engaged in important Government business, has also found time to look after the plants of that region, and has sent to England many beautiful garden plants, the best of them, in a purely garden sense, being perhaps the Zanzibar Balsam.

DECIDUOUS ORCHIDS.

Calanthes are always considered to be deciduous with annual stems or bulbs, and they certainly deserve to be cultivated by everyone who has a stove. I have tried for years to get them to flower with their foliage in a fresh and green state, and have never succeeded until this year, which I have done far beyond my expectations. I grow them in wire baskets about 8 inches in diameter, by 4 inches in depth, in a compost of fibrous peat, Sphagnum Moss, charcoal, and dried cow manure, placing four bulbs in each basket and suspending them in the stove about 2 feet from the glass, giving no water until they begin to throw out roots. When the latter get about an inch in length I commence to give water, increasing the quantity as they grow. When the roots reach the outside of the baskets I give a light sprinkling of Jensen's fish manure, which I repeat and increase in quantity every fortnight, giving at the same time an abundance of water until the flower-spikes begin to show. I then withhold gradually both manure and water, and remove the baskets to a cooler house and expose them to bright sunlight by degrees. They commenced to open their blooms in the first week of November with their foliage perfect, and they still are in flower with their foliage all that could be desired, each basket having eight and nine spikes about 2 feet in length, and thickly studded with flowers. They are arranged on a centre table of the stove, mixed with Poinsettia pulcherrima, and so arranged they look beautiful, requiring nothing to hide the baskets or pots, their own foliage doing all that is required. The varieties which I grow are Veitchi and vestita. I have also tried several baskets of Cattleya Trianæ with the above manure, and certainly they have made remarkable growths both as regards length of bulbs, size, and texture of leaf; but the leaves look to me rather transparent notwithstanding the fact that they hang close to the glass and are exposed to sunlight. I am anxiously looking for their blooms, which they are showing well. H. McC.

Bellevue.

Dendrobium profusum was described by Professor Reichenbach in 1884, when he received specimens of it from the Philippines, through Mr. Robelen. It is not a gorgeous-flowered Orchid, its chief interest residing in the large and curiously-formed spur, although the flowers are large enough to satisfy those whose admiration of Orchids depends mostly on bigness. The colour is the drawback in this case, being tawny yellow spattered with dust-like spots of purple. In habit this Dendrobe is similar to D. macrophyllum, but the pseudo-bulbs are thinner and rather shorter. The flowers are produced in short, terminal racemes on the ripened leafy growths, four flowers being borne on a growth in an example now in bloom in the collection at Kew, although as many as nine flowers are shown on dried specimens; each flower is over 1 inch across, and is of fleshy substance. The spur is 1 inch long, very thick for the size of the flower, and with a swollen end suggestive of a bird's toe. Although nothing more than what is termed a botanical curiosity, yet this Dendrobium is remarkable enough to find many admirers among those who like the uncommon and strangely-formed members of the Orchid family. Professor Reichenbach said it "would no doubt prove an elegant, chaste thing," but his taste for Orchids is not by any means of the common kind.

ORCHIDS AT THE DELL.

When we take into account the disastrous effects of the late fogs on Orchids about London, such a grand lot of plants in full flower as one finds at The Dell just now is truly a welcome sight. It is well known amongst Orchid growers that, at whatever time of the year one visits The Dell, there is always a treat in store for them. Taking cool-house kinds, we find a magnificent display of Odontoglossums, for which this place is justly celebrated. Some of the unique varieties, such as O. crispum Schroederianum, Schroeder's variety of O. Pescatorei, and an extremely delicately-tinted variety of O. Andersonianum, are now in full flower. There are also some remarkably strong and healthy spikes on some of the yellow forms of Odontoglossum. Among other cool Orchids in flower was the lovely Epidendrum xanthinum, whose superb yellow flowers, of indefinite duration, borne on long and slender spikes, are exceedingly bright and beautiful. Associated with this were also the lovely Oncidium incurvum, the curious Masdevallia macrura, the exquisite little M. Shuttleworthi, and many others—all either singular or beautiful. Cattleyas are represented by some really grand plants, and the same may be said of the Lælias, especially Dominiana, of which there are magnificent specimens, one plant of this Lælia bearing four spikes of lovely blossoms, fully expanded, contrasting strikingly with a grand variety of Cattleya Dowiana and a C. maxima of unusually good colour and form. This last-named plant, furnished as it is with six spikes, each of them bearing from four to six delicate flowers, is in itself quite a sight. The new Cattleya Bowringiana, which promises to be altogether a most valuable addition to late-flowering Orchids, is also in great beauty. Then the rare C. Mastersi and C. fausta bella, both recent acquisitions, the result of Mr. Seden's labours, are prominent features among home-raised varieties. In the same house was also quite a forest of spikes of Lælia anceps, which grows here with the utmost vigour. Several of these plants are white forms received last year, so that we shall soon be in a position to judge of their value as albinos. Masdevallia Chimæra and M. Shieldsiana, magnificent plants, are also in full beauty, as is also a charmingly-coloured form of Vanda cærulea, bearing two handsome spikes of sky-blue flowers. Among Cypripediums, we had the good fortune to see the hybrid C. vexillarium in bloom; also C. Fairieanum and a unique form of C. Harrisianum called H. superbum, surpassing in colour as well as in size anything previously seen; a fine form of C. Godefroyæ, belonging to the niveum and concolor section, is also in grand condition, its flowers being conspicuously spotted with magenta-purple; C. Dominii, with its peculiarly long-bearded and curiously-coloured flowers, I also saw; but the most beautiful by far of the many plants belonging to this popular section is undoubtedly the one named C. Schroederi. This beautiful Lady's Slipper, whose pale rose flowers are the largest of the Sedeni section, is certainly one of the best additions that have been made to the Selenipedium group. Its long, pendulous petals, which are twisted riband-like, and of a pale rose colour, marked with longitudinal deep rose veins, are particularly attractive and ornamental. It possesses also the dual advantage of being a robust grower and of flowering at various seasons of the year. As to the Vandas, Aerides, and Saccolabiums, their beauty at this time of the year lies chiefly in the vigour of their growth and the glossy, rich colour of their foliage, which here is perfection itself. Odontoglossum vexillarium is unanimously acknowledged to be one of the most beautiful of Orchids, but it is somewhat difficult to manage. Here, however, under *quasi* East Indian treatment, it appears to be in the best of health, a remark which also applies to the whole collection. S.

KITCHEN GARDEN.

DESICCATED POTATOES.

There exists in the neighbourhood of Belfast a manufactory for utilising Potatoes. The manufacturers, it appears, supply the army and navy largely with this prepared food for use abroad, and especially in hot climates, where it proves not only nutritive, but healthful, owing to its anti-scorbutic properties. For preserving or desiccating purposes, really good mealy kinds are essential—indeed the most profitable, as they contain the largest percentage of starchy matter. Previously in Ireland it was found that Regents and Champions furnished good proportions of dry, mealy solids after preparation, but the introduction of the disease-resisting Magnum Bonum has considerably affected the growth of the kinds just named, and this latter, unfortunately, yields far too large a proportion of water to render its conversion into prepared food profitable. Thus the manufacturers are anxious to introduce new varieties which may prove more suitable for their purpose. These kinds will be first submitted to the desiccating process, and if found satisfactory, stocks of them will be planted. The trade is an increasing one, and may be made more so if kinds of Potatoes can be found which will give solid matter in considerable proportions, and at the same time give good crops. It usually happens that the biggest croppers are kinds which give the greatest proportion of water in the composition of their tubers. Possibly, as with field roots, this result is inevitable. Still, it is hoped that some may be found which fairly fulfil the conditions required. The tubers are first cleaned thoroughly and then peeled, then steamed, and from thence transferred to a powerful press, which expresses all the water found in the tubers and leaves the deposit dry. This deposit somewhat resembles powdery or granulated tapioca, and in this state it is either pressed into paper packets or tins, and in this form is exported. When used, all that is needful is to moisten the Potato flour with water, and at once good mashed Potato is afforded. It may be thought odd that a manufactory of this kind should be found in a moist climate like that of Ireland, but it is possible that Potatoes are produced there at a much cheaper rate than here. Still, it might have been thought that our drier climate would have produced Potatoes having the largest degree of specific gravity. Germany excels us, but the tubers there are almost invariably small, and, where not otherwise employed, go to the ignoble purpose of making brandy and gin, the solids being employed as cattle food. It is stated that the introduction of this manufacture into Ireland has largely tended to improve the average culture of the farmers in the locality in which it is situated—a fact worth knowing, because it shows how materially the introduction of commercial enterprise into a country can socially, as well as pecuniarily, benefit a people. It is very satisfactory to learn that the Potato can be put to such desirable uses. A. D.

Rhubarb and Seakale.—These are looked for here about Christmas, also Chicory for salading; but as we have no Mushroom-house which could be used for forwarding them, I had to resort to the old hotbed—a system of forcing good enough when no better can be devised—yet one which always incurs a good deal of labour and watchfulness. Under these circumstances I made a pit with some bricks and mortar, and covered it with

a couple of old doors, hinged so as to open and shut properly. Into this 2-feet-deep bed I put 8 inches of soil, and then 20 rows of Seakale, giving it a thoroughly good watering. I then let down the doors, and covered them with about 8 inches of hay, leaving the contents to take care of themselves. I looked into this pit the other day, and found all doing well. This pit is heated by means of waste heat led into it from the other houses by means of earthenware pipes. Thus constructed, it forms an excellent place for forcing Seakale, Rhubarb, and Chicory for salading.—J. R., *Duncombe Park.*

THE READING POTATO EXPERIMENTS.

To the Editor of THE GARDEN.

SIR,—I am sorry to observe in the horticultural press that, in relation to recent Potato experiments, some reflections have been made in regard to the authorities at Kew. With Mr. Baker, F.R.S., of Kew, I have to-day visited the Reading collection. We have been vastly interested, and, I am allowed to say for both of us, instructed. Messrs. Sutton and myself are the persons most interested, and I beg to add we are grateful to the Kew authorities for unvarying attention and kindness, and we have nothing but appreciation to express in regard to that invaluable national institution.—Yours faithfully, CATHCART.

50, Portland Place, W.

TREES AND SHRUBS.

TREES NOT COMMONLY PLANTED.

JUDGING by the monotony with which almost every new garden is planted, one would think that there was not much variety among trees and shrubs, instead of the great number which is at the hand of every planter. One seldom sees a new garden planted now which includes any but the commonest trees and shrubs, except the work is done by one who knows trees, and has a desire to make them better known in the country. The following I have jotted down as being among those which are not so commonly planted as they might be.

Many of the Maples have handsome foliage, often large, sometimes remarkable for colour. Among the largest leaved are A. macrophyllum, a North American tree of free growth, which forms a broadly pyramidal head. The leaves are very large, deeply lobed, and in autumn, before falling, they acquire a rich brownish yellow tint. This tree forms a very handsome single specimen, and so situated the large foliage is very effective, added to which the racemes of yellowish flowers, which are borne so freely in the spring, form quite a prominent feature at that season. A. striatum or pennsylvanicum, called the Snake Bark Maple, is not a large growing tree, but in the case of healthy specimens the leaves are of considerable size, being heart-shaped at the base, and divided towards the apex into three nearly equal lobes. A prominent characteristic of this kind is the beautifully striped bark, and this, combined with its other attractive features, render it very desirable for planting as a single specimen on lawns of limited extent. Several other Acers have large foliage, especially when young, the most prominent in this respect being the Norway Maple (A. platanoides) and its varieties, with the different forms of the common Sycamore.

THE AILANTO (Ailantus glandulosus) is a beautiful tree, possessing quite a sub-tropical aspect. If the stems are cut back every year, it will push up stout shoots from the base; these reach a considerable height in one season. But when it is intended to form a tree, the main stem must of course be encouraged by cutting away all rival shoots. The Ailanto is of rapid growth, and though succeeding best in good soils, will thrive fairly well in light sandy spots, besides which the large pinnate leaves retain their freshness during unusually dry summers, and even in the smoke and dust of towns.

ARALIAS are represented by two or three kinds, one of which (A. Sieboldi) is far hardier than many suppose, and, at all events around London, will retain its large Fig-like leaves in all their freshness during most winters. The tough, leathery texture of its leaves renders them able to resist the storms of winter better than many other shrubs. There is a variegated form of this Aralia, but, though apparently nearly as hardy as the type, the white portion of the leaf is liable to be browned when fully exposed, for which reason it is essentially an indoor plant. A. spinosa is very dissimilar from the last-named, for it is a free-growing shrub reaching a height of a dozen feet, and, by pushing up shoots from the base, soon forms a mass or clump. The large triangular, much-divided leaves occupy considerable space, and for that reason it should, if possible, be planted as a single specimen. In early autumn some of the principal shoots are terminated by large, upright-branching panicles of bloom, which, though the individual flowers are but small, have collectively a very imposing appearance.

The various HICKORIES (Carya) are all characterised by fine pinnate foliage, which generally dies off more or less of a rich golden or yellowish brown hue. C. alba (the Shell-bark Hickory) has huge leaves, with, however, fewer leaflets than in the other kinds. It can also be distinguished by the manner in which the bark peels off in narrow strips. C. tomentosa, C. microcarpa, and C. oliviæformis are all very handsome, fine-foliaged trees.

THE CHESTNUT (Castanea vesca) has, when young and vigorous, noble foliage, and in a variety (prolifica) it is much larger than in the common kind and more glossy.

THE CATALPA, although so handsome, is planted much more extensively in the United States of America than in this country. C. syringæfolia, or bignonioides, forms a sturdy, stout-branched tree, furnished with large heart-shaped leaves, and about July or August it bears terminal branching panicles of flowers. The blooms are of a whitish colour, spotted more or less inside with yellow and purple. The variety speciosa is described as a taller and better grower, besides which the flowers are brighter, and expand two or three weeks earlier. It is also said to be hardier than the species. There is also another variety (aurea), in which the leaves are of a golden hue; not so pronounced, however, as in some other trees. These Catalpas, when young and kept to a single stem, produce fine bold, heart-shaped leaves, contrasting well with the light pinnate ones of the Ailantus.

DIMORPHANTHUS MANDSHURICUS is a bold-growing shrub, nearly allied to, if not the same as, Aralia spinosa.

THE KENTUCKY COFFEE TREE (Gymnocladus canadensis) is very dissimilar from any of the other subjects here noted. It is a stiff, erect-growing tree, with leaves on young plants as much as 1 yard long, and 2 feet in width. The leaves are doubly pinnate, and the leaflets of a peculiarly bluish green tint. The Gymnocladus forms a striking lawn specimen, as both the colour and the whole contour of the tree stamp it as something out of the common. When old enough it produces terminal racemes of white blossoms, which in their native country are succeeded by flat curved seed-pods, but in England they are rarely produced. It possesses deep penetrating roots, and on that account will succeed well in light sandy soils; indeed, it is very accommodating in this respect, provided the soil is thoroughly drained.

IDESIA POLYCARPA has only been known within the last twenty years; it is, therefore, quite a recent introduction, and is still far from common. It forms a stout, somewhat spreading growing tree, with large, heart-shaped leaves of a bright green tint. The leaf-stalks are crimson in colour. The greenish flowers are not showy, but the foliage is handsome. This Idesia is a native of Japan, and is fairly hardy in this country, though, even in the southern counties, it is liable to be injured during severe winters, but quickly recovers.

THE WALNUTS (Juglans), especially the North American kinds, have very handsome foliage. Both of them, J. nigra and J. cinerea, being for this reason alone well worthy of cultivation, added to which their timber is very valuable. The nuts, however, are by no means so palatable as those of our European Walnut. Koelreuteria paniculata is a very distinct low-growing tree with large pinnate leaves, to which the deeply divided leaflets impart an attractive feature. In autumn the foliage dies off a rich yellow colour. Its flowers are also worth consideration, as the spikes of rich yellow blossoms are borne about July, at which time flowering trees are scarce. The Tulip tree (Liriodendron tulipifera) has such handsome foliage that it must be herein mentioned, though the leaves do not attain the dimensions of several other trees. Apart from their peculiar shape, their distinct light glossy green colour is very noticeable. Magnolias include among their number some noble-leaved kinds, the largest of which is M. macrophylla, whose oblong-shaped leaves are sometimes a yard in length. Though the foliage is so grand, this Magnolia is not proportionately stout in growth; indeed it is rather weakly, and often needs support during its earlier stages. It is one of the worst of all to transplant, and will only thrive in a good, stiffish loam well drained. In sandy soils it will barely exist. From its huge leaves a sheltered spot should be chosen when planting. Another North American species, M. auriculata or Fraseri, in some characters resembles the last, but the leaves, though large, do not attain the same dimensions. Like M. macrophylla, it is rather particular in its requirements, and, generally speaking, it is not so valuable as M. tripetala (the Umbrella tree), which will thrive in light, gravelly soils. This species forms a free-growing tree with ascending branches, the large leaves being collected near the points of the shoots, and, from the ray-like manner of their arrangement, have obtained for this species the name of the Umbrella Magnolia; the flowers are white, and borne during the early part of the summer. All the Magnolias above mentioned are deciduous, but the one evergreen species that is hardy in this country (M. grandiflora) is so handsome from a foliage point of view alone, that it must be noted herein.

PAULOWNIA IMPERIALIS, a Japanese tree, when not in bloom bears a close resemblance to a Catalpa, being of the same stout, sparsely branching habit, and with huge heart-shaped leaves, but the flowers are very different. They are borne in large terminal panicles, and the individual blooms bear a great resemblance to a Foxglove, being of a purplish colour. Unfortunately, in this country, at all events, the blooms frequently drop before expansion, probably owing to the flower-buds being injured during the winter, as they occupy a very prominent position at that season.

THE POPLARS with fine foliage include the large heart-shaped-leaved cordata, a North American species, also known as P. candicans. It is rather a stiff-growing tree in habit, something like the Balsam Poplar, but the foliage is entirely different and retained till late in the season. Another kind with foliage something like the last is P. angulata, which is, however, of a deeper green than P. cordata. The distinguishing feature of this species is, however, the peculiarly angled shoots, from whence its name is derived. When young and vigorous, several other Poplars produce large leaves, but the above two are not equalled in this respect by any of the others. The different Oaks, especially the North American kinds, are strongly represented among fine-foliaged trees, as a proof of which I may mention the scarlet Oak (coccinea), the red Oak (rubra), the white Oak (alba), and its variety repanda, in which the leaves are partially drooping, and from this circumstance it wears a very singular aspect. The Chestnut-leaved Oak (Q. Prinus) and Q. nigra, with its peculiarly blunt-headed leaves, are a couple worthy of note. Q. Daimyo, a Japanese kind, has noble foliage, sometimes a foot or more in length, but the largest leaves on any of the Oaks is to be found sometimes in the case of Q. macrocarpa, rather a deeply divided leaf, dark green on the upper surface and whitish beneath. Another point worth considering in the case of these Oaks is that many of them change to a very bright colour in the autumn before the leaves fall.

The pinnate-leaved species of Rhus form either shrubs or low-growing trees of a very picturesque character, among them being the Stag's horn Sumach (R. typhina), whose peculiar inflorescence is such a prominent feature during the summer. Then there is the smooth Sumach (R. glabra) and the Japanese

R. Osbecki, with large leaves, the leaf-stalks between the pinnules being peculiarly winged. The largest leaves

Among the Limes (Tilia) is T. platyphylla, frequently regarded as a variety of the European Lime, while the American species itself—a much larger leaf than the common one—has also a variety (macrophylla) with leaves much superior to the type. The white-leaved Linden (alba) is particularly noticeable from the white undersides of the leaves, which, in the variety spectabilis, are very large. Besides this, it forms a handsome tree, less formal in character than the common Lime. T.

A FEW MORE EVERGREEN SHRUBS.

Pyracantha (Cratægus).—One of the oldest and best known wall plants in cultivation, and one of the most effective during the dull winter season when clothed with its bright coral-like berries. The yellow-berried variety is not so showy nor so often met with as the red one, still it is worth growing. Not the least of the merits possessed by these plants is their ability to thrive almost anywhere.

Kalmias.—K. latifolia is justly prized for its lovely flowers, which are produced freely in some localities, but not so in others, yet in places where it is found to succeed it is deserving of introduction into the most select company. K. angustifolia is also a desirable shrub.

Gaultherias.—G. procumbens is a useful little plant for a position next the Grass in the front of small beds of larger shrubs, and G. Shallon, which is likewise a dwarf-habited plant, can also be used with good effect in the front of stronger growing things.

Ericas.—Amongst plants of small growth there are few that combine such a lengthened succession of bloom with a pretty appearance as a good collection of hardy Heaths affords. In no way do they look better than in a bed by themselves, though they are well adapted for associating with other small-growing shrubs in front of larger things. To do justice to them they should have sandy peat to grow in, either wholly or added liberally to the natural soil, unless this happens to be of a character such as they require. The following are desirable kinds: Arborea, australis nana, rosea, carnea, cinerea alba, c. atropurpurea, c. carnea, mediterranea, m. hibernica, m. glauca, multiflora alba, m. rubra, Scoparia minima, tetralix alba, t. rubra, stricta, vulgaris alba, v. coccinea, v. Alporti, v. flore-pleno, v. Hammondi, v. rubra, v. rigida, v. tenella, v. Searlii, v. stricta, v. dumosa, vagans alba, v. rubra. To these should be added the Irish Heaths (Menziesias)—M. empetrifolia, M. polifolia alba, M. p. atropurpurea, and M. pumila.

Pernettyas.—Amongst shrubs of small growth there are few prettier things than several of the new varieties of P. mucronata, but they do not seem to succeed except in odd places. The milder parts of Ireland appear to suit them better than any part of England in which I have met with them. They would be most likely to succeed on the north-west coast of England where there is a copious rainfall.

Rhododendrons.—Little need be said about these unequalled shrubs, which combine foliage little inferior to that of the Laurel, with flowers of every shade of colour from pure white to the darkest purple, produced in such quantities as to almost hide the leaves. Their hardy nature, which enables them to bear our severest winters, and their ability to thrive almost anywhere where there is an absence of chalk in the soil, and enough moisture present to prevent their suffering in dry weather, collectively entitle them to the first place in evergreen flowering shrubs. The number of fine varieties is such, that in making a selection there is a difficulty in deciding what to leave out. However, amongst the following are most of the best sorts: Blandyanum, deep crimson; Bylsianum, white and crimson; Congestum roseum, light rose; Duchess of Edinburgh, crimson; Elfrida, rosy crimson; Erectum, rose colour; Fermosum elegans, pink spotted; Frederick Waterer, glowing crimson; Guido, crimson; Hendersoni, purplish crimson; John Walter, crimson;

Fertile branch of Libocedrus chilensis.

Fertile branch of Libocedrus tetragona.

Kate Waterer, rosy crimson, marked with yellow; Lady Lopes, light rose, dark markings; Lady Rolle, white and yellow; Leviathan, pinkish white; Lord John Russell, pale rose; Marion, shaded pink; Mirabile, deep rose; Mrs. Cameron, pink, orange spots; Mrs. John Walter, white centre, bright crimson edge; Neilsoni, rose; Nero, rosy purple, spotted; Purity, white; Lilian, rosy scarlet; Vandyke, rosy crimson; Alarm, white centre, scarlet edge; Atrosanguineum, deep red; Barclayanum, rose; Caractacus, purplish crimson; Celebrandum, dark purple-crimson; Charles Bagley, red; Concessum, rosy pink; Curricanum, rosy lilac; Fastuosum flore-pleno, mauve; Francis Dickson, deep scarlet; Hecter, crimson; Helen Waterer, pure white, crimson edge; H. H. Hunnewell, dark crimson; H. W. Sargeant, crimson; John Spencer, rose, pink margin; John Waterer, crimson; Joseph Whitworth, deep purple-lake, dark spots; Lady Clarement, scarlet, black blotches; Lady Eleanor Cathcart, rose, spotted with chocolate; Lady Frances Cressley, pink; Madame Mielan Carvalho, pure white; Michael Waterer, rosy scarlet; Mrs. Helford, salmon; Mrs. John Clutton, white; Mrs. Shuttleworth, scarlet, spotted; Mrs. Mendel, pink, centre yellow; Sherwoodianum, rose-lilac, spotted with lilac; Sigismund Rucker, magenta, spotted; Sir Thomas Sebright, purple, blotched with bronze; Sydney Herbert, crimson, spotted black; Old Port, plum colour; Meteor, crimson; Mrs. John Waterer, crimson; Princess Mary of Cambridge, rosy purple, centre white; Mrs. Harry Ingersell, pink, &c. The earliest of the above will come into flower after the danger from frosty mornings is past, the remainder later, so as to give a succession.

The plants named are not intended as an exhaustive list of all the evergreen shrubs that are worth growing, but they comprise the best and most distinct in appearance of the kinds grown for the beauty or interesting character of their flowers and foliage combined, and also such as are best deserving of cultivation simply as Evergreens. T. B.

THE INCENSE CEDARS.

(LIBOCEDRUS.)

Though there are but few of the Incense Cedars in British gardens, they are of wide geographical distribution, for one is a native of California, another of New Zealand, while the remaining two are found in the southern part of South America. They are all ornamental trees, with a good deal the aspect of a Thuja; indeed, the best known kind, Libocedrus decurrens, is frequently, though erroneously, met with under the name of Thuja gigantea, a totally different plant.

Libocedrus decurrens is a highly ornamental Conifer, and one that is perfectly hardy in England, which last remark cannot be applied to any other members of the genus. It is of a dense columnar habit of growth—at all events as seen in this country, but in California, where it attains a height of 120 feet to 140 feet and a diameter of 6 feet or 7 feet, it is said to become much more open in character, the branches being more spreading and widely scattered. Though its wood is valuable, the rate of growth is too slow to allow of it being grown for any purpose other than ornament, and from the limited spread of the branches it may safely be planted in positions where broader growing trees would be inadmissible. The colour of the foliage is a deep bright green, which is retained throughout the winter months without any of the bronzed appearance common to many Conifers. It succeeds best in a loamy soil that is well drained, fairly moist, for in dry, gravelly spots it is apt to lose many of the minor branchlets, especially near the bottom, and to acquire altogether a paler tinge. In California it is known as the Incense Cedar and the white Cedar, which latter name is in the Eastern States applied to the Cupressus thyeides, or Chamæcyparis sphæroidea, as it is often called. Libocedrus decurrens was at one time regarded as a tree that refused to strike root from cuttings, but such a theory has now been disproved, for cuttings will strike fairly well, though they take a considerable time. There is a peculiarity about them, and that is they generally form a large callos almost like a tuber, and in that state will remain for months unless they are lifted and the callos slightly wounded with a knife, when if the cuttings are re-inserted they soon root.

L. chilensis is a very distinct and handsome kind, but is unfortunately somewhat tender, except in unusually favoured spots in our southern or western counties. The severe winter we experienced half-a-dozen years ago either killed or seriously injured most of the specimens in the neighbourhood of London. In its young state it forms a very graceful plant of pyramidal outline, a prominent feature of which is a silvery line on the undersides of the small pointed leaves. The whole plant is of a peculiar bright glaucous green tint, and this, combined with the silvery markings of the foliage, arrest attention, even

when associatod with other Conifors, from tho indescribable hue that pervades it. This tree is a native of Chili, where it reaches a height of 50 feet to 60 feet, and there it is greatly valued as a timber tree. It was introduced into this country about forty years ago by Messrs. Low, of Clapton, but, owing to its being tender, a large specimen is rarely met with.

L. Donniana, a native of New Zealand, is essentially a greenhouse plant, for it is almost, if not quite, as tender as the various antipodean Araucarias, and, like them, it is valuable for conservatory decoration in a young state. I am acquainted with a specimen treated in this way now about 10 feet high, and it forms a perfect pyramid of bright green Fern-like branchlets which retain their brightness throughout the year. In some respects this species resembles L. chilensis, but is distinguished therefrom by the leaves being more closely set on the branches, by the absence of the silvery line on the undersides, and also by the entire foliage being of a richer and brighter green. In its native country it reaches a height of 80 feet to 100 feet.

L. tetragona.—This species inhabits a considerable tract of country in South America, from Valdivia to the Straits of Magellan. Under favourable conditions it forms a large tree of 100 feet or more in height, but in the extreme southern limits it is only met with in the shape of a scrubby bush, and in that state is by no means ornamental. It is greatly valued as a timber tree throughout Chili, the wood being characterised by extraordinary straightness of grain, besides which it is almost indestructible when exposed to the weather, and on that account it is greatly used for weather-boards. From the readiness with which it can be split, as well as its weather-resisting qualities, the wood of this tree is greatly used for shingles for roofing purposes, and the inner bark for caulking the seams of boats, where it will be kept in a wet condition, as so treated it is very durable. L. tetragona is known in Chili as the Alerse, or Alerze. As an ornamental tree in this country it does not take high rank, for it is rarely met with in a flourishing condition, and is besides often injured by our winters. A young specimen of this Conifer is characterised by a broadly pyramidal habit of growth, with horizontal branches ascending at their extremities, the branchlets being clothed with leaves about a quarter of an inch in length, arranged in a decussate manner, and bright green in colour. This Libocedrus was introduced in 1849 by Messrs. Veitch, through the agency of William Lobb. T.

Pruning Robinias.—Will someone inform me if Robinia inermis umbraculifera, or Mop-headed Acacia, will bear hard pruning, and, if so, the best time for doing it? I have two of these trees which I had about four years since from Woking, and planted one each side of a gateway on to a tennis lawn to form a green archway in summer, and, although old trees, they stood the moving well, and are now healthy, but somewhat weak and straggling in growth, and I find the branches snap off very easily in strong winds. May I venture to cut them into the old wood, and will they be likely to break strongly in the spring? They have never been cut since I planted them, and the heads are now from 4 feet to 5 feet in diameter.—W. F. B.

The common Holly.—We have seen such specimens of Holly that were valued more than any other tree in the grounds. Why is it not planted in our parks more extensively instead of in hedgerows, and as underwood only? Is it because its capabilities are not understood? If anyone who reads this has a fairly-shaped tree and will move it next May to a tolerably sheltered situation, providing a bit of good soil for it if the land be naturally poor, they will see what it will do in a year or two. Whatever trees are employed to form groups or single specimens, it must never be forgotten that they must be planted with that object, and not crowded together, or, if they have originally been planted thickly, early thinning must be attended to.

AMERICAN NOTES.

Productive Pear trees.—Marshall P. Wilder stated at a meeting of the Massachusetts Horticultural Society that Clapp's Favourite and the Boussock Pear were conspicuous among those which produced good crops and brought money. Clapp's must be picked by the 20th of August as far north as Boston to prevent rotting at the core. The Boussock, he said, makes a most elegant tree—in Belgium, where it originated, there are trees 60 feet high. He begins to pick the Pears on the 15th of August, and they become yellow, and are all of good quality. The Bartlett may be picked about the 1st of September. He predicted that the Anjou, which was introduced about fifty years ago, would become as popular as the Bartlett. Beurré Bosc is always good, but there are never so many in the market as are wanted.

Locations for orchards.—Having had some experience and observation of nursery and orchard trees, it seems pertinent to state the well-known fact that both nursery and orchard trees, as well as soft woods generally, make rapid and soft wood on rich, low, moist soils, such soft wood growth being continued late in the autumn, in consequence of the richness and moisture of the soil, thus making the immature or still growing shoots very susceptible to injury, and nursery trees to damage, by frost. Hence, although orchards on the lowest and therefore comparatively moist soils may escape damage and yield more fruit in dry seasons than high and dry orchards, the lowland Apples will not be as fine grained or of as good quality, nor will they keep as long as the same sorts of slender growth and smaller size from orchards on thin and high-lying lands. The same rule, in fact, holds with lowland fruit quality as of its wood quality. The growth being rapid in both fruit and wood, each is comparatively soft and more susceptible to damage by frost or bruising than the slower and firmer growth of wood, and smaller, finer grained fruit that is generally characteristic of upland orchards. Larger Apples, it is true, are produced on the richer and lower soils, but huge inferiority is not half so much a desideratum, particularly in winter Apples, as good eating quality, together with long keeping, neither of which may be expected to result, as a rule, from the rapid and tender growth of tree, and the soft texture, larger size, and comparative insipidity of fruit, produced on the relatively soft, tender wood of moist lowland Apple orchards. What seems to be necessary to successful growth of Apple trees and Apples is a soil deep and fine enough to hold sufficient moisture to supply the necessary water and other ingredients of sap, to make a moderate rate of growth and size of fruit—not too rapid nor too large to militate against good quality—situated high enough above the frosty valley.

Notes on the newer Pears.—Mr. Barry, chairman of the general fruit committee of the American Pomological Society, has furnished the following notes, the result of years of cultivation and testing on the grounds of the Mount Hope Nurseries at Rochester. The Reeder seems to rank with the Seckel in value for the amateur. The tree bears early, heavily, and regularly, and the fruit is handsome and uniform, being just of a size to eat conveniently from the hand. The skin generally is free from spots and defects. The flesh is juicy, melting, vinous, and the quality may be rated as best. It ripens the latter part of October and early in November, succeeding the Hardy, Sheldon, Superfin, and Seckel. In the nursery the tree is a slender grower, and in order to obtain good specimens, the nurseryman is obliged to double work it; hence it cannot be propagated profitably, and doubtless never will be disseminated as widely as its merits deserve. As the tree attains age, it droops somewhat and is highly ornamental, especially when loaded with fruit. It seems to be free from blight. After several years' trial, we think it has proved to be an important addition to the list of choice Pears, and although it is not large enough for market, it is entitled to a place in every garden, no matter how limited. Duhamel du Monceau is a fine winter Pear, and will be valued to succeed Winter Nelis. The fruit is medium-sized and of excellent quality. The tree is vigorous and yields well. As soon as this variety becomes better known, it will no doubt be grown quite largely by those who understand how to market winter Pears advantageously. Superfin, in our estimation, cannot be surpassed for flavour. The fruit is large and handsome, skin smooth and glossy, and flesh juicy, vinous, and rich. The tree grows well and bears a moderate crop. The fruit is too delicate to ship; hence it is an amateur's sort, but one of the best, and indispensable in an assortment. Souvenir du Congrès, when well grown, is a noble fruit, very showy and of fine quality. But it is such a poor grower that it must be top-grafted upon a strong-growing sort, and the trees thus worked have not always succeeded, although in several instances extraordinary specimens have been raised. We think if it is grafted on the right stock it may do well, but under the circumstances it is doubtful whether it will be much grown. The Rutter has done fairly well here, but we do not esteem it as they do in Pennsylvania, the Anjou in our opinion being superior, for this region, either for garden or orchard. The Fox Pears are straggling growers like the Winter Nelis. The fruit is valuable on account of its size, flavour, and late-keeping qualities, but poor growers do not take with the public nor with the nurserymen.—W. Falconer, in *Country Gentleman*

SOCIETIES.

ROYAL HORTICULTURAL.

December 7.

This, the last meeting of the year, was very smal compared with the large gatherings which have been witnessed during the past season. A few new plants and flowers were shown, and the following were awarded first-class certificates:—

Lælia anceps virginalis.—A chastely beautiful Orchid, and one of the choicest in cultivation. It is one of the several varieties of L. anceps, having white flowers, but differing slightly in shape and size. This virginalis variety has large flowers, broadish sepals and petals pure white, and a lip with scarcely any lines or colour upon it. A well-grown plant was shown by Mr. Philbrick, Oldfield, Bickley, and bore a tall two-flowered spike.

Narcissus monophyllus.—The now well-known and extremely lovely little white Algerian Hoop Petticoat Narcissus, which one would have thought had been certificated long ago. Mr. Ware, of Tottenham, showed several pots of it, each bearing numerous flowers, which at this season are specially welcome.

Chrysanthemum Carew Underwood.—A sport from the Japanese variety Baron Prailly, from which it differs only in colour, this being a chestnut-brown intermixed with a bright reddish brown. It is considered a good addition to the Japanese section. Shown by Mr. G. Stevens, St. John's Nursery, Putney.

Chrysanthemum Mrs. N. Davis.—A sport from the incurved variety Princess Teck. The flowers are of medium size, of good form, and of bright yellow. Shown by Mr. Mizen, Mitcham.

Cypripedium callosum.—A new species very similar to C. Lawrenceanum, having flowers almost as large and of the same colour, and with foliage strongly mottled in the same way. Shown by Mr. W. Bull, King's Road, Chelsea.

Among other plants of interest shown were the following: From Mr. Tautz, Studley House, Hammersmith, came the new Spathoglottis angustorum, with a tall spike of pinkish flowers, not so graceful or so bright as S. Fortunei. There were from the same garden three so-called hybrid varieties of Anthurium, named respectively Reine des Belges, Archiduc Joseph, and Tautzianum. All were hybrids from A. Andreanum, and similar to the older ferrierense, but scarcely distinct enough to merit different names. Mr. Partington, of Heaton House, Cheshunt, sent a specimen

from his collection of Odontoglossum crispum, about which we have heard a good deal lately. The plant was exceedingly well grown, and bore a spike a yard high and branched in the same way as O. Pescatorei usually does. The variety, however, as we suspected, was not first-rate, the flowers being small and "starry." The gardener quite deserved a cultural commendation. Mr. Bowring, Forest Farm, Windsor, sent a hybrid between Cypripedium villosum and C. insigne. It most nearly resembles C. insigne in the flowers, but in growth it has the appearance of C. villosum.

Among new Chrysanthemums, besides those certificated, was a pretty one from Mr. Smith, Caledonia Nursery, Guernsey. It was named Governor of Guernsey, and may be described as an incurved Japanese, if there is such a class. The flowers are bright yellow, and the florets do not lie in that form which characterises the pure florist's flower, but many would prefer it, and as a late variety it is invaluable. Another first-rate new late variety shown was Golden Ethel, otherwise named Mrs. H. J. Jones. It is a sport from the well-known white Japanese sort, Ethel, and possesses all the characteristic beauty of that sort, but instead of white it is a clear bright yellow. Mr. Reeves, Hadley, Barnet, showed a sport from Orange Beauty, but it is not a great beauty. Mr. Mansell's gardener (Mr. Peters), Guernsey, sent a fine spike of a new hybrid Nerine, the parentage of which is said to be N. corusca major and N. flexuosa. The progeny bears the features of both these Nerines, the flowers being as large as those of N. corusca, with the undulated sepals of flexuosa; the colour is an exquisite rose-pink. M. Hans Niemand sent a variegated Poinsettia, but no one seemed to see much beauty in it. The very beauty of a Poinsettia is the contrast of luxuriant leaves and brilliant scarlet bracts, and who wants a variegated sort? A very finely-flowered specimen of the Great Hellebore (Helleborus niger maximus), the finest hardy flower of the winter; also Primula obconica, to show how valuable it is in winter; and P. floribunda, the little bright yellow Indian Primrose, which seems to be a perpetual flowerer. Messrs. Cannell, of Swanley, made a brilliant display with cut Pelargoniums of the finest sorts for winter bloom. Of these the best were Mrs. Cannell, Kate Greenaway, Cato, Swanley Gem, Kentish Fire, Lady Reed, Queen of the Belgians, and Hyacinth. From Swanley also came a nice selection of Chinese Primulas. Mr. King, of Rowsham, also showed some bright new Primulas, one named Jubilee being particularly fine. Messrs. Hooper sent from their Twickenham nurseries a collection of winter-blooming Carnations, among them being such first-rate sorts as Chevalier, Irma, Jean Sisley, Mdlle. Carle (white), and Claudia.

The chief exhibits submitted to the fruit committee were three noble fruits of Smooth Cayenne Pine-apple, from Mr. Coomber, the gardener at The Hendre, Monmouth, and six similarly fine fruits of The Queen Pine-apple, from Mr. Harris, Singleton, Swansea. A few new Apples were shown, but none were remarkable.

Scientific committee.—The following were the chief subjects discussed:—

Veronica salicifolia.—Mr. Wilson exhibited sprays from this New Zealand species grown at Wisley, which had perfectly withstood a temperature of 15° in exposed situations. He described it as seeding itself very freely. Choisya ternata was, however, cut by the same degree of cold.

Jasminum odoratissimum.—A yellow species, exhibited by Mr. O'Brien, is said to be a native of Madeira, but being of an Indian type, it was suggested by him and corroborated by Mr. Maw, that it had been introduced there. He also exhibited flowers of Coryanthes speciosus var., from Major Lendy; Maxillaria cucullata, a Pleurothallis, suggested by Mr. Ridley to be near P. ophicephala.

Masdevallia with larvæ.—He also exhibited specimens of a species of this Orchid attacked by some Noctua.

Xiphion reticulatum, diseased.—Mr. Maw showed specimens, which were referred to Mr. Murray for examination and report.

Narcissus, photographs of.—Mr. Maw exhibited photographs of several species or varieties now believed to be scarce or extinct, taken in the Riviera fifteen years ago from wild plants. They were all of the Tazetta group. He also exhibited specimens of the following species: N. viridiflorus, very abundant south of Tangiers; S. elegans from the African side, and S. serotinus from the European side of the Strait; natural hybrids, like forms between N. elegans and N. viridiflorus, showing all gradations between the two; Pancratium humile, abundant south of Tangiers, with a remarkably elongated scape when fruiting; Gladiolus grandis, from near Gizon, in the Asturias; and Tapinanthes sp. from Morocco.

Parmelia esculenta.—Mr. Maw also showed specimens of this so-called "Manna," an edible Lichen obtained from the country about 100 miles south of Algiers. Mr. Maw exhibited leaves of Araucaria excelsa attacked by a form of mealy bug, which first appeared in consequence of the heat and moisture on board ship on reaching Bombay.

Early linen paper.—Professor Church exhibited specimens of the earliest known linen paper made in Europe. It was a portion of an episcopal register of 1273, from Auvergne; another, dated 1289, consisted of entries of revenues, in which some of the original rag could be detected. It consisted of six strands of warp and six of woof. The size used was entirely starch, which appeared to be from Wheat. The earliest authentic linen paper hitherto known is from a memorandum of the fourteenth century, now in the British Museum.

Variegated foliage.—Professor Church described some analyses he had made of Oak foliage taken from a tree at Kew Gardens, which bore one albino branch, about 20 feet from the ground. A full account will be found in the December number of the "Journal of the Chemical Society," 1886.

Scalade with Sclerotia.—Mr. W. G. Smith exhibited specimens in which large oval black bodies were attached to the stems. The fungus to which they belonged could not be determined from them in that condition. He also read a communication upon prehistoric Wheat, and exhibited several specimens of carbonised Wheat from Salisbury and elsewhere, to show the comparative sizes of these ancient Grasses and of average English Wheat; while those regarded as Romano-British appeared to be somewhat smaller, others were quite equal in size to living kinds, as also are those derived from the tombs of Thebes, in Egypt.

Fuchsia with petaliferous sepals.—Mr. Henslow exhibited a specimen of a semi-double Fuchsia remarkable for its thick red sepals bearing small dark purple petals at their very apex.

NATIONAL CHRYSANTHEMUM.

A meeting of the floral committee of this society was held at the Royal Aquarium, Westminster, on Wednesday last. There were comparatively few exhibits, and only one was considered worthy of a first-class certificate. This was a new variety named White Ceres, a sport from the blush-tinted Ceres. The flowers of the sport are very large and of snowy whiteness. It is a most valuable addition, inasmuch as it flowers so late, and being white, will be much appreciated at Christmas time. Among other varieties shown were the following: Carew Underwood, the same as certificated by the Royal Horticultural Society, shown by Mr. N. Davies, Camberwell. Syringa, a large Japanese sort, white, tinted with pink, from Mr. Bettisworth. King of Primroses, a bronzy yellow incurved variety; and Welcome, a bronze Japanese, both from Messrs. Cannell, Swanley. From Mr. Beckett, Elstree, came Prince Leopold, a bronze-tinted Japanese; Kyrle Bellew, a pretty, neat Pompon. Mr. Smith, of Guernsey, sent flowers of his new yellow incurved, named Governor of Guernsey, but was not considered distinct. Mr. Owen, Maidenhead, sent several new sorts, among them being Mr. Hobian, deep rose, Japanese; America, a fine single-flowered sort; Ivon and Citron, both of which the committee wish to see again. Mr. Bolas, Hopton, Warksworth, sent a sport from Bertier Rendatler; and from Mr. Churcher, Henfield, came a sport from Fulton, but of no merit.

A silver medal was awarded to Mr. C. Harman Payne for an album containing plates of Chrysanthemums, an interesting series collected from various sources, including the *Botanical Magazine*, The Garden, *Floral Magazine*, and other illustrated garden works, foreign and English, existing or defunct. Some of the plates are good, but the majority represent the old style of depicting florists' flowers—generally untruthful and often absurd.

National Auricula, Carnation, and Picotee Society.—The annual general meeting of this society was held at South Kensington on Tuesday last, at which Mr. H. J. Veitch presided. The president, vice-president, and committees were re-elected, with the addition of four new names on the committees. Mr. Hibberd was elected treasurer in place of Mr. H. A. Rolt, resigned. The secretary's report was read and adopted, but owing to continued illness, the treasurer was not able to place before the meeting his statement of accounts. The meeting also agreed to hold the exhibitions of 1877 under the auspices of the Royal Horticultural Society, if the usual arrangements could be made. It was agreed to hold the Auricula show on April 26, and the Carnation and Picotee show on July 26.

OBITUARY.

Mr. Edward Pohlmann, of Parkinson House, Parkinson Lane, Halifax, died on November 27, aged sixty-one. Mr. Pohlmann was an ardent admirer and cultivator of the Auricula. He was also well known as an exhibitor at both the southern and northern sections of the National Societies, at both of which he occupied a prominent place. He was a pianoforte maker; but he gave up that business and became a professional florist. As to Auriculas, he raised two dark selfs of the show class; one named Garibaldi he sent out himself, the other, Helen Lancaster, was sent out by Mr. Roydes, florist, Rochdale. At the time of his death he had a very promising lot of seedlings of show and alpine Auriculas from crosses of the leading varieties.

The late Mr. Charles Green.—I am grieved to see a notice in The Garden of the death of my old friend and most serviceable helper in many ways in my garden, Mr. Charles Green. All who read them will endorse the remarks made concerning him. But there is one thing which might be a little more noticed. Of all plant growers that I have ever known, Green seemed to me to individualise and love his flowers with an affection I have never seen equalled. As a proof of this I may mention that he gave to me as the reason of relinquishing his nursery at Reigate (he had this between his engagement with Mr. Wilson Saunders and Sir George Macleay) that he could not bear to part with the plants he had been tending for years. I remember his saying that to me in quite a broken-hearted sort of way, and as a nurseryman's business consists in passing things rapidly through his hands, Green soon had enough of it, and he was much more happy at Pendell Court. How successfully he managed that most splendid collection not a few can remember, but I put together these few remarks to emphasise the fact that he loved his flowers as most men love their own children.—H. E.

Names of plants.—*G. W. B.*—1, Maxillaria picta; 2, Odontoglossum Rossi; 3, Trichosma suavis; 4, Cymbidium, cannot determine the species by a single flower; send spike and leaf.—*N. P. N., Truro.*—1, Poinciana regia; Fern with broad frond is Colysis (Polypodium) membranacea; with divided fronds, Nephrodium Hookeri; 4, next week.—*Alpha.*—1, Osmunda palustris; 2, apparently Lastrea æmula; 3, Doodia caudata; 4, Blechnum brasiliense.

Names of fruits.—*W. Whait.*—1, Beurré Diel; 2, General Todtleben; 3, Maréchal de la Cour; 4, Verulam. —*C. H.*—1, Shobden Court; all the other numbers were detached from the fruit; you should attach the numbers securely.—*E. B. W.* Not known; a worthless fruit.—*S. K. T.*—1, Warner's King; 2, Yorkshire Greening; 3, Fearn's Pippin; 4, Beurré Sterckmans; 5, Small Beurré d'Aremberg; others next week.

WOODS & FORESTS.

CLASSIFYING TIMBER.

This is a duty which is continually confronting the forester, and perhaps more through the coming few months than at any other time of the year. It is, too, one of the details of his work which it is not easy to master without some actual experience and observation of the way in which it is done. Practice will be sure to vary a little in different districts according as the requirements of users differ; but there are general principles which may be deduced and which, as a whole, will apply in all places. Some, I know, do not attempt classification at all, and let good, bad, and indifferent go jumbled up together. This lack of attempt to reduce the various qualities of timber to anything like regular order will be very acceptable to the large buyer, as the whole lot will go at the "indifferent" price, and as the chances are that the proportion of first-class will be larger than that of the third, it is obvious he will get the corresponding advantage. When a felling is decided upon, I regard it as useless to trouble about any attempt at reducing it to classes until it is down and trimmed fit for removal—that is, of course, when the felling is carried out by the vendor. When this is done, the question will at once present itself, What really constitutes first-class timber? The answer is not altogether easy to give on paper. For one thing, the same qualities will not stand in the same relative positions for all classes of wood. A rough outline of the best qualities of timber, taken as a whole, may be made in the three words, length, straightness, and size, yet this definition is not enough. If we included freedom from all blemishes, viz., perfectly sound, we should cover the ground; but then in practice there is not one tree in a hundred which would come up to it. A tree may be of good length, yet full of heart-shakes; straight, yet largely composed of knots; of a good size, yet, which in some kinds is very often the case, so far past maturity as to be in a state of incipient, or it may be advanced, decay. What would be a good quality in an Oak is very likely to be a bad one in an Ash. As has been intimated, it is not so easy to describe in a few sentences what first-class timber really is.

Taking our common trees in the order in which they are generally spoken of, we at first will look a little at the Oak. This will serve to illustrate the fact that what may be essential to constitute a commercially first-class tree in one generation may in the succeeding one be of very minor importance, or perhaps actually a drawback. I refer to the use of Oak in shipbuilding. At the time this was so largely used in marine architecture, of course straight as well as crooked dimensions were in request, but a very considerable proportion of crooks was as essential as the straight pieces. Now, for the great majority of purposes, the absence of any appreciable bend in an Oak is much more desirable that its presence. There are, it is true even now, especially in wagon building and its allied trades, cases where a slight bend in the growth of a tree is an advantage, but this would probably not represent more than five per cent. of the Oak consumed in this country. To put it as concisely as possible: If an Oak lacks length, it must be perfectly sound and clear in the grain to be classed as a first-rate tree. If it is large and has gone greatly to limb, these must be removed and accounted for separately. Oaks which are comparatively knotty, so long as the knots are sound and not very large, are frequently rated as first-class timber, but this cannot be done unless they possess some compensating value, in the direction of length, straightness, and size. As a rule in classifying Oak, although the same price per foot may be realised, it is well, as much as possible, to keep trees which are very different in their characters separate. That is to say, long and relatively small-sized trees should not be thrown in with short and large butts. When a fall of timber is sold in bulk to a single individual, this would not be so necessary, as it will be enough to arrange that at the different prices separately; but when it has to be subdivided into smaller lots, it will generally repay a little extra attention if the trees are sorted in the way suggested, as different buyers have different requirements. When this is supplied in a particular lot, it is obvious that a better figure can be given than when a proportion of, to them, useless—because of another class—stuff is included with it. In classifying plantation-grown timber, doubt and difficulty are at their minimum, as there is always a certain amount of uniformity in character about closely-grown trees which is altogether absent in the case of field timber and that grown in the open forest. It is in dealing with these last-named descriptions that the forester has to have his wits about him to assess them at their proper worth. Taken all in-all, I think there is more judgment necessary in rightly arranging Oak in its different grades than with all the other kinds of wood commonly grown put together. With Elm, for instance, which next claims our attention, there does not seem to be nearly the same diversity, as, providing the trees are sound, it is really more a matter of size than anything else. Elm, of course, varies greatly in different districts, and for some purposes the wood of particular counties has to be sought for, but, on the whole, on any ordinary estate or district there are no very distinct lines to go upon in dividing first and second-rate timber, except, as I have said, the size. With Ash the case is different, as the ratio very often is an inverse one, and the smallest is the best. According to the present march of events, the forester is not likely to have his brains greatly racked in determining the respective worth of young and old Ash, if we except what is already in existence. With regard to such large Ash trees as we have, although it is too often the case that largeness is only another name for inferiority, it does not always follow, as I have again and again met with large Ash trees which, notwithstanding having lost the toughness which is so characteristic of the young wood, were perfectly sound and white. The appearance of the bark is little or no guide to this; at any rate, the healthy or uniform look it may have is no guarantee that the tree itself is good. The only test is to carefully examine the butt where it has been cut off, as also the top and any of the branches.

Beech and Sycamore, especially the Beech, are trees where size is of very little assistance in resolving its value. A large, sound Beech there can, of course, be no doubt about, but it very often turns out that large Beeches are not sound. When this unsoundness occurs in spots and blotches through the body of the tree, it requires careful attention to relegate it to its proper place. The worst part of it is that these external blemishes are but an imperfect index of what is contained within, and they may develop into a thoroughly inferior tree, or, on the other hand, be merely superficial, and the bulk of the tree be perfectly sound. Where there is room for much doubt, when possible, it is always well to have an average tree cross-cut through an unsound spot, and judge from the turn it takes whether unsoundness increases or decreases. It will depend a little on the nature of the industry for which it has to be used, but generally with small Beech, which is clear in the butt, but knotty throughout the upper portion, it is better to have it cut across where the knots commence and thus divide it into two qualities. Where firewood is in short supply it will often answer to burn the knotty part in preference to leaving it attached to the clean part of the tree.

Larch and the other Firs being tolerably uniform growers do not here call for any special remark. What classification there is needed, reckoning, of course, that the wood is sound, goes upon the lines of length and size, and really is about the simplest thing in this branch of the forester's business. With some it is the practice to make size the test of price—I mean to sell such trees or portions of trees as may quarter-girth a given size at so much per foot, whilst everything below this would go at a reduced figure. In selling Elm, for instance, this classification, though a rough one, would, in practice, answer fairly well, but such trees as the Oak, Ash, and Beech are notable exceptions, and attempting to work out values on such a basis would be not only useless, but dangerous. For these trees especially the judgment and not the rule will be the thing to employ, as size is only one item amongst many. It may occasionally be advantageous in classifying to place different kinds together. At first this may seem to be contradictory to what has been urged about sub-division, but, as a matter of fact, it is only pursuing the subject to its legitimate end, as two different kinds of timber may approximate very closely in value and in use, whilst trees of the same kinds may vary very widely.

D. J. Y.

HOW TIMBER IS VALUED.

Of the parties to this controversy I know nothing except through the pages of *Woods and Forests*, but from his confessions I really think that "Y.'s" simplicity is amusing. If he has no other grounds for the charge he has made than those he has hitherto given us, it would have been better never to have made it. As it stands at present it looks very like an attempt on "Y.'s" part to wreak his vengeance at being undersold upon someone or other. To argue back in the way he attempts to do would be a very interesting arithmetical exercise, were it not dangerous and likely to bring others into discredit. If "Y." has evidence that Larch from any given estate is felled and delivered at a stated price by the estate owner himself or his agent, if he could fix upon the actual cost of felling and transit, he would be in a position to say what the wood realised in the plantation. Where a third party intervenes such a line of argument proves nothing, and I am surprised that "Y." fails to recognise this. It certainly shows but little understanding of the exigencies of trade, and this is where the explanation lies. As to what prices timber actually sells at in North Yorkshire I have nothing to do, but with the admissibility of such a style of argument as "Y." uses I have, as it is one which is capable of being most unjustly turned against any selected individual. The falsity of the position is the assumption that every foot which passes through the hands of the middleman does so at a profit. Taking a year's transactions through, a merchant must make profit if he holds his ground, but he may not necessarily do so foot by foot as he sells. Take one of "Y.'s" own points; he says, "Larch has dropped here lately, and I quoted, &c." Now it is not usual for timber to be transported with telegraphic rapidity from the plantation to the market, especially when the distances are such as cost the sum for carriage which "Y." mentions. The timber in question may have been purchased months ago, and the merchant has had to dispose of it on what has been admitted to be a fallen market. Yet away we go, so much per foot delivered to the consumer, so much for felling and transit, plus profit, the balance to the vendor. A very facile way of reckoning, but a very unreliable one, nevertheless. It is perhaps not within the province of the forester to try and penetrate into the inner circle of a timber merchant's business, but to combat a specific line of reasoning it may become necessary. Besides, then, the unavoidable consequence of a lower market, for reasons not connected with the particular transaction, it may be expedient on the part of a seller to make a bargain at a figure that may leave him on the wrong side of the ledger. I do not say that this was done in the case "Y." cites, but it will further serve to show that there are numberless circumstances which intervene between the purchase of a lot of wood in the plantation and the subsequent disposal of it at the other end of the country, which make it impossible to arrive at a true conclusion as to what it was actually sold for in the first instance. Legitimate discussion is the very thing we want, but wild guesses upon grounds which are much more likely

to be wrong than right are to be deprecated—at least such is the opinion of

Another Forester.

THE AUSTRIAN AND CORSICAN PINES.*

Since the outbreak and general spread of the Larch disease in many wood-producing districts of the country, by which confidence in that valuable Conifer has been shaken, attention has been directed towards finding a substitute, alike rapid in growth, suitable for a variety of situations, of equal durability as a timber tree, and adapted to a similarly wide range of economical uses. The varieties of Conifers, distinct and widely different in their natures and habits, which form the subject of this paper have been successively brought under public notice as valuable trees for British culture, and worthy of extensive cultivation. Introduced at different dates, and consequently with a considerable difference of years' experience from which to judge of their respective merits as worthy successors to the fine old Larchwood of which the country could formerly boast, there can be no doubt that all three have proved to be well adapted for colture in Great Britain, and also suited to a variety of soils and situations. The two Pines now under consideration present individually distinct characteristics.

The Austrian Pine.—The distinguishing features of P. austriaca from those of Pinus Laricio are observed to be constant in the growing state, and when compared as timber in the sawn plank, there is a marked difference. The comparatively recent introduction of the Douglas Fir renders it more difficult to speak with certainty of its value as timber, seeing it has not yet been tested as a timber-yielding tree; and where specimens have been cut down, the rapidity of growth in early years prevents such cases of being fairly cited as any criterion of what the species may prove, when felled in a ripe state, with fully developed timber. Considering, then, the two Pines which form the subject of review, we notice first the Austrian Pine (Pinus austriaca). This Conifer is generally admitted to have been introduced into this country about the year 1835. Its native habitats are Lower Austria, Styria, Moravia, Carinthia, Transylvania, and the south of Europe generally. It is a most useful variety, whether shelter, timber, or ornament is the object mainly in view in planting. In its young state it is of rapid growth, acquiring in a few years a heavy rounded head, and, being rather weak-rooted, is apt to become "winded" in exposed situations in rich soil. This habit of forming a dense, heavy top when young is productive also of another evil, for such a mode of growth must engender the formation and encouragement of many side branches, and so detract from the value and bulk of wood in the trunk. As an ornamental Pine, Pinus austriaca is undoubtedly a great acquisition; its dark, rich green foliage, its dense head of massive contour, its strong side shoots, and its rapid rank growth all contribute to render it a tree of desirable habit for effective purposes; but we fear that when compared for economic purposes with the other two species referred to in this paper, it will be found deficient in quality, texture, and durability. The soil in which Pinus austriaca flourishes in its native habitats is a thin, cold, dry soil, of sandy or gravelly tendency; and in such situations it will thrive admirably, and succeed as a timber tree, much better than in rich alluvial deep soil, although more sheltered. In fact, it appears impatient of mild sheltered positions, preferring those apparently less suitable for the growth of timber. As already stated, it is not so well adapted for situations much exposed to heavy prevailing winds, being weak and shallow-rooted in its younger state, and at the same time densely clothed with close umbrageous foliage, which renders it not unfrequently what might be termed "top-heavy." In localities suitable for its development, and not exposed to heavy winds, Pinus austriaca will attain a greater height than the Scotch Fir (Pinus sylvestris), and is of equally, if not more rapid growth. The wood is inclined to coarseness, but is tough and firm in texture, rather knotty, but of more commercial value for country purposes than the timber of equal age of either Larch, generally, or the Scotch Fir. As compared with the Corsican Pine (Pinus Laricio), the growth of the Austrian Pine is not more rapid, and it is less suitable for exposed situations. Pinus austriaca, in habit and value, more nearly resembles Pinus Pallasiana, but both are inferior as wood to Pinus Laricio. The leaves of the Austrian Pine are easily distinguished from those of the Corsican by their being rather longer, and devoid of the twisted appearance which those of the latter present. As a tree to employ as a nurse in sheltered valleys it is invaluable, owing to its dense head, spreading arms, and rapid growth; and to be cut out when it has not attained full size, it is more valuable than the Scotch Fir, as it can be profitably used for country purposes at a younger age than almost any other Fir. Lamp-black and charcoal of excellent quality can be obtained from its branches, and the thinnings are, in its native country, much sought after by coopers and carpenters.

The Corsican Pine (P. Laricio) was first discovered in dense forest masses in Corsica, whence it was introduced into this country towards the end of the eighteenth century. It has since been found over several countries of Southern Europe, including Spain, Greece, and Italy, and it abounds on the mountain lands of Calabria. In these, its native habitats, it attains to a height of 140 feet, and forms a noble tree of bold, erect, open habit. The wood is extremely resinous, tough, and, although tending to coarseness, not so brittle as Scotch Fir or Austrian Pine of equal age, but is elastic and durable; under the tools of the carpenter it works smoothly and easily, and is much prized for many outdoor or constructive purposes. Felled when about seventy or eighty years old, the wood is found to be well matured, and of a whitish colour, and brown near the heart. In this country the Laricio has been extensively planted during recent years as a timber crop, and since the Larch failure, probably this Conifer, more than any other, has been substituted for it. It thrives in almost any soil where the Scotch Fir or Spruce succeeds, but will not attain its full development at the higher altitudes, preferring a rather good deep soil and sheltered situation in its younger stages; for, being of very rapid growth and early vigorous habit, like P. austriaca, it is apt to form a top rapidly, which the slower formation of roots cannot support during high gales of wind. In this aspect, however, it does not equal the Austrian Pine, and is materially assisted by its characteristic tendency to throw the vigour of its growth more into the trunk and terminal leader than to form a dense head or many heavy side branches. Another benefit accruing from this erect or fastigiate habit is the ultimately enhanced value of the timber, by its being less knotty and of better texture. In general appearance when young, the P. Laricio somewhat resembles the Scotch Fir of the old Strathspey indigenous type, but it is more open and longer between the tiers of branchlets. Its value as timber is not so marked when the tree is young, for thinnings of Laricio are found too soft and less durable than Larch, but when old it is reported to be remarkable for its toughness, and it is strongly impregnated with resinous sap. Numerous groups and specimens of the Laricio, 40 feet in height, exist in various parts of the country; and in Perthshire, at 600 feet elevation, in a loamy soil and gravelly subsoil, it proves itself equal to any indigenous Fir, resisting alike the gale and winter's storm, and rapidly shooting above contemporary trees of Scotch Fir, Larch, and austriaca. It may indeed be described as a tree consisting of the bole of Larch, with the lateral branchlets and foliage of Scotch Fir. One qualification of considerable importance possessed by the P. Laricio should not be overlooked—namely, its distastefulness in its young state to hares and rabbits. Without positively asserting that ground vermin will absolutely shun the young Laricio if mixed with other Conifers in a plantation, it may be safely asserted that they will nibble away everything else before they will touch it. An experiment to test this was made some years ago at Tortworth Court, in Gloucestershire, where Lord Ducie planted a young Laricio in the centre of a rabbit warren, and which, until the ground was quite covered with snow, the teeming population of the spot did not touch; and even then, when starving, and naturally less capricious in their bill of fare—after an attempt to consume the young needles of the buds—they abandoned the experiment and sought some less bitter and astringently resinous food. In like manner Pinus Laricio is less liable than any other Pine to suffer from the ravages of insects or such like enemies which infest and disfigure many of the coniferous family. Although we have said that the Laricio exhibits a preference for a deep, good soil, it thrives in almost any other description, if we except soft, spongy, and undrained marshy ground. Being of a deep tap rooted habit, in such a situation the spongioles of the main radicle get chilled and waterlogged, and hence the tree will not succeed. Throughout the country it has within the last thirty years been freely planted in all sorts of soils and elevations, and has been proved to be perfectly hardy, and altogether such a variety as ought to be more generally cultivated; for while it is a rapid grower and a handsome tapering tree, it is well calculated for planting in masses as a crop to produce not only quantity within a period of forty years, but quantity of heavy size, and timber of excellent quality. Although in its native country it is felled at about eighty years old, it may be profitably used at even thirty years. It may be seen luxuriating, and of considerable height, at Dolphinton, in Lanarkshire, at an altitude of 900 feet or 1000 feet above sea-level; and in many other counties in the north of Scotland, specimens of the P. Laricio show that it is suited to the climate of Scotland. From the long tap-root of this Pine, it is, unless frequently and regularly transplanted when young, somewhat difficult of removal, and when forming plantations small plants should be used, as they will ultimately succeed better than those that have had their tap-roots cut when young. Care is requisite to obtain the true Corsican Pine when desired for ultimate profit and for heavy timber purposes.

* Extracts from the Proceedings of the Scottish Arboricultural Society.

Walnut trees.—From the figures given by "Juglans," the trunk of the Walnut tree he wishes to dispose of contains from 35 feet to 40 feet. I take it that the 13 feet in length is up to where it commences to branch, that the quarter girth, after allowing for bark (taken at 6 feet 6 inches up the stem), would be 20 inches or 21 inches. This, leaving out fractions, would be 36 feet and 40 feet The branches are not taken into account. Unless these are considerable, "Juglans" will have found a good customer if he secures a £5 note.—D. J. V

Squirrels (p. 531).—Wherever there is an abundance of Hazel Nuts or seeds in Spruce or Fir cones the nimble little squirrel does not do much harm, but if food is scarce he is not particular in his foraging. I was at Straffan last summer, and noticed the young shoots of the Horse Chestnuts hanging brown and dead near the tree tops, and was told that this was owing to a squirrel having scooped out the pith. He steals Filberts and Walnuts wholesale if his woodland supplies fail, but he is such a pretty, sprightly little animal, that much is forgiven him.—Veronica.

Preservation of wood by lime.—I have for many years been in the habit of preparing home-grown timber of the inferior sorts of Fir—Scotch, Spruce, and Silver—by steeping it in a tank (that is, a hole dug in clay or peat, which was fairly watertight) in a saturated solution of lime. Its effect on the sapwood is so to harden it and fill the pores that it perfectly resists the attacks of the little wood-boring beetle, and makes it, in fact, equally as durable as the made wood. I have a mill which was lofted with Scotch Fir prepared in this way in 1850, and it is in perfect preservation. The timber is packed as closely as it will lie in the tank, water is let in, and unslaked lime is thrown on the top and well stirred about. There is no danger that the solution will not find its way to everything in the tank. I leave the wood in the solution from two to three months, by the end of which time an inch board will be fully permeated by it. Joists and beams would, of course, take a longer time for saturation; but in practice we find that the protection afforded by two to three months' steeping is sufficient if the scantlings are cut to the sizes at which they are to be used.—*Field.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

MODERN CHRYSANTHEMUMS.

THE great impetus that has been given to the cultivation of the Chrysanthemum since the introduction of the Japanese varieties of this useful and beautiful autumn-flowering plant needs no description from me. It is of the later developments of this flower that I would speak at present, when memories of the late shows or the glowing presence of some brilliant flower delight the mind or the eye. Is it generally understood by amateurs that the Japanese varieties are more easily and certainly grown and flowered than the older and well-known incurved varieties? Owing to the great height of some of the show varieties, such as Mdme. C. Audiguier, Boule d'Or, Comte de Germiny, and the like, amateurs too often think they must not try to grow Japanese Chrysanthemums; while the dwarfest and hardiest varieties are now to be found in this class. Madame C. Desgrange is well known as the earliest of white Chrysanthemums, and it is very dwarf in habit. G. Wermig, its yellow sport, is also very desirable, and should be sought after. Next on the list in earliness comes Margot, an exquisite pink and lemon variety, unequalled for abundance and beauty of bloom, lasting far into the season. Lady Selborne is almost as good a variety, but white in flower, taller in growth, and does not last as well. Bertier Rendatler, a tall-growing variety, and L'Or du Rhin, of a sturdy dwarf habit, are two yellows, with a touch of brown here and there, that grow and flower anywhere, and should be in every garden. Some of the latest additions are equally valuable, combining dwarfness and large-sized blooms. Val d'Andorre is a singularly fine rich red variety; and Fleur des Bois is so floriferous, that literally its flowers begin at the level of the pot. La Nymphe is a delightfully fresh-tinted lilac, of extra good and dwarf habit, but so well known there is no need to say more. Madame Henri Jacotot is a very free and early-flowering crimson-brown, of large size and good habit, but, save in the early sorts, I have not yet met with a dwarf white Japanese variety. True, there is one that should be grown by everybody—I mean Mdlle. Lacroix, for this has the peculiar advantage of continuing to push flowering shoots in a way that is most remarkable, so that a careful amateur may even have five series of blooms, one after the other. The beauty of this variety is (*me judice*) unrivalled; it may be grown like a big snowball, or you may have smaller flowers with a lemon centre and delicate lace-like petals drooping from it.

The Japanese varieties give the brightest colours in purple shades, and of these Mdme. de Sevin must rank first for habit and beauty in every way. This variety has been largely shown, but its beauty as a garden plant is even greater, and it deserves a place in every collection. This year Charles Hubert is so brilliant in red and gold, that one is tempted to forget that last year the dull and cold weather in autumn prevented anything beyond a scanty and imperfect bloom (in the north), while all the previous varieties succeeded; so, though good, it cannot be said to be as sure as those mentioned before.

It would be interesting to know the grounds on which that most useful of all red Chrysanthemums, Cullingfordi, has been placed among the reflexed varieties. No doubt when carefully disbudded for show blooms, a fully expanded cut flower is reflexed; but let it grow more naturally and the petals will curl and twist till a mass of flower on a branch attains a most truly "Japanese" effect, while Elaine, though classed as a Japanese, never shows any such characteristic, but remains reflexed at all times. Such are some of the experiences of a northern amateur.

E. H. WOODALL.

EVERGREENS FOR CHURCH DECORATION.

THE Evergreen that forms the prettiest wreath so that all its sides can be seen is the Ivy, short tufty pieces, which are often laden with berries, alone being used. I prefer the Ivy to anything else on account of the under sides of its leaves looking almost as well as the upper surface, and for a thick wreath it is well fitted; while for a slender one tree Box is the most graceful—decidedly more so than Cypress, Yew, or anything else of the same description that we have used. I am speaking, it must be recollected, of wreaths which are suspended in conspicuous situations where all their sides can be seen. Against a wall or surrounding a pillar I am not sure that other materials might not do as well, but I believe I am right in selecting the Evergreens mentioned for making a light festooning for open work. A very pretty festoon is also made out of some of the small-leaved Phillyreas; but perhaps the plants that furnish twigs from which the quickest lengths may be made, and that look well at the same time, are the Sweet Bay, Alaternus, and, finally, the Laurustinus. Portugal Laurel is more suited for a one-sided wreath, and common Laurel can only be used for that purpose, but we have also used Evergreen Oak, Yew, and Holly. The latter, if grown at all robustly, is rather stubborn and intractable, and its shoots require now and then to be cut almost through (or crippled, as we call it) to induce them to conform to the line required. Holly is also unpleasant to handle, so that, unless for special purposes, we prefer using something else; indeed, most Evergreens having plenty of small or medium-sized leaves answer very well; the larger leaved kinds get flabby too soon, the Aucuba being too large for most kinds of work, for which it would otherwise be adapted. Nothing is really neater than the Euonymus, plain green or golden; the common Daphne Laureola or pontica looks better in a growing state than when made into wreaths, its foliage being too much clustered at the points and the stem indifferently clothed—a remark which also applies to the larger-leaved Berberis; but B. Darwini when in flower makes a handsome wreath, and I have seen a very neat one made of Myrtle. The rather scarce Griselinia litoralis might be advantageously employed for this purpose could it only be obtained in abundance; and I have also found that the Majorca Box is thoroughly suitable, but I have never as yet seen any one Cotoneaster that could be recommended for the purpose. Various other plants besides common Evergreens may be formed into festooning. We have, when the season admitted of it, made many yards of Rhododendron festoons, securing the flower-heads with a few inches of stalk alone, the young growths on all kinds of Evergreens at the time precluding their being used with the flowers. About the same time the Deutzia gracilis forms an excellent festoon, followed later on by the double-flowered Deutzia, which, being in spikes about the length of one's arm, forms a festoon with the least trouble of anything, unless it be Fuchsias of the hardy class, which are also available, and look well. In fact, most flowers may be used that can be had in abundance, and in spikes rather than corymbs. Sprigs of Oak, with the dead leaves thickly adhering to them, also look well in winter, and can be worked into the same form and size as Evergreens. Beech, I dare say, would also answer; but I have not tried it. Now and then, however, we have used strings of berried plants, and one that works in as well as any with which I am acquainted, when assisted with Evergreens, is the Privet, with its clusters of jet-black berries. In like manner other berried plants, such as the Mountain Ash and all the Thorns, might help to make a good display.

Having a quantity of the twigs ready, which may be from 12 inches to 18 inches in length, a heap of them is laid on a table or bench, and with string that most people would call very small a loop is made, and fastened to some hook at or near the end of the table. One or two pieces of Evergreen are then held in the left hand, while, with the other, a sort of hitch knot is made round the Evergreens, some 2 inches or 3 inches from their points, which we shall say is the beginning. Evergreen twigs are added near the butt ends of those already placed, and, the string being carried down in the midst of them, is made to form another hitch knot round both the tips of the new shoots and the butts of the others, a process which is continued on until a convenient length has been made, which may be about 10 feet or 12 feet. For convenience, however, the string is seldom more than 6 feet long; otherwise it is liable to get in the way, and, being very small, is easily knotted. Care, of course, must be taken not to confine any more of the leaves than can be helped; and a little practice will enable anyone to judge how much of the tip of each shoot should be left beyond the first tie, the shoots being fastened at each end, and a rather more secure knot being made at the end of all, to prevent it coming undone when moved, as these festoons are, where amateur decorators have their handling, sometimes subject to rough treatment, which, however, they usually bear without injury. When taken to the place where they are to be hung up, they can be joined together without the joint being detected, by merely tying the strings at each end, taking care that the direction of the foliage is continuous if the decoration is to be carried round the room, or in one direction. It can be looped up at any place required; and, the string forming it being very slender, it can either be suspended to a tack or tent-hook, or the festoon can be twisted round a pillar; or, if hung in front of the upright mullion of a church window, will hang down in its place without much trouble. If against a picture or looking-glass frame, it is equally available. In fact, wreaths of this kind may be made to do service in various ways where no nails are to be driven. I have even known the weight of such festoons borne by an ordinary pin, forced into some penetrable portion of the moulding, without being seen; while the indented work that frequently surmounts the moulded work of a screen, or other portions of church architecture, will frequently admit of a common cork being fixed between the notches, which makes a most excellent support, while, in many places, a small tent-hook may be inserted in the recesses of a moulding, or in other places where it can do no harm—indeed, it is not bad practice in public rooms, that are frequently decorated, to fix a series of hooks or staples, which prevent further damage from nails.

In carrying wreaths round pillars, I may mention that it is better to have two or more such wreaths than one, the inclination being less, and, I think, the effect better. I have seen as many as four such wreaths twined round a very stout pillar, a string being tied tightly round the capital just above the narrow moulding so as to keep them up, the wreaths commencing there and terminating in a similar way at the bottom. A thick wreath is then bound round both top and bottom, and it much enlivens the beauty of the spiral wreaths if they consist of two different kinds of Evergreens—say one of them Cypress, and the other of a larger-leaved plant, such as Sweet Bay or Alaternus, or, if need be, Holly. I would hardly recommend that more than two kinds be used, unless there are three wreaths, which cannot be worked in so well, but, if need be, they might be of different kinds. G.

Beautifying odd corners.—The real taste and skill of a person is more generally brought

out in the odd corners of a place than in elaborate efforts, and the more the odd corners are utilised for special features the more interesting the place becomes when a person's whole strength is laid out upon one elaborate effort. When that is seen, the whole has been passed under review; but special features, such as a group of striking trees or shrubs or creepers, a cluster of Roses or Pæonies or Ferns, may be dropped in anywhere. Often by brushing up the waste corners of a place, and placing some special little feature there, the tone and character of the place is completely changed. A shady corner, planted with Ferns and hardy Cyclamens, instantly becomes attractive. And dozens of similar, but separate, ideas might be carried out at a trifling expense, so that everywhere something of interest would be cropping up. Tea Roses, Carnations, Musk, Honeysuckle, Jasmines, Snowdrops, Daffodils, Primroses, and Anemones are all suggestive in their way. Bits of rockwork might crop out in appropriate situations. In short, the idea only requires to be thought out to secure many exceedingly interesting combinations.—E. H.

NOTES OF THE WEEK.

Acacia platyptera.—This is at once one of the earliest and one of the most showy of Acacias. It makes a handsome pot plant, and is at present very gay in the large temperate house at Kew, where some years back many species could be seen in flower during the winter and spring months.

Gomphia decora.—This handsome Brazilian shrub is now very conspicuous at Kew. It is a plant of robust habit with alternate, shining deep green leaves and large panicles of brilliant deep yellow flowers, and as it continues blooming from the present time up to early spring, its value may easily be estimated.

The Bottle-brush Flower (Callistemon lineare).—The brilliant scarlet blooms of this fine old plant are now to be seen in the temperate house at Kew, its appearance reminding one of the days when this and its near allies, together with the Banksias, Dryandras, and numerous other fine Australian plants filled the large conservatory near the entrance gate.

Salvia leucantha.—Although this is by no means so showy a plant as S. Pitcheri, it is, nevertheless, a welcome addition to flowering plants at this particular season. It is an abundant bloomer, its long spikes of lavender-coloured flowers being very effective in the greenhouses at Kew at the present time.

The first Daffodil.—I send you the first blooms of the season of Narcissus pallidus præcox, opened under glass on December 10. You can still perceive the rich May perfume, which was very powerful and agreeable on Saturday; the flowers were gathered on Friday. I daresay it will interest some of your readers to know that this beautiful Daffodil can be flowered under glass so early.—P. Barr.

Jasminum angulare.—This is a very free-flowering and graceful species, obtained from the Cape by a Cambridge lady, and sent to the Botanic Garden there. It is grown on a rafter in one of the greenhouses, where it succeeds well. A good figure of it will be found in the *Botanical Magazine* for March of this year. To the greenhouse species it is a grand acquisition. Its blossoms are very sweet-scented.

White Daffodils.—The intended trial at Chiswick has been alluded to so many times lately, that I must beg to be allowed a word of explanation. Chiswick was first named as being a central and, if one may call it so, non political meeting ground for the contending varieties; but the objection was raised that the soil there was not suitable for this special class, and that unless seen when grown under the most favourable conditions, a proper judgment could not be formed as to individual and distinctive merits. It was then suggested that a similar trial might be made under Mr. Burbidge's care in Dublin, and also elsewhere in any suitable position; but the difficulty in carrying this out was the fact that many of the questioned varieties which it was wished to prove were still scarce, and that their owners would not care to part with many of these, three bulbs at least being required wherever possible to ensure sufficient means of comparison. More than one of those present promised to send collections to Chiswick when the time came, and in July I began to write to remind them of their promises, and also to ask others to join. The first answer I received was from one whose acquiescence was specially desirable, and in this letter the writer declined. I had other letters written and ready to send off when I was taken ill suddenly, and unable at the time to do anything further in the matter or to hand it over to others. Afterwards I had to give up the hope of getting the trial carried out this season. I can only hope that the delay may be of use in getting together a more complete collection next year, with the heartier co-operation of all in any way interested in these beautiful flowers.—C. R. Scrase-Dickins, *Hon. Sec. Narcissus Committee.*

Centropogon Lucyanus.—This is a most valuable plant for winter-flowering in a cool stove or warm greenhouse, treated either as a shrubby plant in a pot, or as a basket plant suspended from the roof. In the latter case young plants should be struck from cuttings every season. The flowers are long and tubular, soft rosy carmine in colour, and produced in great profusion upon short lateral branches. We recently saw it in the aquatic house at Kew.

Anemone Fannini.—We stated some time ago that we had good reasons for believing this grand African Windflower would prove hardy in England, and it is therefore interesting to find that some young plants which were planted in a border out of doors at Kew have not been injured in the slightest by the severe frost experienced on several nights last week, even quite young leaves having withstood the trial, which on one night was severe enough, 17° of frost having been registered near the border where these Anemones are planted.

Chrysanthemums Meg Merrilies and Grandiflorum.—I send you a few blooms of these two excellent varieties of Chrysanthemum to show their beauty at this season. I have grown other sorts, but no yellow or white seems to equal these two. The plants from which the flowers were cut were grown in 12-inch pots and stopped once, not disbudded at all. They were watered with liquid manure, and otherwise treated as if for producing exhibition blooms. The plants were lovely before we began to cut the flowers from them.—J. Doughty, *Angley Park Gardens, Cranbrook.*

*** Excellent flowers.—Ed.

Winter flowers.—The following plants were in bloom here up to the 29th of November in a high exposed situation, viz.:—

Pansy	Cactus Dahlia, in very sheltered positions
Yellow Sultan	Tagetes pumila
Marigolds of all kinds	Lithospermum
Scabious	Chrysanthemum segetum and coronarium
Marguerites, yellow and white	Anemone japonica
Primroses of various colours	Schizostylis
Auricula	Coreopsis
Pentstemon	Indian Pink
Large-flowered Pyrethrum	Michaelmas Daisy
Carnations	Tritoma
Violets	Evening Primrose
Iceland Poppy	Godetia
Phlox Drummondi	Lupines
Potentilla	Catananche cærulea
Gaillardia	Roses
Cornflower	Mignonette
Blue Agathea	Sweet Pea
Jessamine, yellow and white	Nasturtium
St. John's-wort	Tropæolum canariense
Arctotis	

—M. Lane, *Dangstein, near Petersfield, Hants.*

Ipomæa Horsfalliæ var. Lady Briggs.—This new variety of the well-known I. Horsfalliæ may be described as being smaller in leaf, in flower, a more profuse bloomer, and altogether as pretty as the original, if indeed it does not surpass it in some respects. One may see both the type and the variety growing side by side on the rafters of the Bromeliad house at Kew, and may therefore judge of the merits of the newer kind. We think it so beautiful, that we intend to make a coloured illustration of it for The Garden. Can anything in the way of flowers be more lovely at this season than the bright carmine flowers of the Ipomæa? The elegance of the plant when growing freely up a pillar or rafter is most pleasing, yet you may not find it grown in more than one in twenty private gardens, and yet people are continually asking for a good winter-flowering stove climber. This Ipomæa and the new Bornean Jasmine (Jasminum gracillimum) are plants which anyone can grow in a stove, and can be obtained cheaply.

Royal Horticultural Society.—The latest Journal of the Royal Horticultural Society contains a report of the Primula conference and exhibition, and also a very comprehensive list of species and varieties of Primula, compiled by Mr. Dewar, of Kew. This list alone makes the Journal valuable to cultivators. A report of the conference on "Orchid nomenclature," held at Liverpool in June last, is also given, but it does not appear to possess much practical value. We hope that the other publications announced will soon be forthcoming.

Clematis Davidiana.—This rare and interesting species was introduced some years ago to the Jardin des Plantes at Paris. It belongs to a small section which does not climb, and which has flowers very much resembling those of a Hyacinth. It is allied to C. tubulosa, but differs from it exceedingly in appearance, and is without the woody stems of that species, being strictly herbaceous in habit. The stems grow about 4 feet high, and have long internodes; the leaves are large and handsome, with elliptical or obovate leaflets, cuneate at the base. The flowers are very numerous, and in dense fascicles in the axils of the leaves; they are of a delicate blue colour, about 1½ inches across, and very sweetly scented. The dried leaves, too, are very fragrant. It is a native of China, and in the Cambridge Botanic Garden flowers from July to the end of September.

Erythronium Nuttallianum and Dens canis sibiricum.—Allow me to make a few observations on these Dog's-tooth Violets. E. Nuttallianum, although it has not sufficient character to distinguish it botanically from americanum, is nevertheless distinct as a garden plant. The leaves are plain green, never mottled, and the segments of the flower are narrower, longer, and not blunt-pointed. It also bears two or three flowers sometimes, and is altogether a more elegant plant than americanum; besides, it does not require particular soil. E. Denscanis sibiricum and japonicum are stated to be inferior to the type. I do not know the Japanese variety, but sibiricum is much better than the type; the flowers are twice as large and better coloured. It can scarcely be known in English gardens, as it was introduced only three years ago by Dr. Regel.—Max Leichtlin, *Baden-Baden.*

Billbergia vittata.—The collection of Bromeliaceous plants at Kew, which some time ago was augmented by the celebrated collection formed by the late Professor Morren at Liege, attracts interest during this dull season, as many are in flower. Some of these bear inconspicuous flowers, but the majority are really grand, vieing with even the Orchid flowers in the adjoining house. Perhaps the queen of the great genus Billbergia is B. vittata, known also in gardens as B. splendens. This is now in bloom in the Victoria Water Lily house. One fine plant of it carries three or four long spikes drooping from the top of the tall, vasiform crown of leaves. The flowers are a bright purple, while in contrast to these are numerous large membranous bracts of a rich carmine-red colour, which adorn the whole length of the spike. The plant is, therefore, very showy, and the leaves being variegated by silvery transverse bands, it is beautiful even when out of bloom. The healthy look of all the Bromeliads at Kew is remarkable, indicating that their present quarters are more suitable to them than the comparatively dry atmosphere of the Palm house, where they were previously grown.

Cheshunt Hybrid Rose.—Nothing that anyone can say will ever lower this Rose in my estimation. Is "T. W. G." (p. 516) right in classing it as a Hybrid Perpetual? At p. 454 I said it was "generally classed as a Tea-scented variety," and so I find it to be in Messrs. Veitch's catalogue, and also in other good lists, but I am unable to find it anywhere amongst Hybrid Perpetuals.—J. Muir, *Margam.*

Indoor Garden.

ACHIMENES IN BASKETS.

Achimenes seldom now-a-days receive that amount of cultural attention which was at one time so freely accorded them. They came originally from Central America, but the varieties which have been obtained in this country by means of cross-breeding far surpass the species in beauty. Achimenes have long, slender, catkin-like tubers or corms, by the division of which they may be propagated, as well as by cuttings made of the tops. They love heat, shade, and moisture during the growing season, but when the flowers begin to expand, if desirable, they may be gradually inured to withstand the temperature of a somewhat cool, but close greenhouse. The soil in which we have found them to thrive best is a mixture of peat, leaf-mould, well-decomposed manure, and sand in about equal parts, with the addition of a little loam; the drainage must, of course, always be kept open and free. In order to maintain a succession of these beautiful flowers, a few of the scaly tubers should be planted monthly, from about the beginning of February until the end of April or beginning of May. When required for hanging baskets, several varieties of different colours, judiciously mixed in each basket, produce the finest effect when in flower, but for pot culture we prefer the colours kept separate; therefore, each variety should be grown by itself. Achimenes, however, produce the best effect in suspended baskets, but, in order to get them to display their flowers to the greatest advantage, the baskets, after being properly filled and planted, should be placed bottom upwards; the plants will push through the soil and grow erect. As they advance in growth, the stronger kinds will be benefited by having their points pinched off at once—an operation which tends to make the plants more massive through the production of laterals. Owing to the check thus received, too, the weaker-growing kinds are enabled to keep on a more equal footing with the more vigorous growers. When the plants show signs of flowering, the baskets may be hung up in their proper places; their bottoms will be well furnished, and the gentle curve upwards which the shoots are sure to take serves to bring the blooms more plainly into view.

When not treated as basket plants, Achimenes are usually grown in shallow pans, by which means a greater display is obtained than in pots. Treated either as pot or pan plants, they should not, however, be placed in their flowering positions when first started into growth; on the contrary, when some 2 inches or 3 inches high, they should be transplanted, selecting for removal such as appear to be about equal in vigour; otherwise, if strong and weak plants are taken indiscriminately, when they come into flower they are apt to have a patched and ragged appearance. Achimenes being deciduous will, soon after the flowers are over, cast their leaves, and their stems will decay. During this stage the supply of water must be gradually diminished until the time comes when they are quite dormant; then the supply should entirely cease, and the pans or baskets should be removed to a dry, cool place for the winter, whence they can be brought forward as required in the following spring.

The following selection comprises some of the very best varieties, and represents a good variation in the way of colour. Admiration—deep rose; eye, white. Argus—deep plum-colour, spotted with carmine; eye, orange. Ambrose Verschaffelt—white, flaked with orange and purple. Diadem—magenta and crimson; eye, yellow. Edmund Bossier—white and purple, flaked with orange. Eclipse—orange-red, spotted with carmine. Firefly—reddish carmine; eye, golden. Grandis—deep violet, shaded with carmine. Harry Williams—bright cerise and mauve, spotted maroon; eye, yellow. Hoffgartner Mastrana—purple, spotted crimson. Longiflora major—large, pure blue. Longiflora alba—pure white. Leopard—magenta-rose, spotted throat. Loveliness—rich magenta and crimson; eye, golden yellow. Margaretta—pure white. Mauve Queen—large, pure mauve. Meteor—crimson-scarlet; eye, yellow. Madame A. Verschaffelt, white, veined with purple. Pulchella—blue with violet centre. Purpurea elegans—deep purplish claret; throat, orange. Rollissoni—large, blue, with light spotted throat. Stella—clear magenta; eye, orange-yellow, dotted with carmine. Unique—rosy-pink; eye, deep yellow, spotted with crimson. Vivicans—carmine; eye, crimson. Williamsi—brilliant scarlet; throat, orange-yellow.

W. H. G.

Achimenes in a hanging basket. Engraved for The Garden from a photograph.

Luculia gratissima.—In the York Nurseries this grand old plant has been blooming freely in small pots for some time past, and I am glad to see in The Garden (p. 534) an account of a plant of Luculia bearing 100 heads of bloom. The writer is, however, wrong when he says that the blooms last several days in water. They take no water up; consequently they fade in a few hours. I have cut hundreds of blooms in my time, and have found this to be the case. The only way to save them is to put them overhead in water after they have been exposed in a room for a few hours; in this way they may be kept a little longer than they otherwise would be. Our old plant here is in great beauty; the blooms on it were counted on December 1, and they numbered 480 heads, open and opening. We once had 672 heads of bloom on it. But it has been considerably reduced of late, as it overgrew everything near it. It was planted in a small border, 15 inches wide, thirty-five years ago, and it has never been disturbed since. It is top-dressed every season, and is given a little weak guano water when making its growth. — William Culverwell, *Thorpe Perrow, Bedale.*

Azalea Deutsch Perle.—This is one of the best Azaleas for forcing with which I have yet met. Its flowers are a beautiful clear white, semi-double, with petals so finely rounded that they make a good substitute for those of Gardenias. It is a free-flowering variety, and if very gently forced, may be had in bloom at Christmas. A well-shaped young plant of this Azalea covered

with bloom makes a grand table plant. After blooming, we kept our plants growing on in gentle heat, and during the autumn they were set out of doors in a shaded position for a couple of months. They were moved under glass again early in October, when the most forward of them were placed in a very gentle heat, and are now in bloom. Anyone wanting really good white flowers at Christmas should make a note of this variety, which certainly forces easier into bloom early than many of the older white varieties. In the case of Azaleas, double or semi-double flowers are best, as they are more lasting than single ones. For decorative purposes where it is desirable to have large heads of bloom on plants in as small pots as possible, this variety is very useful, and if the drainage is kept perfect and the soil never allowed to get dry, it is surprising what fine plants of it may be grown in 6-inch pots.—J. G. H.

CAMELLIA FLOWERS.

Double Camellias, that used to be looked upon as second to no flower for use in a cut state, have somewhat lost favour, especially the higher coloured ones. Yet, nevertheless, the beauty and adaptability of the flowers of this matchless Evergreen for use in floral arrangements of all kinds are such as to ever maintain it in the front rank. Not the least of the merits which the plant possesses is its adaptability to widely different treatment. It is well known to be able to live out of doors, and pass uninjured through severe winters in many parts of England, yet, except for the mere novelty of the thing, or to gratify an inclination sometimes evinced to do that with some particular plant which can be much better and easier done with others, Camellias are not likely to be much used for growing in the open air; so treated they bloom late in spring, when the flowers are least wanted and short-lived, besides their being liable to suffer from the frosts that occur at that season. So far as outdoor cultivation is concerned, it may be safely said that Camellias will never be used to an extent worth naming. In a cold house, that is, where there is no means of giving them artificial heat, Camellias thrive well and flower profusely, especially when planted out in a well prepared bed and allowed sufficient room. But under such conditions they bloom late, not coming in until much of the time during which their flowers are most required is past, in addition to which the blooms do not last more than half the time that they are capable of doing in the winter when the sun has little power, and whilst there is no disposition in the plants to begin making growth. When the plants are kept constantly in a house of this description where no means exist of excluding frost, if grown in pots it is necessary that they should be plunged, otherwise when standing above the surface the soil gets frozen through causing it to expand in a way that is sure to break the pots; when in tubs or boxes this will not occur, but the expansion of the frozen soil crushes the roots; consequently even when they are grown in tubs or boxes plunging becomes necessary. Those who have had ever so little to do with Camellias will not require to be told that the most usual way of treating them is to subject the plants to a moderate amount of fire-heat, with a moist atmosphere and shade for a time after they have done blooming until the buds are set and have attained more or less size, after which heat is discontinued until the winter comes round, when as much is applied as will keep them at something like an ordinary greenhouse temperature. Oftener than otherwise the plants are located at this season with various other things that require greenhouse warmth, and to which all are alike subjected.

Simple as the treatment is, and comparatively little the judgment required to regulate the setting and development of the flower-buds, so as to have the plants in bloom at any given time when they may be wanted, it often happens that when the time they are required approaches, it is found that the flowers will be late, and then heat is used with the intention of hastening on their opening. When this is done, unless care is taken not to raise the temperature more than that of a warm greenhouse—say, about 45° in the night, with a little more by day—and to see that the atmosphere is never allowed to get dry, it is all but certain that some of the buds will fall off without opening. The danger of this happening when heat is used to push on the flowering of these plants after once they have been subjected to cold treatment after the buds were set is known to those who have had much experience with them; still there is nothing more common than to see this mishap occur. If, in place of thus attempting to push them on after they have had a season of cool treatment that has reduced them to a dormant state, the heat they were submitted to whilst making growth and setting their buds had been long enough continued so as to sufficiently develop the buds to enable them to open at the time the flowers were wanted, there would be no occasion for a subsequent application of heat, and the premature dropping of the unopened flowers would not take place, the buds simply keeping on swelling until they opened. It is the stoppage that takes place consequent on the heat being cut off for a time that brings about a condition in the plants that does not admit of their being afterwards hurried. But it requires a certain amount of forethought and experience to thus regulate the length of time the plants are kept in heat after the buds are set, so as to have them in flower at any particular time, as, if the heat is kept on too long, they will bloom sooner than required. Instances in proof of this are by no means rare where plants that have flowered early have been kept too long in a warm house, the result being the too rapid development of the buds and premature opening of the flowers.

One of the first cases that I recollect seeing of this kind was soon after I went to reside in the neighbourhood of Manchester, where a person I knew who grew fruit and flowers for sale had some half-dozen plants of the old double white variety that, after flowering, were placed in heat in the usual way. The intention was to keep them in warmth long enough to get the buds sufficiently up in size, so that the flowers would open considerably earlier than they had done the season previous; but the heat was kept on too long, and the flowers all at once, about the beginning of August, began to show colour. The plants were then turned out of doors in a cool, shady place; but this had no effect, as they were in full bloom in a few weeks. Camellia blooms were then in winter-time worth very much more than they are now, and the owner lamented much at what he looked on as the loss of his crop of flowers; yet he did not come out of the mishap so badly. There happened to be a wedding in a nobleman's family in the locality, and white Camellias were to be the principal flowers used; none were to be met with about London; the prematurely-flowered plants were heard of in the quarter where the flowers were wanted, and the owner did not miss the chance of making a good price out of them, some six or eight dozen being supplied at 7s. per flower. But times are changed; now the great London growers of Camellias would be glad to get that much a dozen, even at Christmas, or the time when the flowers above named were wanted—about the end of August.

There is no difficulty in having Camellia flowers for nine or ten months out of the twelve, or, possibly, all the year round, provided the stock of plants is sufficient and there is the requisite knowledge and means of regulating the growth, setting the buds, and forwarding them so as to bring them in at the time required. Messrs. Cuthbert, of Southgate, who are amongst the most successful growers of these flowers, and who, I believe, are always the earliest in the market, now have them constantly from the end of July to the end of May. They have a very large stock, most of which is planted out, consequent on which the plants that occupy any particular house do not admit of being brought into flower in succession in the way that can be done when they are grown in pots or tubs, and are, therefore, movable. But they have a number of houses devoted to Camellias alone, and the time when the plants occupying each house come in is regulated by the early or later time of growth, and the length of time the heat is kept on after the buds are set. It is in this way, and only this way, that the time of flowering can be satisfactorily determined by the use of fire-heat. Attempting to push on the opening of the flowers by the application of fire-heat late in autumn, or in winter, is doing the work at the wrong end.

T. B.

The first Chrysanthemum.—Is Dr. Sharpe the first Chrysanthemum? Being much interested in this question, started by Mr. Burbidge, and further commented on by Mr. Douglas, who, writing of the late Mr. John Salter's seedlings, says, "I fancy Dr. Sharpe was not one of them," I have carefully looked through the last five catalogues issued, previous to his retirement, by Mr. Salter, 1865—1869, inclusive, which I have bound and kept in memory of my correspondence with him, and visits to his nursery. The first place where the name Dr. Sharpe occurs is at page 15 in the catalogue for spring, 1868, where it is amongst the "Second Section—Large Flowers," the "First Section" being the novelties of the year. The name Sharpe is there repeated within brackets, as being the name of the raiser, presumably. In no case has this name been inserted amongst the novelties sent out by Mr. Salter. In the *Gardeners' Chronicle* of Nov. 21, 1868, it is one of those described as the most striking varieties then in bloom in Mr. Salter's nursery.—J. T. Poë, *Riverston*.

Isolepis gracilis as a wall plant.—"J. G. H.'s" note on the usefulness of this plant as a fringe to a plant stage (p. 512) induces me to strongly recommend it as a wall-clother for a moist plant stove or fernery. Planted in small recesses on a cork-covered or other wall in a little maiden loam, or loam and leaf mould, it will quickly establish itself, and cover the entire surface with roots and its Grass, or, rather, Rush-like leaves. The firmer it can be made at starting, and the more liberally it is watered afterwards the more luxuriantly it will grow and the denser will be its verdure. Under such conditions, too, the leaves will grow to an abnormal length, and the effect is most beautiful, either by itself or intermixed with the more slender Maiden-hair Ferns or delicately variegated Fittonias. The Isolepis should be looked over once a month or so, and the faded leaves, which will be found underneath the others, should be pulled or dressed off. This, with copious watering, is positively all the attention needed to keep an Isolepis-clothed wall charmingly fresh and verdant for years. The plant enjoys heat, though it also thrives well in the greenhouse, window garden, or sitting-room. The finest plant ever seen by the writer was over 2 feet across. It was placed on a small plant stand nearly a yard high, and its long drooping leaves almost reached the ground. This plant had never once suffered for lack of water, and had been in a shady window in a sitting-room for years. I do not remember ever seeing the leaves

so long and slender, unless in the case of plants grown in a stove temperature. The Isolepis is rather a dangerous plant to use for decorative purposes; if employed to depend from a vase or basket its leaves must be kept dry, for no sooner are they wetted along their entire length than each thread-like leaf becomes a syphon or capillary tube, and these will very speedily empty the vase or bucket of water on to the table, or over the furniture or carpet.—Hortus.

NEW CHRYSANTHEMUMS OF 1886.

Although large numbers of new Chrysanthemums have at different times been introduced, never until the early part of this year has so large an influx taken place. A few years back it was the custom to receive about a score of new Japanese varieties from the Continent, with the occasional addition of an incurved sport, or perhaps two; but recently we have had novelties from America, Japan, and France. It may be roughly estimated that there are at the present time not less than 1500 different kinds of Chrysanthemums in commerce, and how far this state of things is beneficial or otherwise to the grower it is, of course, difficult to say, especially when looked at in a broad sense. The thirst for novelties continues, and the united efforts of raisers do not apparently assuage it.

Having been present at both of the exhibitions held at the Aquarium under the auspices of our National Society, and having attended all the meetings of its floral committee, I have had ample opportunity of closely scrutinising many of these new flowers. In addition to that, visits to several private collections, local exhibitions, and other establishments in which Chrysanthemums are grown enable me to give some little account of such new forms as seem to promise well for the future. I leave the task of describing the new incurves to others; at least fifteen of the new Japanese sorts arrested my attention in a very striking way, and they are as follows:—

Mons. Wm. Holmes.—An early-flowering hybrid (Japanese) with reflexed florets of dark crimson; shaded velvety brown, and having a golden reverse; very striking.

Miss Stevens.—A large well-formed flower raised by Mr. Stevens, of Putney, of a soft mauve or lilac colour.

Mdlle. Paule Dutour.—A very large flower; light rose, creamy white centre.

Wm. Clark.—A semi-early bloomer; salmon-red and gold; most attractive.

Charlotte Montcarrier.—A beautiful large-sized rosy flower with drooping florets.

Carew Underwood.—A sport from Baronne de Prailly; in all respects similar to the parent but in colour, which seems to approach a rosy chestnut-brown.

A. Vilatte des Prugnes.—An early-flowering variety; violet and rose, suffused with salmon.

Buttercup.—A fine bright yellow, drooping-petalled flower; raised by Mr. Alfred Salter.

Phœbus.—Another fair-sized yellow flower with long spreading florets.

Edouard Audiguier.—Very deep-coloured velvety purple-violet with a distinct silver reverse; a large flower and a great acquisition.

La Triomphante.—A French-raised, full, compactly-built variety when opening; it becomes rather loose with age; the florets are broad and flat; colour rose, on a white ground.

Roi des Japonais.—Immense flower; deep orange-red with golden tips.

Moonlight.—A fine large white variety of transatlantic origin.

Mrs. H. J. Jones.—A yellow counterpart of Ethel.

Mr. Ralph Brocklebank.—A sport from Meg Merrilies with clear yellow flowers; form resembles the type.

There are several others in the Japanese class that may eventually prove to be desirable sorts, but I hardly care to recommend them, as they were in several cases past their best, or not in a good state, on account of their immature condition when seen. I merely, therefore, mention these by name: Souvenir d'Angèle Amiel, Mdme. Marie Clos, L'Auréole, Dr. Crévaux, Blanc Précoce, Vierge Japonaise. We must consequently wait another season to see how these will turn out.

Amongst large Anemone-flowered kinds attention may justly be drawn to—

Cincinnati.—One of the old type; colour clear rose; size rather above the average.

Citrinus.—Another of the same class; colour dull buff-yellow, curious but choice.

La Marguerite.—A beautiful companion to such flowers as Fleur de Marie; this novelty is a self-coloured variety, bright violet, and exquisitely built.

Jeanne Marty.—A Japanese Anemone with drooping guard florets white and lilac.

Mdme. Ghys.—A hybrid Anemone with lengthy horizontal guard florets; self, lilac.

Among the new Pompons I particularly admired—

Alice Butcher.—A sport from the well-known Lyon, and of similar shape; colour deep orange.

Mdlle. Elise Dordan.—A perfect little gem; the flowers are quite globular, of good size, and the colour delicate light lilac deepening to mauve.

Wm. Bealby.—A pretty bloom; colour soft mauve and cream; good size.

Precocite.—Somewhat large, and of a fine dark crimson.

C. H. P.

CINERARIAS AND CALCEOLARIAS.

Cinerarias we expect to make a brave show in the greenhouse during the four months beginning with the new year. They should be grown in pots ranging in size from 5 inches in diameter to 8½ inches. Those in small pots are intended to flower early; those in the larger pots are expected to flower in April; at least, they are at their best about the middle of that month. It is needless to dwell upon the advance which has been made in recent years in the quality of the flowers of the Cineraria, and also in the habit of the plants. Mr. James, of Farnham Royal, has made both classes of plants a speciality. He has bestowed infinite pains upon them, and the results are well known. Six or eight years ago it was hinted that perfection had been reached. The old species C. cruenta was brought forward as a novelty, but it seems to have retired again into the background. Fine hybridised seedling forms now hold the high position which they undoubtedly merit. Propagated plants and seedlings may be grown and flowered equally well if their culture is understood. The time to propagate them is in May or early in June, whether they are to be raised from seeds or from cuttings. Let us suppose that we are about to increase the stock of some choice variety. We cut the plant down as soon as the flowering period is over, and from the base of the old stems young growths are produced. These may be removed as soon as ready, with a portion of roots attached to them, and be potted in small pots, using light, sandy soil, but by the time most of these offsets are got ready, the weather will be warm and bright, a state of things which the Cineraria dislikes. The best position for the plants would therefore be under handlights or frames on the north side of a low wall or fence. The lights should be kept rather close until fresh roots are formed, but when that has taken place, admit a small portion of air, gradually increasing it until it is safe to remove the lights altogether. In summer and early in autumn the lights may remain off the plants both night and day. Gentle showers have a beneficial effect on them, but heavy thunderstorms they cannot bear, and therefore from these they should be protected by the lights.

Seeds may be sown in May, June, or July, or in all three months to produce a succession of bloom, and the seedling plants should be treated exactly the same as those propagated from cuttings. Neither the seedlings nor the propagated plants make such rapid growth at first as they do subsequently, when they have been placed in larger pots and in good compost. Good loam is essential for the production of the finest specimen plants. To four parts of loam, add one of leaf-mould, one of decayed manure, and some sharp sand. Turfy loam is best, as it is of an open texture, owing to the decayed herbage which it contains. We had our plants out in frames until October this year, when they were taken into a span-roofed house, and since that time their growth has been most remarkable. Now that we have arrived at mid-winter, or nearly so, they require rather more attention than heretofore in order to keep them in good health; for, once allow them to get into a bad condition, and they take long to recover lost ground; moreover, they cannot be made good. Cinerarias are not nearly so hardy as Calceolarias. A degree of frost that would not touch the latter would put the former past remedy. The temperature may fall during severe frost to 35°; but if maintained between that and 40°, the plants will do admirably. All our plants have now been placed in their flowering pots, and they must be kept steadily growing during winter. This they will do in the minimum temperature just indicated. In mild weather, the lowest temperature will, however, probably be nearer 50° than 40° without artificial heat. Cinerarias must never be allowed to get over-dry at the roots. A state of dryness that would suit a specimen Pelargonium would be disastrous if applied to a Cineraria.

Ample ventilation is required even in winter, but precautions must be taken not to expose the plants to high winds, which would be sure to damage the leaves. Two parasites are troublesome at this season, but both of them can be kept at a distance provided prompt remedies are applied. Green-fly does most injury if undisturbed, but it can be easily destroyed by fumigating with tobacco smoke, or, what is better still, let the house containing the plants be fumigated once in three or four weeks, because prevention is better than cure. In order to obtain a good large specimen, the centre of the plant must be pinched out when a few inches high. It will soon start into growth, but in the meantime the large leaves will have increased in size and closed in over the centre. They should therefore be tied out to allow of light and air to reach the young growths. Another important point is that of keeping the plants close to the glass at mid-winter; the leaves should if possible be within 6 inches or 12 inches of it, but they would be injured if they came into contact with it.

Calceolarias require treatment very similar to that just described, and they are not more difficult to manage. Their seeds, I may mention, are very minute, and require great care in handling. The surface soil in the pot or pan in which they are to be sown must be finely sifted and made quite level. Sow the seeds carefully and merely sprinkle some sand thinly over them. The small plants when up are very fragile at first; a dash of water carelessly applied might wash them out of the pots, but when they have once passed through the initial stages they speedily increase in size, and but for green-fly, which is even more partial to the leaves of this plant than it is to those of the Cineraria, they would soon form handsome specimens. It may, however, easily be kept off if precautions are taken to fumigate at intervals of three or four weeks. Pinching, tying, watering, and other cultural details are the same as in the case of the Cineraria. J. Douglas.

Roman Hyacinths.—These early flowering bulbs come in at a time when flowers of any kind, and particularly white ones, are very valuable. They may be had in bloom quite early in autumn, but I find them to be most useful in December and January, as they do away with the necessity for hurrying the large-flowered Hyacinths into bloom, and all who have had much to do with the forcing of these know that it is in hurrying them that so many are spoiled. Give them time to develop gently, and even small bulbs will flower better than the largest if pushed on too rapidly. Not the least of the good qualities of the early white Roman Hyacinth is the facility with which it may be moved out of its pots, pans, or boxes for making up indoor decorations. When required for this purpose the bulbs should be grown in very fine loose soil or in Cocoa fibre, as the whole of the roots may then be shaken clear without breakage, and if inserted in damp Moss the flowers will last as long, or even longer than if they had been left in their pots; the slight root-disturbance to which they have been subjected gives just check suffi-

cient to lengthen the following period. About Christmas-time, when indoor decorations are the rule, a few pots or boxes of these useful bulbs are welcome for making up Moss banks on mantelpieces, window-sills, &c.; with ordinary care they last for a considerable time in bloom.—J. G., *Hants.*

Worthless plants.—Among these I would reckon Dahlia imperialis, not because of its being single, but owing to its unwieldy height. In such a house as the Palm house of Kew it is all very well, but in private establishments it is not worth house room in a moderately warm stove, even where such a structure 20 feet high is available. It is too exacting in time and space for the harvest of beauty it yields under the most favourable circumstances; whereas as commonly met with it is the one gaunt skeleton at the feast of beauty that should be exorcised forthwith.—Hortus.

Tacsonia exoniensis.—This deserves all that has been said in its praise by "R. D."; indeed, it is perhaps the best climber in cultivation for large cool houses. Three years last spring I put two small plants of it in a large old show house, with the view of covering the back wall and roof—a space altogether about 50 feet by 30 feet. The space is now completely filled, and it is a question if the plants would not in the time have covered an area twice the size of that named. They are growing in nothing but loam—the top spit from a pasture well chopped to pieces. In pruning we do very little spurring; we only remove from time to time the longest shoots, leaving the shorter growths hanging from wire and rafter, and all through the summer both wall and roof are literally a mass of bloom. Bare stems and branches are quickly covered by selecting a strong growth and twining it round the old wood. On the stage underneath are Coleus, Fuchsias, and Francoas. The branches of the Tacsonia droop down, and, meeting the tall, feathery spikes of the Francoa, produce a pretty effect. I have once before called attention to the merits of Francoa appendiculata, and must again recommend it, as it does not appear to be so generally known as it should be. It is a useful plant for the summer decoration of the show house, and a plant which almost anyone can grow. It is very nearly hardy, and thrives well under the treatment given to herbaceous Calceolarias. Where the stock is short, the plants should be shaken out of their pots and divided. This should be done directly after flowering. The principal lot, however, should be established and in their flowering pots by the end of September. The last-named not only flowers more freely, but last longer in bloom than younger spring-shifted plants. They do well in a mixture of loam two parts, and leaf-soil one part, and, beyond a little weak manure water when in flower, they do not require any feeding.—E. B.

SHORT NOTES.—INDOOR.

The blue Marguerite.—This old-fashioned plant is useful where cut flowers are required, for, with a little management, it can be had in bloom all the year round, and, if planted in the open ground in the spring, it will yield blooms throughout the summer. At the same time we grow a quantity of it in pots, treating them much the same as Chrysanthemums. This plant (Agathea cælestis) was, many years ago, plentiful in most gardens, but lately it appears to have become scarce. Cuttings of it strike in a very short time, and they are seldom troubled with insect pests. It is a native of the Cape of Good Hope, and, like most plants from that region, needs the protection of a greenhouse in winter.—H. P.

Best Chrysanthemums.—I may state that the list which I gave (p. 483) was compiled when looking over the stands of flowers exhibited at the Royal Aquarium. The catalogue of the National Chrysanthemum Society is, no doubt, correct, but Emily Dale and Golden Queen were represented by flowers so different in character on comparing them, that I felt justified in putting them both in my list. They were distinct enough in character, as I saw them, to be shown in the same stand without fear of disqualification, but in the hands of some growers incurved Chrysanthemums appear to be considerably altered in development. At the Royal Aquarium the judges passed as a large-flowered Anemone variety one that in the National Chrysanthemum Society's catalogue is classed among the Japanese Anemone-flowered. I am quite sure that the catalogue was prepared with great care, but the best informed among us cannot lay claim to absolute infallibility.—R. D.

AMERICAN NOTES.

Phacelia campanularia.—I grew and flowered this little gem for some years before it was distributed by the trade. In general appearance it much resembles the common P. Whitlavia (usually known as Whitlavia grandiflora), but it is less robust and a good deal more miffy. The flowers are very freely produced, and of the most intense gentian-blue (Sereno Watson says violet purple). It seeds quite freely, and I find that where I had planted it out early, and the seeds ripened and dropped upon the ground, a second crop has come up and the plants have been in bloom since the middle of September. I do not think that this brilliant little Californian will become a very popular plant, on account of its uncertain growth.

Salvia Greigi.—This is a pretty rosy carmine-flowered Texan perennial, and well worthy of cultivation in our gardens for its pretty flowers, small rosemary-scented leaves, and neat, bushy habit. It is nearly, but not quite, hardy. It blooms the first year from seed, and, like S. farinosa, Gaura Lindheimeri, Conoclinium pinnatifidum, and several other desirable Texan perennials, has a great drought-resisting character. It is now (Oct. 26) in a soil dry as dust, and after a killing frost (4° with wind) is as bright and cheerful as the great Tritomas near it, and without the least appearance of injury from cold or drought.

Callirhoe linearilobа.—A few years ago Dr. Edward Palmer, the eminent botanical collector, gathered herbarium specimens and seeds of this beautiful perennial plant in Texas. He gave me the seeds. From them I raised a quantity of plants which grew well, and flowered and ripened seeds the first year. The general habit of the plant somewhat resembles that of our old favourite C. involucrata, but it is less straggling and much more branching and tufted, and the leaves are more finely divided. The flowers are lilac-purple, shaded with white in the centre. They measure 1½ inches to 2 inches across, and are produced on long stalks from the axils of the trailing branches. The root is tuberous. It is an extremely free and continuous-blooming plant, prefers a sunny place, and is well suited for rockwork or the front of a mixed flower border. Although it has survived several winters with me, I cannot recommend it as being perfectly hardy; either mulch it well or keep it in a cold frame over winter.

Eucharidium Breweri.—A beautiful, rosy purple, free blooming Californian annual, about a foot high. It was first offered by the trade last year, but I had seeds of it from California, and grew it several years ago. For border decoration it is a deserving little plant, and lasts in bloom a long time. It likes a warm, dryish, sunny spot to grow in. Some botanists wish to refer it to the genus Clarkia.

Haplocarpha Leichtlini.—This pretty little African plant has given me a good deal of pleasure this year. I sowed the seeds in March in the greenhouse; they germinated readily, and afforded me nice-sized plants, which I set out in the border in May. These began blooming in June; have been continuously in flower ever since, and are now (October 26) in as full and perfect bloom as they had been during any of the previous months. The plants are stemless and form rosettes of dandelion-shaped leaves some 7 inches to 10 inches long, glossy green above, and thickly lined with white, closely pressed, silky down beneath. The flowers are from 2 inches to 3 inches across, golden yellow, backed with purplish brown, showy, and borne singly on scapes from 10 inches to 13 inches high. They open wide in the sunshine, but shut up at night in dull weather. It seeds freely. The recent severe drought did not seem to hurt it much. It is a perennial, but I do not think hardy enough to survive our winters unprotected. I should think it is about as hardy as biennial Stocks. While it is a very interesting and pretty plant, and well worthy of cultivation as a garden flower, it has not the showy appearance of a Marigold, Gaillardia, or Coreopsis.—W. Falconer, in *Country Gentleman.*

Flower Garden.

GLADIOLUS CULTURE.

Nothing is to be gained by ignoring difficulties in regard to the Gladiolus. No wise general will ever undervalue the difficulties of his position, for he knows it may be fatal to him; and if he calculates on bringing all his soldiers into action when he knows some regiments to be tainted with disloyalty, he will probably rue his over-confidence. So when we plant our Gladioli let us not calculate on getting a good spike of bloom from them all; some will go off, and, notwithstanding all that has been said about degeneration, I still adhere to my opinion, strengthened by what scientific men (of which I do not pretend to be one) have written on the subject. I do not call it degeneration, because, as I have often said, that is a collective term, and would imply that the whole race has gone off in vigour; thus we are sometimes asked whether the Ribston has not degenerated, not meaning whether the trees in my garden are weakly, but whether the whole of those now propagated have not lost their vigour owing to the length of time this Apple has been in cultivation. If this be the true meaning, then degeneration is a misnomer; for although one bulb of a variety may die off, others are as vigorous as ever, and spawn obtained even from such bulbs is as healthy as ever; moreover, degeneration belongs to things a long time in existence, and, as I have already stated, a bulb of one of the newest varieties went as badly diseased as any I have ever seen.

I have now finished the clearing off of my bulbs, and I never recollect having taken up so fine a lot, especially from that part of my garden where the soil is stiff in character, and I contend that a good stiff, but not wet-soddened, soil is the best for them. My eyes were opened on this subject when I saw the soil in which Mr. Dobree grew his bulbs at Wellington, and further conversation with him and Mr. Burrell deepened the conviction that those who advocate light soils are wrong. They may succeed, but they have a better chance of doing so when in stiffer soil; but, after all, it is the harvesting of the bulbs that is the great point, and they who can obtain the highest amount of sunshine in the autumn and the lowest quantity of rain during September and October are the most likely to succeed, and this is why I believe that the Scotch growers will find it very difficult to keep on, unless they import largely from France every year. The moister climate favours them in their earlier stages, and they look fresh and vigorous, but as blooming time comes on they have to be much shaded, and then comes the process of drying off the bulbs, and a Scotch autumn, with its greater amount of rain and absence of sun, is sadly against them. "W. I. M." asks why I think the climate of Cambridge better for harvesting the bulbs than that of Langport or Clonmel. Just for this reason, that there is less rain in the two autumn months of September and October than there is in any other locality in the kingdom. I take from Symond's "British Rainfall" the amount of rain in the following places:—

	Rainfall in Sept. and Oct.		Year.
Cambridge	2·58	..	20·56
Clonmel	4·71	..	43·77
Gourock	6·93	..	40·97
Langport	5·74	..	45·76

In the three latter cases no observations have been made, but I have taken the nearest point to them where the rainfall is recorded; besides this, there is no part of England where there is a greater amount of sunshine. Is it not, then, clear that with so low a rainfall in those months there must be a better chance of ripening the bulbs? The time for lifting the bulbs must depend on circumstances, of course; but I was very glad this year that I had finished mine by the end of October, for we had 4 inches of rain in the first part of November, and the ground became completely soddened, and the taking up and clearing off would have been a much more unpleasant and odious task; but I met yesterday (Dec. 9) Mr.

Burrell, and he told me that he had not yet finished taking up his; there had been, he said, some sharp frosts, and he had covered them, although he hardly thought it to be necessary.

Some of one's experiences with them are certainly curious. I had a bed of them about twelve years ago, where my Roses now are, and every year since bulbs are continually making their appearance. I this year took up a clump of Titania which must all have come from one bulb; there were four good-sized bulbs and some smaller ones. Does not this, someone would say, point to the advisability of leaving them in the ground, as some have advocated, it seems, to do so? But yet when I have attempted it, as I have done more than once, the result has been disastrous, and I have lost most of the bulbs. I find that these bulbs go a long way down, and although the new corm is formed on the top of the old one, yet it gets deeper instead of shallower. With regard to the comparative excellence of French and English bulbs, I have believed generally that the experience which Mr. Douglas details was correct; but my brother-in-law, who is a good grower, assures me that he has as fine spikes from his own saved bulbs as from French bulbs; while Mr. Burrell says that he has even grown them three years from the imported bulbs, and that these are quite as good and vigorous as the imported bulbs. It may have been that, as I have said, the growing of them in light soil, with a good deal of decayed vegetable matter in it, has helped on the disease, through which the bulbs have been weakened, and that, grown on stiffer soil, they would succeed better. Let me give one year's experience. I planted a number of imported bulbs in the lower part of my garden, where the soil is stiff, and I had not one diseased bulb; they also lifted in fine condition. I planted amongst others three bulbs of Shakespeare, which I cut in two before planting. These six halves produced six bulbs, which, a month after lifting, weighed 1 lb. 6 ozs., and measured 10½ inches round. There is clearly, then, no deterioration here, and I shall be anxious to see what the result is next year. I do not like to calculate too much on it, for I remember a good many years ago I lifted some large bulbs of Madame Desportes, which the following year all perished, so I must wait patiently.

I may have somewhat to say by-and-by about new varieties, but in the meantime I would refer all who wish to grow them to the lists recently given. I shall be only too glad to find that what has been written about them may induce some to try them. Years ago, when they were much dearer than now, it was a hazardous thing to attempt them; but now, when they can be had at such a small cost, people ought not to be deterred from growing them. And of all the autumnal flowers that we have, there is not one which is so grand and good for indoor decoration as the Gladiolus; while the manner in which it keeps opening in water when cut gives it an additional value. DELTA.

White Everlasting Pea.—In reference to the subject of this lovely Pea coming true from seed, I wish to state that I collected seeds from a plant of the white variety in a garden where there was not any plant of the pink form, and that the result from these seeds was that out of a number of plants I had but two which produced white blooms, all the others proving to be the ordinary pink variety. Did "J. G., Hants," see the half-dozen plants in bloom which he purchased as white ones? He does not state (p. 518) if they bloomed last year and were white, and this year turned into pink blooms. May they not have been seedlings from a white Pea and sent out as white, but not proved to be so?—J. T. Poë, *Riverston.*

WHITE ALSTRŒMERIA PELEGRINA.

This lovely flower, though generally considered a greenhouse or frame plant, may be successfully grown and flowered in the open air in favourable places. The engraving shows a clump as it grew and flowered early last August in a sheltered, sunny place in a garden on light soil in a southern county, where, for its only protection, it has a sprinkling of dry Fern over the ground in winter. This good plant deserves a choice position, alike from its delicate and distinguished beauty of flower, and from its neat, dwarf habit. It is less than a foot in height, and, unlike its taller brethren, is well clothed with foliage.

Alstrœmeria Pelegrina alba. Engraved for The Garden from a photograph.

Plant shelters.—Many years ago I visited a garden where mud banks had been hollowed out so as to make caves to shelter plants. A short time back, acting on this idea, and having a quantity of mould got by digging out a pond, I made a long mound, and at the north side of this let in pieces of sandstone, so as to make back, sides, and top, and brought the soil so as to cover them. I then planted among known hardy Ferns, such as Hypolepis millefolium and Adiantum pedatum, two caves of Adiantum cuneatum; the shelter and warmth of the covering earth have made these resist the frosts of the last two winters and of the present one. I mean to carry out the plan on a larger scale, and believe that Primula obconica, which was not much cut in the open last winter, and possibly P. floribunda, may be grown out of doors by this means. I have some shelters which I believe to be new, and which promise well; when these have been proved a little longer I propose to send you a note on them; meantime, I may say that a common wicker hen-coop with Bracken worked round it makes a good portable shelter.—George F. Wilson, *Heatherbank, Weybridge Heath.*

OPEN-AIR CHRYSANTHEMUMS.

For the information of "J. R." (p. 536), I append the names of twenty-four varieties of Chrysanthemums suitable for growing out of doors. I also add a few hints upon their cultivation. In growing Chrysanthemums purely for outdoor decoration, a great advantage is gained if they can be planted at the foot of a wall, which affords great protection during early frosts or excessive rains. Satisfactory results cannot always be obtained when the plants, of necessity, have to be grown purely in the open. In shrubberies or herbaceous borders, for instance, they are often spoiled by frost just at a time when the flowers are expanding. In such positions early-flowering sorts only should be grown; but where a wall exists (almost any aspect will do) a charming effect may be had. With such help, a much larger show of bloom and more varieties can with safety be grown; I also add a list of sorts suitable for wall decoration; for this purpose single varieties have a charming appearance, blooming, as they do, so profusely. Nor do they suffer so much from excessive rains as incurved or reflexed varieties. Moreover, the singles, being thin in the florets, dry much quicker after rain than the double sorts. Pompons do well on walls, particularly where these are high, say from 6 feet to 10 feet. Pompons being, as a rule, dwarf in habit, are very suitable for training under their taller neighbours, particularly the Japanese. Thus, by a proper method of training, the wall may be clothed from top to bottom with both foliage and flowers.

For open borders young plants are the best. Many plant in such positions old plants which have the year previously flowered in pots. These are not so good as young plants, inasmuch as they take up more space. Nor are they likely to flower so early as properly prepared plants. In preparing suitable plants to plant out early in May or when sharp frosts are not likely to occur to damage them, the cultivator must be guided somewhat by the locality in which he resides. Cuttings should be inserted any time during February either singly in small pots or several in 3-inch or 4-inch pots placed in a cool house under hand-lights, or in a partly spent hotbed. As soon as roots are formed, the point should be pinched out of each plant, to induce it to throw out branches. Where struck in single pots, pot off into larger pots; or where several are in a pot, place them singly in small pots, return them to the frame for a few days until established, then set them on a shelf close to the glass in a cool house where they will get sufficient light and air to make a stocky growth. When the side branches have grown about 4 inches, remove the points again; after this no more stopping will be required. As the pots fill with roots, replace them in larger pots till 5-inch ones are reached. Early in April they will be better in a cold frame, giving them plenty of air to prevent them from becoming drawn; take the lights off on all favour

able occasions. The soil used for potting need not be very rich; a compost consisting of two parts loam, one part of the materials of a spent Mushroom bed, a good sprinkling of leaf-soil and sharp sand will suit them perfectly. Pot firmly to induce short-jointed growth. Plant out in the borders at the time stated, adding to the soil some well rotted manure; tread the soil firmly about the roots; if the weather is dry give a good soaking of water, repeating this several times during the summer. Attach the branches neatly to a centre stake to prevent them from being blown about by strong winds; from this time onwards allow all branches to grow as they will, and should the weather be favourable, capital heads of bloom will be the result.

For wall decoration the treatment differs somewhat from the foregoing. Old plants having previously flowered in pots are best adapted for walls, as in that case a greater number of shoots spring direct from the base of the stool, thus furnishing the wall entirely from the bottom. Planting may be performed at the end of March or early in April, as circumstances admit. Should the soil be of a poor description, freely add some manure, and, in addition to this, place around the roots some loam and horse manure, first shaking the greater part of the old soil from the plants. A distance of 3 feet should be allowed between each plant of the tall-growing varieties, and between each of these place one Pompon, which will cover the bottom part of the wall. Tread the soil firmly about the roots, which if at all dry should be thoroughly soaked. If the plants were of good size the previous year they will start into growth with many shoots; select four of the strongest on each plant, removing all the others, except in the case of the Pompons, which may be allowed to have six or eight growths. When the branches are long enough spread them out thinly, and fasten them to the wall with shreds and nails, continually securing them as growth proceeds. Do not top the branches when the first break takes place; select two of the strongest shoots on each original stem, or more if space will allow, as some kinds, owing to their larger foliage, require more room in which to develop than others do, and remove the other shoots. From 4 inches to 6 inches apart is a suitable distance to train the branches. In the case of Pompons many more stems may be allowed to remain, as they have smaller leaves, and do not require so much space. Some of these may be trained across the stems of the taller varieties, bending them to the right and the left, according to the space to be covered. Should the summer be hot and dry, the plants should have copious supplies of water at the roots, as the bricks absorb a large amount of moisture. Neglect of this causes a loss of foliage. Liquid manure applied once or twice a week will be of much service in assisting growth, and after a hot day the plants will be much benefited by a thorough washing overhead with the syringe. This keeps the foliage clean and healthy. If the cultivator wishes to have a few larger blooms, those flower-buds which form about the middle or end of August must be retained, removing the growth shoots from as many as it is desired to have larger blooms. One or two on each plant of this sort will suffice, but where a profusion of flower (and this is most desirable for wall decoration) is the object aimed at, all the stems which break at this time from the main branches should be allowed to remain, which will in time perfect blossoms on each shoot. In giving the list for border growth, I have not enumerated any of the ordinary summer-flowering kinds, as I imagine "J. R." means the regular varieties of Chrysanthemums. Where a less number is required the first-named kinds in both lists will be found suitable.

Twenty-four varieties for borders—

Soeur Melanie	George Glenny
Madame Desgrange	George Gordon
Lady Selborne	Simon Delaux
James Salter	Elaine
Mrs. G. Rundle	Bouquet Fait
Mrs. Dixon	Margot
Golden Beverley	Fleur Parfait
White Beverley	La Frisure
Madame Bertie Rendatler	The Cossack
Emperor of China	White Trevenna
Early Red Dragon	Annie Salter
Beauté des Jardins	Refulgence

Thirty varieties for walls—

Japanese.	Black Douglas
Peter the Great	Aigle d'Or
Dr. Macary	Adèle Prisette
Grandiflorum	*Incurved.*
Bouquet Fait	White Venus
Elaine	Golden Empress
Fair Maid of Guernsey	Mrs. G. Rundle
Simon Delaux	Refulgence
Père Delaux	Jardin des Plantes
Reflexed.	Princess of Wales
King of Crimsons	*Singles.*
George Stevens	Patience
Golden Christine	Oscar Wilde
Mrs. Forsyth	White Perfection
Pompons.	Helianthus
President	Mrs. Langtry
Soeur Melanie	Miss Lulu Martin
White Trevenna	

E. M.

NOTES.

Home-grown fruits.—I quite agree with Mr. Coleman (see p. 533) that the best motto for the possessors of old orchards is *Festine lente*—"hasten slowly," or, as we sometimes put it, "slow and sure." One part of Mr. Coleman's article ought to be printed in letters of gold and strewn broadcast by all landowners. Here it is: "To all who own or rent an orchard I still say, prune and cleanse, drain, subsoil, and top-dress. Cut down old and graft inferior sorts, and your ancient Moss-clad plantations will yet pay their way. Do not rest at the attainment of this point, but supplement your old by planting young orchards on deep suitable soils resting on the hillsides, well above the line of fog and frost. Avoid endless variety, but plant in duplicate the best sorts for market or vintage purposes, especially those sorts which do well in your immediate localities." Occupiers may do much for themselves, but proprietors should also assist their tenants in all permanent improvements of this kind. Some landowners already do, or have done, so with the best results. Take, for example, the bulb-growing, early vegetable, and flower culture in the Scilly Islands as originated and fostered by Mr. Dorrien-Smith. Last May I passed through Normandy and part of Brittany on my way to Paris. The old orchards there are as poor as any in England to-day, but there are miles and miles of newly-planted trees, not in low, damp places as of old, but high and dry on the warm hillsides near the farms, villages, or towns. I see on p. 553 that an experienced American pomologist points out the advantages of moderately high and dry sites for orchards, even in the sunny United States of America; but one of the most valuable notes I have lately seen is that anent fruit trees on their own roots from M. Jean Sisley, of Lyons. Grafting, as we all know, is convenient for the nurseryman, but it has never yet been shown that properly-managed fruit trees on their own roots would not be best for the market grower or producer of fruit for home consumption. The extra time we should have to wait for a crop would be more than compensated by the permanent health and fruitfulness of the plantations—in a word, the most profitable fertility-line may yet be obtained by cultivation instead of by grafting. Every fruit grower should test for himself a few trees on their own roots, even if he holds on to grafted trees, as one prefers an old and well-tried friend to a new one. Of course, grafting is convenient, and often most expedient, but we have yet to be assured that fruit trees on their own roots may not, all things considered, be the best. I heard a long discussion on profitable land culture only yesterday, and it resolved itself into two things, viz., fertile brains and cultivation by machinery.

Surplus fruit.—Of course, there are two sides to every question, and my old friend Quibbler, to whom I showed the above note, asks me, "What is the good of growing fruit when that we do grow already is sometimes not worth marketing? Only last year in Kent," he says, "the Plums lay rotting under the trees, and some growers who gathered their fruit crops and sent them to Covent Garden were money out of pocket, as the fruit itself did not realise enough to pay cost of carriage and marketing dues." I read something of the same kind myself, so that I have no doubt that my friend is right, but this only proves that not only must our growers learn to cultivate fruit of the finest quality only (*i.e.*, no second or third-rate produce), but they must also study the marketing question in all its practical details. If market agents form "rings" to keep prices down below a just limit, then the fruit growers generally must combine in self-defence. But above all, is it necessary in dealing with perishable products to prevent any one market becoming overstocked? and to this end the fruit growers must work the wires, and also be prepared to candy or preserve their fruits if they cannot obtain a fair and remunerative price in market for them. Then, if the markets are glutted on any one day, good fruit need neither be wasted nor sold under its fair value. Let the fruit growers of any one district contribute towards a fruit-preserving factory, or a cider mill, or drying machinery for quick-ripening or non-keeping Apples, if such be grown. In a word, a combination of brains and machinery must be made by fruit producers. Shall it be said that a handful of middlemen and commission agents in any one, or in twenty markets, is more than a match for ten times, or a hundred times, their number of fruit growers? Is it possible for injustice on the part of salesmen to linger on in the face of a combination of growers who simply claim their rights? If it is possible for America to send us Apples at a profit, surely it is possible to grow them profitably at home. Fruit growers must combine to get justice from the landowners, the railway companies, and the market agents with whom they trade.

The Tree Tomato.—I remember seeing this plant in fruit in the great temperate house at Kew ten or fifteen years ago. It is not a Tomato in the strict sense of the word, but reminds one more forcibly of some of the innumerable varieties of Egg Plants, or Aubergines, met with everywhere in the Tropics, and especially in the gardens of the Chinese. In habit the plant forms a sort of sub-shrubby bush, 4 feet to 6 feet high or more, its general appearance being somewhat like that of a Brugmansia, but its fruits are golden yellow in colour, and about the size of a Bantam fowl's egg. In warm countries it fruits freely, and its pulpy fruits have been used as a substitute for Apricots in compôtes and other confectionery. Before using them it is necessary to remove the skin of the seeds, and if the pulp is then too acid, it may be improved by steeping it in boiling water for a short time. Its Latin name is, or was, Cyphomandra betacea, and the plant is such a sturdy and vigorous grower, that it might be readily naturalised in waste places in hot countries, just as has already been the case with the Capsicums or varieties of Chili pepper, and also the Tomato. Like the true Tomato, its seeds grow readily, and soon attain to a fruiting state. There are several varieties, some dwarf, others taller, and there is some slight variation in the size, shape, and colours of the fruit, so that if once this plant becomes generally cultivated there is some likelihood of its becoming much improved. I have several times observed the fruits in Covent Garden under the wrongly-applied name of "Granadilla," a name

which of right belongs to the produce of some of the large edible-fruited Passion Flowers of South America.

Ipomœa Horsfalliæ.—Instead of our calling this fine old plant the East Indian, it ought, as I believe, to be called the West Indian Morning Glory. Of course, I am well aware that if reference be made to the gardening or botanical dictionaries, you will there find it set down vaguely as East Indian, and the date of its introduction given as 1833. This plant serves as an admirable illustration of the loose way in which habitats have been recorded in times past. A plant, native or wild in one colony, is admired and taken to another one, or to India, as in this instance, and then when introduced to Europe from Indian gardens it is put down as an Indian plant. There are scores of instances of this having been done in perfectly good faith, but on an insufficiency of knowledge. As Alphonse Karr tells us, "a savan proper prefers error to ignorance, and on no account will he tell us frankly that he does not know." Mrs. Horsfall's beautiful Ipomœa is in reality a native of Jamaica, and my evidence of this fact is the "Annual Report of the Public Gardens and Plantations" of that colony for 1886. On page 18 we are informed "a bank near the director's residence has been converted into a small rockery for the growth of Jamaica hill Ferns and other similar plants; a trellis at the back of this hiding an unsightly roof is intended for the cultivation of some of our native tuberous Ipomœas. It is curious to note that one of these, though so long known in England under cultivation, has only lately been determined as belonging to our native flora. I refer to the beautiful Ipomœa Horsfalliæ; besides this there are several others interesting on account of the profusion and variety of colour of their flowers" As an evergreen stove climber, this plant and its white-flowered reversion, I. Thompsoni, deserve a place in all good gardens. Perhaps Mr. D. Morris, of Kew, or Mr. J. Hart, now acting director in Jamaica, will kindly tell us under what conditions this fine species luxuriates when at home in the west.

Bulbs from abroad.—I fancy I see signs of a radical change in the bulb supply to our English gardens; the cloud is already much bigger than any one man's hand, and the shower promises to be a rich and varied one. Originally our extraneous bulb supply came from two sources, viz., from the Francis le Veans, whom Parkinson describes as "the honestest root gatherer who ever came over to us," that is to say, from Holland, and from Italy and the Levant, through the more enterprising of our Italian warehousemen. Now-a-days, Italy and Holland must look to their laurels, for our own colonies bid fair to take up the bulb trade in earnest, and in a few years' time I question much if the glasshouse culture of any but the very rarest of bulbs for sale will be profitable. So long as private growers or amateur gardeners like to grow bulbs at great expense for their beauty, well and good; they may as well pay for lovely flowers as for pictures, old china, or many other things. But it is not everyone who, like the late Earl Dudley, can afford to pay £500 per annum for the sake of enjoying the beauty of a pair of unique Sevres vases, for which he paid £10,000. Whenever we come to consider our bulb supplies from an economic point of view, then we shall find that it is cheaper to grow all our bulbs in the open air by making our colonies the sources of supply. Jamaica has taken the initiative in this direction, and will soon send us Amaryllis, Gladiolus, and other bulbs by the thousand. Already I see that bulbs of Amaryllis, named as well as seedlings, are offered from Jamaica, and, from the official report of the Public Gardens and Plantations (1886) of that enterprising colony, I see that Gladiolus and Tuberose culture is also likely to be a commercial success there. Transit rates by steamer direct are now so low that even the most remote of British colonies have a chance of contributing to our markets here at home. If ever free trade is abandoned, or a prohibitive duty is placed on foreign produce, we shall then, for the first time, find how really valuable and serviceable our colonies may become. One thing is already clear, viz., that bulbs of all kinds may be grown in our colonies, since they afford us all sorts of climate, and as land and labour are cheaper there, the innovation is likely to be a success in all ways.

Late Chrysanthemums.—These flowers are at all times lovely and serviceable, but from the florist's point of view they are infinitely more valuable during or after Christmas week than at any other previous time. Just now, such sorts as Ethel, Princess of Teck, M. Astorg, and Fleur de Marie are at their best, and I yesterday saw plants of Fair Maid of Guernsey which had been cut down to the pot-tops in May last, and the plants were very bushy, and their flower-heads very numerous, although the individual blooms were not large. Meg Merrilies, Thunberg, Roseum Superbum, and Etoile du Midi are also good, distinct, late kinds, and for profusion of blossoming and long endurance in a fresh state, St. Michael, a yellow-flowered Pompon, is admirable. Cullingfordi has been, and yet is, rich and good in its own way, and we have two or three seedlings which are much admired, although only half-double-flowered kinds. The best is a delicate rose, shading to white in the centre, yielding nice clusters of flowers for cutting. One good point possessed by seedlings is their dwarf and bush-producing character, and they seldom fail to retain their lower leaves quite perfectly. According to the New York papers, the Chrysanthemum is becoming as much appreciated in America as it is here, and some very fine seedlings have appeared there this season. Mr. John Thorpe is, and has been, at the bottom of Chrysanthemum culture and improvement in America, and recently exhibited a plant nine months old from a cutting bearing 1200 flowers. A friend of mine writing from Oporto tells me Chrysanthemums do well there and seed freely, owing to the florets being fertilised by a drone bee-looking insect, and he has already reared a few good kinds.

Bulb growth.—A gardening friend writes to me as follows on the question as to how bulbs manage to descend deeper year by year as some of them assuredly manage to do: "That statement of yours the other day that a line of Crocus planted 5 inches deep had in such a short time come up to the surface rather startled me, being quite contrary to my experience. Now and then Croci do come to the surface hereabouts, but it is always at the instigation of hungry pheasants, and never of their own accord. I know quite well how seedling Croci select a special depth at which to form their first bulb; the radicle descends to a convenient or suitable point, and then enlarges, and various species select different depths. Some form close to the seed, some go down an inch, others 2 inches or 3 inches, and some as much as 6 inches, but how established bulbs manage to descend is rather a mystery; that they do so is certain. I have thought that it happens in this way: the mass of roots in a measure eat up some of the soil below, they penetrate it in many directions, and when these roots decay there is a shrinking of the soil together or downwards, with the result that the bulbs drop, or are borne down into the cavity by the weight of the soil above. Worm-casts will account for some of it; the process is necessarily slow; were it otherwise they would quickly disappear altogether. This theory is defective, however, as it fails to show how some kinds go down faster than others. I should imagine that they would go down more quickly in soils rich in humus than in those composed almost entirely of sand; and it may be that there would be almost as much tendency to come up in the latter case as to go down."

Tulip bulbs.—These bulbs, as most practical growers are aware, descend by means of what are called "droppers," and often fail to bloom while this process is going on, as sometimes happens, for several years. These droppers are figured by my friend in his letter, and seem to be roots a little thicker than ordinary, on the sides of which buds, or bulblets, are produced in a manner as mysteriously as are the bulblets of the Bath Window Onion, called in Latin Ornithogalum longibracteatum. These roots drop down into the soil deeper than the tuft of ordinary root fibres, but are not so thick and marked in appearance as are the ephemeral roots on Crocuses, &c, as alluded to by Mr. Maw and Mr. W. Dod. Perhaps some Tulip grower will enlighten us further as to the nature of these droppers, the object of which seems to be twofold, viz: firstly, to increase the individual; and secondly, to ensure to the bulblets produced the best position as to depth in the soil, so as to favour their after development. "Galanthus (Snowdrops)," continues my informant, "go down in a similar manner, but not often." I have myself observed the fiddle-shaped bulbs of Bluebells and Snowdrops, as though they were effecting a change of level in the soil, but whether downwards or upwards I could not now say. Again, while Lilium candidum and L. pyrenaicum always come to the surface and usually flower better in such position, it is notorious that L. chalcedonicum may be established for many years and no appreciable difference in level be observed. My friend acknowledges that he is puzzled as to how the seedling Bluebells get down so rapidly, even below a gravel path; but he believes they, like the Crocuses above alluded to, drop down the radicle, which is sensitive enough to thicken itself into a bulb instinctively at the proper level. The going down, or *vice versâ*, is not merely mechanical; and, as my friend observes, we must allow the existence of an instinct in plants analogous at least to that in animals. Another friend tells me that his Crocuses in one garden came to the surface, while in his present garden they descend. The whole question is so full of interest, that it is well worth careful investigation.

Light and Lilies.—Some of the American cities are now lighted by electric lamps fixed up on high towers, and a gentleman residing at Davenport, Iowa, whose garden is near one of these towers, writes that his Lilies—Water Lilies we presume he means, as he mentions that they ordinarily close their petals at sundown—now again unfold a few minutes after the electric lights are lighted. We are also informed that the foliage of the trees in the city of Detroit was more luxuriant this summer wherever the electric light had illumined them at night. Without further evidence, one could scarcely assert that trees are really benefited permanently by the electric light as above described, since luxuriant foliage is not always a sure sign of permanent well-being. The more light plants are inured to, the less do their leaves become, as

a general rule, with all due respect to the gentleman of Detroit, who seems to believe the contrary. I remember when the late Dr. W. Siemens read a paper on the effects of the electric light on certain flowers, he mentioned that Tulips expanded at once under its influence, but, as someone pointed out, Tulips, Crocuses, and many other flowers will expand in a room under gas, or candle, or fire light, and that heat is as much a factor as is light in their doing so. Anemones are more sensitive to light, and will close if placed in a dark closet even in a warm room. VERONICA.

TREES AND SHRUBS.

PHOTINIA SERRULATA.

ALTHOUGH this noble Evergreen was introduced from Japan about the beginning of this century, I question if it is so well known as its congener, Raphiolepis ovata, sent home by the late Mr. J. G. Veitch some twenty-five years ago. To the rising generation of gardeners, who see Japanese shrubs and Conifers braving the breeze in every good garden throughout the kingdom, this may appear a little strange, but when it is borne in mind that the female Aucuba was at one time treated as a greenhouse, if not a stove, plant, shyness on the part of early planters is in no way surprising. As a wall shrub, Magnolia grandiflora, especially the Exmouth variety, stands unrivalled, and justly so, for, taken at all points, it is, perhaps, the most noble shrub ever introduced; but we want variety, and a worthy companion will be found in the Photinia, at one time called Cratægus glabra. Loudon, in the "Arboretum," describes it as an evergreen shrub, or low tree, growing from 12 to 15 feet in height, and states that the largest and oldest plants in Britain were growing at White Knights in 1835, and had then attained the maximum height. Fifty years, including the memorable 1860 and 1861, having rolled by since those measurements were taken, it might be interesting to learn through the pages of THE GARDEN how those fine shrubs have fared, and if they still weather the storm. Although I have not seen White Knights, the soil and climate are, I believe, rather above the average, certainly much better than ours, and here a remarkably fine tree, quite 20 feet in height, passed through the winter of 1860 unscathed. This tree, planted against the south side of the rectory, and unfortunately beyond the range of my care, some few years later had reached the gable, and the lateral growths presumptuously shaded the study windows. Aware of the fact that this was an exceptionally fine specimen, I strongly advised the rector to prune back the breast-wood, but the rare Photinia had grown into disfavour, and, greatly to my regret and the annoyance of the patron, I discovered, when too late, that it had been grubbed up and destroyed. Yet another tree, a standard on a dry rocky bank in the castle grounds, exposed to the north and east, had made a very fine specimen, but 31° of frost following a cold, wet summer were too much for it, and, although it did not die, I was obliged to cut it down nearly to the ground. It is still alive, and makes strong growths every year. For the information of planters unacquainted with this shrub, I may state that the large leaves are oblong, acute, serrulated; buds very large, red; flowers white, April and May. The young shoots and leaves are a rich red throughout the season, and the decaying leaves die off a deep maroon or mahogany colour. It is easily propagated by means of layers, and takes freely when budded on the white Thorn or Quince.

Exclusive of the leathery-leaved Raphiolepis ovata, there are three more varieties, P. integrifolia, P. dubia, and P. arbutifolia, no doubt equally hardy and worthy of cultivation wherever a wall can be found for their accommodation. These I have not planted at Eastnor, but a large bush of P. integrifolia grew freely in a peat bed for a number of years, and appeared perfectly hardy without the protection of a wall at Lyons, in the county Kildare, Ireland. Photinia serrulata grows well on our stiff calcareous loam; but were I making special preparations for a plant, I should give it a liberal supply of turf from the old red sandstone, burnt earth, and a taste of peat to start in. W. COLEMAN.

Eastnor Castle, Ledbury.

HOLLY BERRIES.

THESE have almost wholly disappeared in this part of East Anglia during the first week in December. At no time a full crop, they are now, writing in general terms on the 8th inst., wholly cleared. It is, however, a singular and fortunate circumstance that a few plants here and there, and occasionally whole groups and hedgerows, escape the ravages of the birds, and hence those that can hardly enjoy their Christmastide without the ruddy glow of Holly berries mostly find a few to gratify their sentiment and add a special glow of brightness to their decorations. But, judging from the wholesale clearances about here, it is feared that Holly berries will be scarce this Christmas, and those responsible for furnishing them abundantly for home or church decorations had better lay in stores of any left as quickly as possible.

Fortunately, Holly berries will keep on the boughs for several weeks after the latter are cut if the boughs are placed in a shady place in the open, or, better still, in a covered shed or cellar. In the open air the branches laden with berries are still exposed to the risk of being ruthlessly and rapidly cleared by the birds. The latter are quick to discern their legitimate food, and prompt to devour it after it is cut. We hear a good deal of red rags and bulls being enraged by their sight or close proximity; but hungry birds become yet more excited over Holly berries, ripe, rich, mellow, and of fascinating brilliancy. The wood or shrubbery, all still and apparently tenantless before, is at once filled with eager, restless life, intent only on devouring every speck of coral as rapidly as possible. And no one who has not watched the rapidity of the process of clearing Hollies could credit the devouring capacity of the birds. Holly berries are by no means small, but the number devoured, after making liberal allowance for the slips between Holly trees and bird crops, is incredible. The berries, in fact, seem to exert a sort of intoxicating or maddening effect. The more the birds eat, the hungrier and more excited they seem to become. Under the spell of this feast of coral they seem conscious of but one object—the red berries; inspired with but one purpose—the clearing of them off as quickly as possible. In the pursuit of this latter purpose great waste ensues, the ground being frequently strewed over with coral. To a large extent they seem to lose their sense of fear, and to become blind to danger. Hence they not seldom wildly dash against each other in their short, swift, straight flights for the berries; and so absorbed are they in their feasting and gorging, that they may often be netted or shot down almost unawares. Birds on the clearance of Hollies bent assuredly have no care for the morrow. Hence berries almost sufficient for a winter's supply are often devoured or destroyed in a few days.

This season the Holly berries are taken and most of the Haws left. This is a reversal of the usual order of proceeding. But no doubt the haw harvest is at hand. It is, however, a curious fact that when the time of the birds for any particular feast or food, such as the berries of the Mountain Ash, the haws or the Holly, passes by for any considerable period, they seldom clear them off afterwards. I have noted this fact again and again in regard to Hollies. Unless the berries are eaten by Christmas they are seldom eaten at all, and never cleared off in that wholesale manner as they have been during the past week. It is also a curious fact in the economy of bird diet and life that isolated specimens of berry-bearing plants are nearly always spared. I have often examined those rejected ones, to determine the causes of their being left out in the cold. At times the reasons have been obvious enough, in inferior berries as to size, ripeness, and colour; but in other cases no reasons could be found. But it is as fortunate for the decorator as for the propagator, that even in the seasons when the berry clearances are the most general and complete, while the many are taken a few are left. D. T. F.

Desfontainea spinosa.—This dwarf evergreen shrub is not so generally used in the decoration of pleasure grounds as it should be. Few shrubs are more attractive than the Desfontainea, with its orange-scarlet, tube-shaped flowers glittering in the autumn sun. This year it was much later in flowering than usual, and was a very pleasing object during the early part of November. Some entertain an idea that this shrub is not hardy; this may be the case in some localities, but here it has stood the test of twenty winters unscarred. It has not, moreover, had the best of treatment, nor has it been favoured with the best of aspects. In the grounds at Wray Castle, situated on the Lancashire side of Windermere, there is a large plant of Desfontainea that has stood in its present position for thirty years. A well drained position, sheltered, if possible, from north and east winds, suits it best, and it likes some bog mixed with the natural soil in which it is planted.—W. B., *Windermere.*

GARDEN FLORA.

PLATE 575.

MYOSOTIDIUM NOBILE.

(THE ANTARCTIC FORGET-ME-NOT.*)

THE well-grown examples of this choice Borage-wort which were exhibited in flower by Mr. Loder, of Floore, Weedon, at a meeting of the Royal Horticultural Society on April 13 of this year, were exceptionally interesting to those who knew of the existence of the plant, who knew also that it was a reputed bad grower in England, and that it had been grown and flowered by Mr. Watson, of St. Albans, in 1858. This grower also sent his plants for the inspection of the society, and they are reported to have attracted much attention at the time. The stock of the plant was sold to Mr. Standish, but, so far as we can learn, it did not flower again, and finally it disappeared from English collections. Three or four years ago a fresh lot of seeds was procured, and from these several of our correspondents succeeded in raising plants which flowered for the first time this year. Mr. Loder has, however, been most successful with this plant, and we have to thank him for the information given below with respect to the treatment best adapted to the requirements of the Myosotidium in English gardens. Many of our readers will feel disappointed that this plant has not proved hardy with us, for it is in the rock garden only that a plant of this kind is seen to the best advantage. Considered as an indoor plant, it cannot be called really useful, and, according to Mr. Loder, a period of warm house treatment, or at all events protection from frost, is essential to its safety. Probably, however, in the south of England and Ireland it may prove to be hardy.

M. nobile is the only species of the genus, and was first described under this name in the *Botanical Magazine* in 1859, although it had been described by Sir Joseph Hooker the year previous in a contemporary as a species of Cynoglossum, to which Myositidium is very nearly allied. It has a thick prostrate root-stock, from which arise the large, broadly, heart-shaped, succulent, shining green leaves, the petioles of which are thick, grooved, and from 6 inches to 9 inches long. The flowers are borne on an

* Drawn from a plant in Mr. E. G. Loder's garden, Floore, Weedon, April 17, 1886.

erect, stem-like scape, which springs from the apex of the prostrate stem and rises to the height of 1 foot or 1½ feet; it is leafy all the way up, and is terminated by a loose corymb of primrose-shaped flowers. The colour of these is exactly that of the favourite Forget-me-not (Myosotis dissitiflora), but, as in this, the shade of blue varies, either through varied conditions of growth or seminal changes; consequently there is a difference between the colour shown in Mr. Loder's plants and that figured and described in the *Botanical Magazine*. The flowers last about a week, and are succeeded by rather large four-winged fruits, which, however, did not contain good seeds in the plants we saw. After flowering, the plants should be kept in a cool and light position in a frame, and be liberally watered in dry weather. We have yet to learn whether this plant continues to grow and produce flowers after the first time, but the probabilities are that it will be a true perennial. It is a native of the Chatham Islands, a small group in the Pacific, lying 400 miles east of New Zealand.

M. nobile has generally been considered, says Mr. Loder, to be a difficult plant to grow and flower. It has, however, done very well here with very ordinary treatment. The seeds, which were sown in 1884, soon came up, and the young plants grew rapidly. They were kept in a cold frame and protected from frost by mats. In March, 1885, they were potted on, and were kept in an intermediate house for a month or six weeks, and were then again moved back to a cool frame. Some of the plants came into flower in March, 1886, and were exhibited at a meeting of the Royal Horticultural Society on April 13, 1886. The plants require plenty of air, and should be well syringed in warm weather and shaded from the midday sun in summer. Green-fly is fatal to them; the plants must be kept absolutely clean.

WORK DONE IN WEEK ENDING DEC. 14.

December 8 to 14.

During the entire week the weather has been an almost continuous succession of wind or rain-storms, and progress with open air work has been of a very minute description. Digging, planting, pruning, and the like have been quite at a stand-still, and, beyond a little cleaning up of the wreckage, dead sticks, and boughs, no other open-air work, in the strict sense of that term, has been done. We have a considerable extent of walks and roads to keep in order, and with this work, as weather permitted, our hands have the whole week been engaged—opening the drains, cleaning out the fall pits, and re-gravelling such parts as needed that attention. After gravelling, the roads are repeatedly rolled with a heavy, self-ballasting water-roller that is drawn by horse power, and thus the gravel is at once consolidated. This labour is about as profitable as any I have ever had aught to do with. The rolling at this time of year whilst all is so soft makes the roads so hard in the weed-growing time, that even if weeds do make an appearance, a week of hot, dry weather settles them for the remainder of the summer. When rain has prevented our doing the before-mentioned work, having a quantity of shrub planting in prospect—our time has been fully occupied preparing labels and pointing stakes for them, as well as making a supply of labels for renewal of any that are getting obliterated, especially those in the herbaceous plant borders, a section of plants that are known well to but a very few (myself amongst the number), but about which increased interest and inquiries make us anxious to have them all correctly labelled. The principal work in the houses has been the continuation of training Peaches, Nectarines, and Figs, and pruning and cleaning all vineries soon as the fruit is cut. It is to this annual thorough cleansing of both vines, glass, woodwork, and walls that we owe our comparative freedom from insect pests in the summer-time. All Grapes that we have space for in the Grape room have been cut, and Alicante, Gros Colmar, and Muscat of Alexandria would be better cut had we space, but till that is available the temperature of the vineries will be kept as equable as possible—between 45° and 50°—and the atmosphere as dry as the outside air will admit of, and the Grapes will be examined twice a week to remove decayed berries. Lady Downes will be the better if left on the Vines for another month or more, but care will be requisite that the temperature does not get too high to prevent the Vines going to rest, that stage having already been nearly reached, as the rapid fall of the leaves indicate. At the present time Primulas, Cyclamens, and double-flowered Pelargoniums are amongst the best of our flowering plants, and the additional warmth that we have given them during the last three weeks has wonderfully improved them, and there has been no damping off of flowers; mixed with Maiden-hair Ferns in vases and baskets in the hall and staircase of the mansion, they are highly prized, as are also the mixtures of Calanthes, Poinsettias, and Palms for the same positions. Chrysanthemums are fast fading; the season has been a long one, and such creatures of change are we that we can view their end without regret, though, no doubt, anticipations of future glorious displays of them have something to do with our being able so complacently to witness their ending, and we have been high busy during the week making provision for this said display by inserting cuttings of all the kinds that it is intended to grow—at least, so far as cuttings could be got, for some few have not yet thrown up suckers, and these plants we have put in slight warmth—early Peach house—to induce them to throw up cuttings. As plants come into flower in the forcing pit we take them out, and put them in as cool a house as our judgment warrants, and others take their place in the pits. The last of the Roman Hyacinths have now been put in, and a few more crowns of Lily of the Valley, and clumps of Christmas Roses, and large clumps of Snowdrops, which we dig up in the park, and that force very well, provided the ball of earth is kept intact. A small batch of Seakale we put into forcing quarters weekly, and a root or two of Rhubarb fortnightly. Asparagus we do not begin to force till the new year, for till the days begin to lengthen, when at least the points may get greened, the flavour is very insipid.

Hants.

FRUITS UNDER GLASS.

Peaches and Nectarines.

The buds upon early varieties, started in November, will now be swelling freely, and some will soon show the colour of the petals. When this stage is reached a little more warmth may be given by day and the minimum raised to 50°, or, in very mild weather, to 55°, always with a circulation of air. Nothing, however, will be gained by distressing the trees through the early season of their growth; therefore, should frost, or, worse still, cold, dark, stormy weather set in, the figures contained in my last paper may still be adhered to. I always make a point of starting my Peaches at a very low temperature, as I find the flowers open strong and perfect when, the energies of the trees having been husbanded, not only by the absence of sharp fire-heat, but also by a continuous circulation of air, they set freely, and make up for lost time under a high temperature which debilitated trees cannot stand. Let the syringe be plied on bright sunny mornings, and again about mid-day, but avoid a wet, sloppy state of the house, for, much as Peaches revel in moisture when in full growth, they resent it through long cold nights and dark dull days in December and January. Moisture, it is unnecessary to say, must be present, but this can always be secured, not in chilling showers, but by the judicious use of fermenting leaves placed upon the borders, and renovated from time to time as the genial warmth declines. If the borders were in a proper growing state when the house was closed, a further supply of water may now be necessary; but this is a matter which a stranger cannot presume to regulate, as so much depends upon the surroundings, the nature of the compost, the depth of soil, and the amount of drainage. One thing, however, is certain: they must never feel the want of water, for if once allowed to get dry, all the finest buds will drop when the flowers ought to be opening. Therefore, provided they are well drained, as all Peach borders should be, a liberal supply of water, at a temperature of 70°, will certainly do them no harm, and they will then stand until the flowering period is over. If Strawberries are brought on with early Peaches, the plants should be dipped in sulphur-water to free them from the remains of spider or mildew before they are introduced; and all Peach houses, whether they contain other plants or not, should be fumigated once or twice to secure freedom from fly during the time the trees are in flower.

Succession houses intended for closing about the first week in January must still have plenty of air and more or less water to secure a thoroughly moist condition of the soil before the trees are excited. Some Peach growers, under the impression that they start better, leave the trees untied until the buds are well on the move, but it is difficult to realise the advantage, as many of them get injured and the process of training is more tedious. Moreover, the work in all forcing gardens increases rapidly after the turn of the year, and for this reason alone delays should be avoided. Although there may not be any perceptible increase in the length of the days, the month of January is often bright and frosty, and the time for these precocious trees making a start being nearer, a somewhat higher maximum temperature from the first may be indulged in. The syringe, too, under such conditions may be more freely, if not more frequently, used, but in all other respects rules laid down for starting the early house must be closely adhered to.

Late houses in which the trees are thoroughly at rest cannot be too freely ventilated. Pruning, cleaning, and tying in these is generally reserved for wet or inclement days, but on no account should cleansing or painting where still practised be put off until the buds begin to swell. If these late structures must be used for storage purposes the winter occupants should be of the hardiest nature and not likely to be injured by a few degrees of frost, as it is bad policy to light fires over-night to shield the plants from possible danger the following morning.

Cherries.

It is yet early enough to start these, but where fruit is wanted early in May preparations for closing should now be complete. Being highly excitable even in the open air in mild winters, the houses cannot be too freely ventilated not only during the time the trees are resting, but also after they are started. Fire-heat is of course necessary at times, but, aided by fermenting leaves placed on the borders, the minimum of 40° and a maximum of 50° can frequently be maintained without it, and these temperatures being quite sufficient to swell the buds, the successful forcer's greatest care will be the avoidance of an excess until after the fruit is stoned. Like Peaches and all stone-fruit trees, Cherries require liberal supplies of water throughout the growing season, and, although they do not often cast their buds, the want of this element through the resting period tells unfavourably when the fruit is setting. Water, therefore, especially where the houses have not been stripped and exposed to autumnal rains, should be freely administered as often as may be considered necessary to the maintenance of a thorough growing condition from the fall of the leaf onwards. When the buds are fairly on the move the syringe may be plied twice a day, and external conditions being unfavourable to a rise to 50° with plenty of air, a gentle circulation on the pipes from daylight until noon will help

them forward without taxing the trees. Much, however, depends on the state of the weather and the amount of light at command, for, as I have just observed, the Cherry is excitable and precocious, and must be coaxed forward on the give-and-take principle always at a low temperature with plenty of air.

Succession houses, where they exist, may remain uncovered so long as the weather continues mild, but the roof-lights by this time should be painted and ready for placing in position on the approach of frost or falls of snow. When covered in, cleansing and tying can be proceeded with at leisure, and the trees being so subject to green and brown aphis, particular attention should be paid to washing the old wood and spurs with strong soap water. The latter, especially on old trees, in course of time become crowded, and require thinning with a fine-bladed knife, not only to facilitate thorough cleansing, but also to throw strength into the buds from which fruit is expected. If the trees were neither renovated nor top-dressed in the autumn, all old mulching should be removed as soon as tying in is finished, and replaced with good friable loam or rotten manure; but unless there are signs of decided weakness, animal manure should be withheld until after the fruit is set and swelling freely. These remarks apply to trees established in internal borders and trained on trellises precisely the same as Peaches; consequently, having a more extended root-run, stimulants must be more sparingly used than when they are cramped up in pots or boxes. When grown in this way, the proper time to pot and top-dress is immediately after they have completed their growth and before the leaves fall. They then get thoroughly established in the fresh compost, and, being exceedingly floriferous, will stand heavy mulchings at the outset. Space being limited and variety pleasing, this is perhaps the best, certainly the only mode of growing a selection of Cherries. Gardeners, whose main point is quantity combined with quality, frequently, I may say generally, confine themselves to two or three good sorts, like May Duke, Black Circassian, and Elton, with perhaps a tree of Bigarreau Napoleon for winding up the forcing season or exhibition. If enthusiasts, they may greatly extend the supply of house Cherries by potting up a quantity of the finest late dessert varieties. Indeed, in our variable climate, especially in wooded districts, bird-proof houses offer the only facility for ripening and keeping them until they attain their full flavour. Glass alone will secure the flowers from frost, but damp—the greatest enemy—may decimate or ruin the crop where fire-heat is not provided. A flow-and-return pipe attached to a slow combustion boiler, fed by a few cinders, will do good service for a few weeks when the trees are in flower, and again occasionally to expel moisture when the fruit is ripe. Handsome floriferous pyramids can be obtained from any good nursery, and now is the time to pot them. Pots with perforated sides answer best, as they can be watered freely; but they should be plunged up to the rims in the borders, and heavily mulched through the summer. A houseful of Cherries in flower is a most charming picture, and the thought that time will transform these fragrant blossoms into a harvest of luscious Bigarreaus greatly enhances its value. The best compost for Cherries is a free calcareous loam, burnt clay, or lime rubble, and a liberal sprinkling of bone dust. This should be used rather on the dry side, and firmly rammed home with the potting-stick. A moderate watering to settle it about the roots will finish the operation, when plunging must immediately follow. A good crop of fruit being the main object, an abundance of air must be given night and day until the buds burst into flower.

Plums.

These and the preceding require precisely similar treatment throughout the early stages of their growth; indeed, many fruit growers use the same compost, and not unfrequently bring the two on together. Such being the case, it is hardly necessary to repeat my remarks, at least for the present, as some weeks, if not months, will pass before the early ripening of the Cherries will render their separation advisable. Where a separate house or compartment can be devoted to each from the first this arrangement is desirable, as trees can then be planted out in the borders, whilst others in perforated pots will not sustain a check from disturbance when the fruit requires support from young rootlets creeping into the plunging material. For very early forcing suitable varieties established in pots perhaps answer best, as the trees are then portable, and, being rather excitable, require full exposure to the elements soon after the fruit is gathered. If pot culture is impracticable, the roof lights should be movable. Golden Drop and other choice late sorts which, like the Bigarreau Cherries, come on gradually with the season, not only require constant protection from heavy rain, but derive great benefit from a dry, brisk, artificial warmth when the fruit is ripening. Moreover, a thoroughly dry atmosphere is the main factor after the fruit is ripe, as damp and mould are the greatest destroyers in Plum and Cherry houses. Plums, it must be understood, will not be hurried; therefore those who would have them early must make a judicious selection, get them thoroughly established, and start early. De Montfort and Denniston's Superb are the best old Plums I have met with for very early forcing, and if I now wanted quality I should confine myself to these two and fill a house with them. Rivers' Czar and Sultan have a good name, and may be worth forcing. Of mid-season sorts we have an abundance, but nothing can surpass Kirke's, Jefferson, McLaughlin's, Oullin's Golden, and the old Green Gages. For the late house Coe's Golden Drop is a host in itself, but variety being charming, Blue Impératrice, Late Rivers, and a tree or two of Grand Duke may be added.

The Grape Room.

If this important structure, not unfrequently used for Pears which give off a great deal of moisture, has not been put in order, no time should be lost, as the latest Grapes in another fortnight will be fit for bottling. The first step should be thorough cleansing and washing the walls with a solution of quicklime and sulphur; then the bottles, or other vessels, may be filled with soft water and placed in the racks to drain and get dry externally before the Grapes are introduced. A cool dry atmosphere being so essential to the preservation of the fruit, the windows and ventilators should be opened on fine mornings, and brisk fires made to dry the walls and expel moisture. By fires it must be understood that a slow combustion boiler placed outside, with a flow and return pipe running along one side of the room, is the proper mode of heating, as smoke and dust are then avoided, and an equable temperature of 40° to 45° can be maintained in all weathers. By firing on fine days, and keeping the room close and cool through the night and on wet days, it will be fit for the Grapes by the first week in January, when, all the leaves being off the Vines, cutting and storing may be commenced and finished in a few hours. Each bunch should be cut with all the wood that can be spared, in order that the stalks may pass deeply into the water, and still allow the bunches to hang clear of the bottles. When detached, the berries should neither be rubbed nor disturbed in transit, neither must the ends of the growths or laterals be shortened, for if this is done the dry atmosphere of the room will rob them of a great deal of moisture, and imperfectly ripened bunches will soon shrivel. When all the bunches are arranged it may be necessary to open the apex ventilators and warm the pipes for a few days to expel moisture, but the less fire-heat the better the Grapes will keep, provided 40° to 45° can be maintained, and mould does not get into the largest bunches. The person who cuts the Grapes, it must be understood, should remove every doubtful berry, as one that is faulty soon destroys many, and it will be necessary to look them over once a week throughout the season. Newly cut Grapes, or the wood to which the bunches are attached, take up a good quantity of water at first, but when the bottles have been filled up once, or perhaps twice, the waste is trifling. Still, a close watch should be kept upon them, as the most perfect berries soon shrivel if the ends of the shoots are allowed to become dry. Some put a small piece of charcoal in the water to keep it sweet, but this is unnecessary, as I have bottled Grapes with and without it, and the result, the fruit being ripe, in each case has been satisfactory.

Eastnor Castle, Ledbury. W. Coleman.

Fruit Garden.

BOARD FENCING FOR GARDEN WALLS.

One of the impressions conveyed by the sight of an ordinary fruit and vegetable garden when of considerable extent is, that the high, substantial walls with which it is usually enclosed have formed much the largest item in the cost of its formation, and that too often, either from the unsuitable character of the soil or climate, or other causes, the value of the fruit produced by the trees that occupy such walls, if reckoned, would fall short of giving an adequate return in the shape of interest on the money sunk in building them. In times past there was much to say in favour of the brick walls in question. A garden requires a fence of some kind, in addition to which shelter is needed for early Peas, Lettuces, and numbers of other things that can be had earlier from a cosy border protected from cutting north and east winds. Those entrusted with the formation of old gardens might have used living fences, such as Yew, Holly, or plants of a similar character; and much on the score of appearance might be urged in favour of them, but then, as there ever must be, there is the objection to garden fences of this kind that the roots of the fence interfere with whatever crops have to be grown near them. Glass was then too dear to admit of much in the way of fruit being grown under it, except Grapes and Pines, and these in limited quantities. Peaches and other choice fruits could be grown in quantity on open walls; therefore brick, or occasionally stone, walls were looked upon as the best to adopt. Wood might have been used, but wood was then dear, and the means of converting it and preserving the more perishable kinds were not then in existence. Now, matters are different; timber was never so cheap as at the present day, and the best of all materials for rendering it durable—gas tar—costs little beyond the trifling expense of applying it. As is known to those who have used this tar, its preservative properties are such that it is a question if deal of inferior character will not last as long when coated with it as wood which is of better quality. For instance, I know cases where ordinary Spruce boards 1 inch in thickness have stood exposed to the weather for forty years before they were so far decayed as to be unserviceable. Swedish flooring boards, planed and ready for use, are now selling in London at the river side for from 7s. 6d. to 8s. per 100 feet square. For the purpose under notice, it is needless to say that planing is useless, the boards being as good in every way just as they come from the saw. As a matter of course, the posts required to support these wooden walls would need repairing before the boards were worn out; yet that would not involve any great cost. It is more than likely that iron uprights, sufficiently stayed and let into concrete footings, would be best, taking cost and durability into account. Now, when malleable iron is only about £4 10s. per ton, cast-iron supports for a fence—say 10 feet high—should be had at a cheap rate.

With ordinary garden walls, as with other things that people have been accustomed to, it often happens that everything in the way of an innovation is wrong; but board-fencing, only somewhat lower than that which I suggest as a substitute for brick garden walls, is common enough, and the comparatively little cost which the use of boards, even with iron supports would entail can scarcely fail to be worth considering. Gas-tar has one advantage, and that is, aphides do not like it. One of my Peach trees, the branches of which are partly trained against a wall and partly against a board-fence that has been tarred for the last two years, has been much troubled with black aphides, which, despite repeated dressings every summer, have again appeared, yet they have been almost wholly confined to the branches that are against the wall. They seem to have no relish for the shoots against the boards, though it is over seven years since they were last tarred.

It is not likely that wood will supersede brick walls for enclosing gardens. When well built, there is an air of durability about such walls that wood does not possess, and the eye has got accustomed to brick walls to an extent that makes them appear the fittest for enclosing a fruit and vegetable garden; and when people are engaged in this kind of work, there is often a disposition to adopt that which has all along been looked on as the right thing. Yet it is possible to pay too dear for appearances, especially at the present day, when expenses connected with gardens are in many case perforce more closely looked into than in times past. T. B.

LIFTING THE ROOTS OF VINES.

Some places are so favourably situated for Grape growing, that the position or condition of the roots seems to give no trouble. These, however, are exceptional cases, as by far the larger number of good Grape growers know the importance and the necessity of keeping sight of the roots, which can only be done by occasionally lifting them, and, doing as Bacon suggested in one of his admirable essays, placing new soil about them. The Vine revels in fresh turfy loam. If it gets so much out of condition as to be incapable of producing a perfect bunch of Grapes, lift the roots out of the sour, close mass of earth and lay them in a newly-made bed of chopped turf, and the whole character of foliage and produce will be changed. The chopped turf should be taken from an old meadow or pasture, and if of a non-calcareous nature, lime in some form should be added. Lime may be used in Vine borders in the form of fragments of old plaster, or mortar from the débris of old buildings. Yard manure should be very sparingly used, except as mulchings in summer, but bones in all forms are valuable; artificial manures, such as nitrate of soda, guano, and the manures manufactured by Thomson, Clay, Amies, and other makers have, when used with judgment, produced beneficial results. Very many of the borders made for Vines are ruined by too much yard manure being used when the borders are made. As the fibre in the soil decays the earth settles down, and the manure when used abundantly clogs up the pores of the soil and renders it unwholesome, and the roots decay in it, and shanking in some form ensues. In the renovation of a border in which the roots of the Vines are in a bad condition, care must be exercised.

Autumn is the best time to do the work. Begin it by opening a trench from 3 feet to 4 feet wide, according to the width of the border along the front, cutting away everything found there; and remove all bodily down to the concrete or drainage. Then begin in the trench, and with steel forks gradually fork down the soil, liberating the roots as carefully as possible, laying them back on the border or on one side, as is most convenient, covering them with mats to shelter and protect them till the work is completed, and they can again be made comfortable. When the whole of the soil has been taken away, examine and renew, or repair the drainage, if required, and then fill in with fresh turfy loam, treading it a little to give the requisite firmness; after pruning the roots, to remove damaged or unhealthy parts, lay them out straight in the border from 6 inches to 9 inches deep. Long, naked roots, if there are any, may be notched with the knife at intervals, to induce the formation of young fibres. Mulch with leaves and litter to keep off cold rains, and to keep the roots at an equable condition as to temperature and moisture. If the border is more than 12 feet wide, it need not all be filled in at once. Do half, and fill in the remainder in a couple of years' time. Only a light crop of fruit should be taken the year after replanting; and a young shoot here and there should be encouraged to break away, so that the Vine rods may be renewed as well as the roots. E. H.

WATERING INSIDE VINE BORDERS.

The value of an unlimited supply of water for Vines, the roots of which are confined to the interior of the house, is well illustrated in the case of a vinery in the garden of Sir J. W. Ellis at Byfleet. When Mr. Bisset, the gardener, planted the Vines several years ago, he had no means of giving them an ample supply of moisture, and when I saw them about two years since, both wood and berries were small, although the Vines looked healthy. I saw them again last season, and was surprised at the difference in their appearance, which is due to frequent floodings which they received during the growing season, an unlimited supply of water being now at command. I believe that there is no greater mistake than making Vine borders exclusively in the house, where an ample supply of water cannot be had. I would sooner have a poor border outside than a rich one inside and deficient in moisture. However well you may feed Vines, the good store of nutriment is of no avail without fluid to render it sufficiently soluble for their use. In all market gardens where the roots of Vines are inside, provision is made for thoroughly drenching the soil at frequent intervals. I know a Vine grower who grows late Grapes remarkably well. He makes a practice of forking over the surface once a fortnight, and this is immediately followed by a drenching of water. Under this treatment the berries swell up and colour well. In the greater portion of the gardens in this country it unfortunately happens that sufficient water cannot easily be had. It is impossible to give enough in the ordinary way of watering; it must be given through a hose, and this can only be done by means of pressure from the outside. I once had charge of a tolerably large garden where one man could water every flower-bed in the course of about three hours. Taps were fixed here and there on which a hose was screwed, and it was pleasant to see the cool spray falling on the plants which had passed through a parching day. In a nursery on the Continent it required the daily labour of a man and a lad from 6 a.m. to 9 p.m. and a horse water-cart to fill the tanks in the glass-houses. The owner at length resolved to make other arrangements. A tank and suitable machinery were fixed, and the result was that one strong lad filled the whole of the tanks, as well as a great many tubs sunk in the ground in the course of an hour. I am sure that the outlay thus involved was covered in the course of one summer. Nothing fatigues a workman more than daily dragging about big water-pots, which, by the way, are often so large as to defeat the end they are intended to effect, and frequently all that can be given in this way is as but as a drop in the ocean compared with what is needful.

J. Cornhill.

Blenheim Oranges.—The Blenheim Oranges sent us by Mr. Coleman last week, and alluded to in his article in the first page of the paper, were specimens such as we rarely see in London, very handsome, and of a splendid colour. Apple growers would do well to consider Mr. Coleman's remarks about them; and we think nurserymen and others who send out new Apples so often, wholly inferior to the Blenheim in its cooking or eating qualities (in its season), would also do well to consider whether it would not be better to call attention to the culture and perfecting of our fine native fruits like this than to raising kinds which merely happen to have a showy appearance or some other quality quite secondary to that of flavour.

THE GOOSEBERRY.

This, to many, is the best of all fruits, and one, according to my estimation, far too much neglected in even good gardens. It is not only the cottager's friend, but at the same time fit for any nobleman's table. The culture of the Gooseberry, unlike that of the Vine, entails little or no expense; after being carefully planted, all it needs is good attention in the way of an annual top-dressing of rotten manure, and pruning, or, I might say, proper thinning out of useless wood. Pruning has been very much altered of late years; now, in most cases, the bushes are merely thinned; all misplaced and cross branches are cut away, and as much fruit-bearing wood left as is consistent with the strength of the plant. The thinning of the wood is no doubt good practice when quantity of fruit is required and where it is used in a green state, but if fine large well-flavoured berries are the desideratum, the bushes ought to be kept quite open in the centre, and the main branches should stand quite apart from each other, thus allowing the admission of plenty of air and sunshine to impart flavour, which is so much valued in a Gooseberry. Another point where handsome fruit is desired is to thin the fruit well. This is rarely attended to, but are not Peaches, &c., thinned? then why not the Gooseberry? This thinning process is all the more necessary in the case of bushes of pendent habit, which in many seasons are so weighted down with fruit, that it is utterly spoiled by lying on the ground. As to their after cultivation, the spade ought under no circumstances to be used. Early in the season apply a top-dressing of good rotten manure, thus causing the fibrous roots to find their way to the surface, and thus invigorating the plant. Check all weed growth by means of the hoe, and there will be no necessity whatever to have recourse to digging in any form either with spade or fork.

The following is a list of select sorts, viz.: Early Sulphur—an early variety of medium size, very hairy, bright yellow. Aston Hepburn—a small, early variety, dark greenish yellow. Keepsake—large, early, whitish green. Mount Pleasant—large, midseason, greenish yellow. Broom Girl—large, early, greenish yellow, very fine flavour. Topgallant—very large, midseason, whitish green. Monarch—very large, late, whitish green. Gretna Green—very large, early, very dark green, of exquisite flavour. Green Globe—large, early, pale green, flavour very good. Sir J. B. Warren—very large, late, red, quality very fine. Roaring Lion—large, late, pale red. Lancashire Lad—large, midseason, red, very hairy. Hedgehog—medium, late, pale red. Langley Green—medium size, midseason, light green, very hairy, of excellent flavour. Porcupine—small, midseason, white, very hairy, exquisite flavour. Over All—small, late, deep red, very hairy, keeps well. Green Gage—medium, early, dull green, good flavour. Starling, large red, early, smooth, first-rate quality. W. P. T.

Apple Braddick's Nonpareil.—With us the invaluable Cox's Orange Pippin seldom keeps good later than December, and at the present time many of its fruits, although apparently fit for the table, are discoloured inwardly. In Braddick's Nonpareil we have an excellent succession, and this comparatively little grown, though well-known, sort ought to be given a trial in every fruit garden.

It is not a strong grower, the shoots being more slender than those of the majority of varieties. We have it in bush form, and this method of training would appear to best suit it. Heavy crops are never obtained from it, but a failure is very rare. The fruits are of medium size, rather flat in shape, and some of them are well coloured. On the whole, it is not a showy variety, but the quality never fails to satisfy us. It is fit for eating early in December, and keeps two months or longer if there is no run on it.—W. I.

APPLE-TREE HEDGES.

In gardens near the seacoast, hedges of any kind have a value that dwellers in sheltered inland valleys can hardly realise, and many are the materials, both live and dead, used in the formation of both these wind-screens; for although frost is not so intense as inland, the withering effects of violent gales, that at times threaten to tear the crops out of the soil, have to be guarded against, and therefore hedges of Escallonia macrantha, Tamarisk, Euonymus, Laurustinus, and other plants that luxuriate near the coast are in great request, while good high walls answer a double purpose. Walls, however, although they check the onward sweep of the blast, do not provide a perfect shelter for the inmates of the gardens enclosed, as the force of the wind is only altered in its course, and it dashes down on the other side with such fury, that trees subjected to it suffer more than others that stood right out in the open. The only way to effectually screen any garden that suffers from violent gales is to make the occupants perform a part of the duty themselves, by converting them into fruit or flower hedges, as the case may be. Thus all sorts of things are planted in lines, and securely fastened to stout galvanised wire fixed to posts, just like rows of Raspberries, and it is surprising how many things do equally well in continuous lines. Nothing, for instance, makes better hedges in the fruit garden than the Apple, and in growing it in this way one gets rid of the old drawback to espaliers so common in all old gardens, viz., the means of supporting them, for if trained on stakes the latter soon rotted and had to be replaced, and the ties were always getting out of order. If wire trellises were employed they were expensive, to begin with, and were always a source of trouble when the tree reached full size. But Apple-tree hedges require neither stakes nor trellises, and but little tying. What is needed is to plant very much closer than what used to be the rule in the case of the old horizontal-branched espalier, and to simply tie the points of the shoots of one tree to those of its neighbour.

By following up the simple plan of cutting off the foreright shoots in summer and letting the others extend in the desired direction, an impenetrable hedge is soon formed, and no other plan produces larger returns in the shape of fruit compared with the space occupied than these do. The fruit, too, is of the finest quality, fully exposed to the sun and air, but perfectly safe as regards being blown off by wind, for after violent gales, when the tall trees have been nearly stripped of their fruit, not a single sound fruit has been blown off the hedge trees. Some may say what about the cost of planting? Well, at the price at which Apple trees are now sold in quantity, the cost of the trees need not deter anyone from planting. One-year-old maiden trees are best for any sort of planting, except when one is in a hurry to get fruit, which is not always the case; if a start is made in time to allow of successional trees coming into bearing before others are worn out, there is no reason why one might not plant the stocks in lines about 2 feet apart where the hedge is desired, and graft them the following year. They can then be headed down to any desired height, and will soon form a well furnished hedge.

Hedges may also be formed by planting cuttings, or rather branches, some kinds of Apples rooting very freely, provided good sized branches are used; little ones of the current year's growth are useless. Directly the leaves fall, many kinds of Apples will show a disposition to form roots similar to what occurs in the case of Vines when the atmosphere is too much charged with moisture. These incipient roots are most noticeable around the old hard knots and spurs; these therefore we select and cut off, so as to allow of their being planted at least a foot or 18 inches deep, and the majority of them root freely. The old French Crab is an example of a useful late-keeping Apple that increases readily in this way. I have also many others on their own roots. Some sorts strike as freely as Willows in this way; those with clear shining bark are not good subjects on which to experiment on. Those who fail in striking Apples from cuttings do so, as a rule, from using too young wood.

Raising Apple trees from cuttings may not be advantageous to all, but in forming Apple hedges when we find sorts that root freely from cuttings we use them, economy being an essential point, especially in the case of those who live by gardening as a profession. A hedge cannot be formed without a goodly number of trees, and the cheaper they can be produced the better. J. G.

SALEABLE FRUIT.

Although we hear on all sides that our markets and shops are overstocked with fruit, flowers, and vegetables, it is not denied that the best of everything finds a ready sale at good prices. Some of the shrewdest among us are profiting by this knowledge, and now turn attention to the cultivation of a better class of products, quality rather than quantity giving the best returns. Some there are who cannot be prevailed upon to act so judiciously, and yet these are the first to grumble at the bad times. Every time I pass a good fruiterer's shop, where American Apples are usually most conspicuous, I credit the Yankees with superior judgment, and believe them to be better business men than we are. If the average English farmer has a lot of Apples to sell, it never occurs to him to select only the best, and thereby secure a remunerative price, but all, good and bad alike, must go together. The consequence is low prices are given, less money being returned than if only the best had been sold and the rest thrown away. Many do not even take the trouble to keep the sorts separate. This season, a friend of mine bought an orchard of Apples, the owner to gather the fruit. When sent for all were found to be mixed together, the lot being thereby literally spoilt for home sales, as but few purchasers would go a second time for a basket of Apples that included culinary, dessert, and cider varieties. They were sent to the nearest large market town and were sold by auction. Another favourite trick, when baskets or sieves of fruit are sent to market, is to put all the best on the top and the rubbish underneath, but this very shallow species of deception really deceives no one at all acquainted with the "tricks of the trade." No matter how many Apples are grown in this country, unless we act more sensibly and honestly, the American Apples will always be bought up most readily. A dealer knows when he has purchased a barrel of Baldwins, Newtowns, or other popular sorts, that the contents, as a whole, are nearly, or quite, what they are represented to be. No rubbish is found; all are well selected fruit, fit for any purpose. It cannot be too often repeated that rubbish is not wanted in any market, and not only should Apples be well selected, but all other kinds of fruits and flowers also should be carefully assorted. Two inferior Pears would materially affect the price of ten fine fruit with which they were associated, and it is just the same with Grapes, Peaches, and Nectarines. Send only the best, and this not only simplifies the work of selling them, but also prevents dishonest salesmen having an excuse for condemning the consignment. W. I. M.

Apple Peasgood's Nonsuch.—This is altogether a most desirable variety, good alike for home or market purposes. As a show fruit it is unequalled, and, being fit for either culinary or dessert purposes, it is sure to sell readily. Some of the finest fruits I have seen of it were exhibited at the first Exeter Apple fair—the produce of quite a small pyramid. This summer I noticed in the Castle gardens, Sherborne, a pyramid of it which was well cropped with very fine handsome fruit. It also does well as a cordon, and, being of a vigorous, yet fruitful habit, I have no doubt it will become a popular orchard variety. The quality is good, but, as a rule, the fruits are too large for dessert purposes. I should therefore class it as a handsome culinary variety, in season from November to January.—W. I.

Outdoor Grapes.—As regards "Veronica's" observations about outdoor Grapes, we think this quotation from *The Field* may be useful: "We have asked two of the most experienced gardeners we know what they think of Grape-growing in the open air—Mr. Robert Marnock, who has perhaps seen as many of the gardens of England of the better class during the past fifty years as anyone, and Canon Ellacombe, well known in the west country. Neither of these gentlemen can point to any successful examples of culture, and they quite agree in thinking it hopeless to get any good results."

Two worthless Grapes.—I have formed a poor opinion of the value of both Alnwick Seedling and Gros Maroc. Alnwick Seedling first bothered most cultivators on account of its non-setting propensity, and then when this had been overcome somewhat it turned out that it had never been worth the trouble taken with it. Passing the hand lightly and frequently over the bunches when in bloom is a sure method of effecting a good set, and since this or any other plan of fertilising the blooms has been adopted, good-sized, handsome bunches have been common enough. As before stated, no difficulty is experienced in colouring the berries as "black as Sloes," but in October or much earlier, if ripened for the August shows, the berries commence to shrivel, and at no time is the quality anything but second-rate. It certainly possesses a good constitution and is very prolific; but why grow a Grape that no good judge would eat? Gros Maroc has been more highly eulogised than Alnwick Seedling, and perhaps I am treading on dangerous ground when I assert that it is altogether over-rated. At first our experience with it was that nothing would induce the young Vine to make any real progress, and the rods we have fruited have both been either grafted or inarched on a Black Hamburgh stock. We have it in both a Hamburgh house and a late vinery, the former being slightly warmed in order to ripen the fruit in July, and the latter given sufficient heat to ripen Muscats, Alicantes, and other varieties about the middle or end of September. Now, if the Gros Maroc would be of good quality under any circumstances, surely we should have had it good in one house, if not in both. On the Hamburgh stock we found it to be exceptionally vigorous—much too gross, in fact. It was moderately fruitful, and ripened a few days later than the Hamburghs. The size of the berries was satisfactory enough, and the colour equally so, but who would eat its fruit if a very middling sample of Black Hamburgh was available? I would even prefer Alnwick Seedling to Maroc; of the two it is certainly a better keeper. It sells readily, I admit, though I am not yet prepared to recommend market growers to cultivate it largely. I certainly would caution private growers who market no fruit against planting either Maroc or Alnwick Seedling.—W. I. M.

SHORT NOTE.—FRUIT.

The best fruit preserves are made by boiling down the juice without any addition till it thickens. The natural gum and sugar present in most fruits only needs concentration to form either syrup or jelly, but the practice has been so long to use sugar for a more rapid process at the expense of flavour, that the earlier and better method is all but forgotten. The first confections and conserves of fruit ever known were made in this manner, in the rich valleys of Persia and Northern India, a process doubtless learned from Dates, Grapes, Figs and Nectarines curing themselves on the bough in favourable seasons, drying in their own sugar crystallising

round the stem. The Grape juice thickening on the side of the wine press in the sun would teach some one more intelligent than his fellows to try evaporating the juice on slabs of stone, and the honey so made was delicious enough to fix the process in favour.—*Vick's Magazine.*

WHITE DAFFODILS.

THE accompanying outline engraving was intended to illustrate a note which appeared in THE GARDEN two or three weeks ago. The flowers are examples of the variableness of wild white Daffodils collected in the same spot on the Pyrenees. It is found that such characters as the relative length and breadth of the perianth segments and the crown remain constant in the increase from the same bulb, and at a time when those who studied the Narcissus founded distinct species on such characters, the three flowers here figured would each have claimed a different botanical name. The slight variations in form are, however, so many, and the forms pass into one another so gradually, that no modern botanist would think of separating them. There are two or three fields and orchards in England in which white Daffodils have become naturalised, and grow mixed with the common form of wild N. pseudo-Narcissus, with which they appear to have crossed. In these fields it would be difficult to count the number of varieties of shade and shape which these white Daffodils have assumed.

In reply to the note of "F. W. B." on p. 543, I by no means propose to increase the number of Haworth's names for wild white Daffodils. My contention is that, as far as our present knowledge goes, the one name N. moschatus is wide enough to include them all. I consider N. pallidus præcox, variable as it is, to have well-marked characters, and to be separated by a long gap from the high mountain form N. moschatus. N. variiformis, though perhaps not so well defined, and probably connecting N. nobilis of Redouté and N. muticus of Gay, amongst which I found it growing on the Pyrenees, is in none of its forms white, and does not come near N. moschatus. The many varieties of N. moschatus to which I referred are chiefly from meadows or orchards in England, where N. moschatus has become naturalised together with N. pseudo-Narcissus (type). These I have in mixed lots in my garden, and not yet sorted and arranged; but when I have completed that work, and wish any of them to receive the honour of being named by the Royal Horticultural Society, I will send them to the gardens at Chiswick for that purpose.

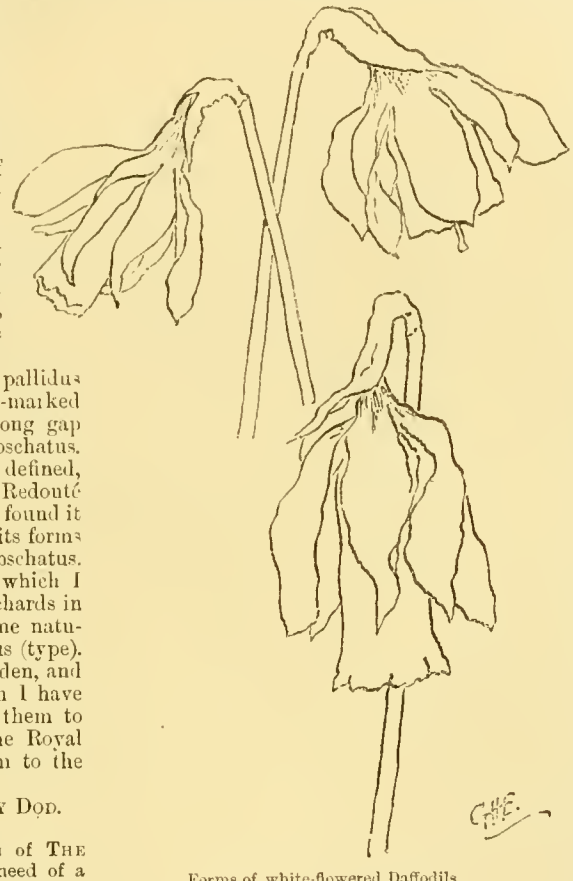
C. WOLLEY DOD.

The Kniphofias.—In recent numbers of THE GARDEN there have been references to the need of a revision of this genus. The results of my observations are somewhat different from those of some of your readers with respect to time of flowering. With us K. Macowani has always been first followed closely by K. corallina and K. caulescens. Afterwards come K. Rooperi and K. Burchelli, sorts apparently identical. Following these are K. glaucescens, K. grandis, K. Uvaria grandiflora, K. mutabilis, K. nobilis, and K. Saundersi; again, between these last two I can see no difference. Last come K. media Macowani and K. carnosa. K. carnosa and K. Leichtlini are evidently one and the same thing. That K. corallina is a seedling of K. Macowani is clear, inasmuch as seedlings from K. corallina have all proved to be K. Macowani. I have seed of media-Macowani which I intend to sow, and will, I hope, see how far they will revert to the type. That K. Rooperi, so named with us, is identical with K. Burchelli, is evident in every way, and in one particular decidedly, viz., that of producing underground stolons, which, I believe, none of the others do, except, perhaps, K. sarmentosa, which I have not seen.—T. D. HATFIELD, *Passaic.*

Books.

A BOOK FOR LITTLE GARDENERS.*

ALLOW me to direct attention to a work, the very backbone of which is gardening for children, and even children's parents of the wisest might learn something from its well-pictured pages, if they should care to do so. The work to which I allude is "Mary's Meadow" (containing also "Letters from a Little Garden"), by the late Mrs. J. H. Ewing, a friend of the late Rev. Mr. Ellacombe and of Canon Ellacombe, of Bitton. "Mary's Meadow" relates how a little girl tried to make a pretty bit of meadow still prettier by planting flowers in it, instead of making it poorer by rooting the flowers out of it, as so many people now do. A good deal of information anent Parkinson's delightful old gardening book, called the "Paradisus," published in 1629, is woven into the story, and there is an allusion to



Forms of white-flowered Daffodils.

another, but more modern classic, viz., "The Tour Round my Garden," of Alphonse Karr. Now, this little volume, yclept "Mary's Meadow," first appeared in the numbers of "Aunt Judy's Magazine" from November, 1883, to March, 1884. It was the last serial story which Mrs. Ewing lived to write, and Miss H. K. F. Gatty (her sister) tells us in the preface that she believes "the subject of it arose from the fact that in 1883 she went to live at the Villa Ponente, at Taunton, where she had" (after much travelling about) "a settled home with a garden, and was thus enabled to revert to the practical culture of flowers, which had been one of the favourite pursuits of her girlhood." The game of the earthly paradise was received with great delight by the readers of the story; one family of children adopted the word "Mary-meadowing" to describe the work which they did towards beautifying hedges and bare places, and Mrs. Ewing received many letters of enquiry about the various plants mentioned in her tale. These she answered in the correspondence columns of the magazine, and in July, 1884, it was suggested that a "Parkinson Society" should be formed, the objects of which were "to search out and cultivate old garden flowers which had become scarce, to exchange seeds and plants, to plant waste places with hardy flowers, to circulate books on gardening among the members, and, further, to try and prevent the extermination of rare wild flowers, as well as of garden treasures." It may interest many little gardeners to know that this society, with Prof. Oliver, F.R.S., of Kew, as its president, is still in existence, and anyone can procure a copy of its rules by sending a stamped addressed envelope to Miss Alice Sargent, 7, Belsize Grove, N.W.

I think it is Charles Dudley Warner, in "My Summer in a Garden," who says that "what a man needs most in gardening is a cast-iron back with a hinge in it," and, he further adds, that the highest consolations of philosophy are also of great assistance in the undertaking. But with the children this is not so. They, at any rate, are delighted in grubbing up weeds and in planting and watering their pet flowers, and this little work is, as I believe, one of the best, even if not the best—that is while most practical, most amusing also—of all the works on gardening known to me.

Mrs. Ewing, although devoted to the dear old-fashioned flowers and their countless associations, is nevertheless just to the better phases of "bedding out," and "takes some little credit," as she observes, for her moderation. In a word, she was so far-sighted as to see that fashion-waves "come and go—ebb and flow" over our gardens, just as they do on the pebbly shore. Thus in speaking of her own garden, then gay with dear, old-fashioned blossoms, she says there is no doubt whatever that the good lady who shall coddle it after her will be quite as fond of her flowers and her garden as she herself. On page 77 two portraits are pleasantly sketched, the originals of which were and are well known to most of the readers of THE GARDEN. The annals of fashion must always be full of funny stories. I know two of the best amateur gardeners of the day; they are father and son. The father lives and gardens still (he sent me a specimen Lily lately by parcel post), and is making good way between ninety and a hundred years of age. What we call old-fashioned flowers were the pets of his youth. About the time when ribbon bordering came in he changed his residence, and in the garden where he had cultivated countless kinds of perennials his son reigned in his stead. The horticultural taste proved hereditary, but in the younger man it took the impress of the fashion of his day. Away went the "herbaceous plants" on to the rubbish heap, and the borders were soon gay with Pelargoniums and kaleidoscopic with Calceolarias. But "the whirligig of time brings in revenges," and perhaps a real love for flowers could never in the nature of things have been fully satisfied by the dozen or by the score; so it came to pass that the garden is once more herbaceous, and as such far-famed. The father . . . has told me, chuckling, of many a penitential pilgrimage to the rubbish heap, if haply fragments could be found of the herbaceous treasures which had been so rashly cast away. Doubtless there were many restorations. Abandoned "bedding material" soon perishes, but uprooted clumps of "herbaceous plants" linger long in shady corners, and will sometimes flower pathetically on the heap where they have been thrown to rot.

* "Mary's Meadow," and "Letters from my Little Garden." By Mrs. J. H. Ewing. Illustrated by Gordon Browne. Pp. 96. London, S. P. C. K. 1886.

Apropos of this last remark, I was once looking at some exquisite sketches of hardy flowers, and after I had admired the pictures as showing an enlightened phase of flower gardening, their owner remarked, "No, sir; you are wroug. These pictures were made in an old rubbish belt surrounding the flower-garden proper, and these results of beautiful flowers among the Grass were not at all intentional; they are the outcome of prunings and parings which the gardeners in 'tidying-up' had thrown away to die."

Mrs. Ewing was a gardener who believed that "good rules were good tools," and so in her "Letter 3." she gives a few of what she calls rough-and-ready ones which may be introduced here without any apology :—

Hardy flowers in hedges and ditches are partly fed, and are also covered from cold and heat, winds and drought, by fallen leaves and refuse. Hardy flowers in gardens have all this tidied away from them, and, being left somewhat hungry and naked in proportion, are all the better for an occasional top-dressing and mulching, especially in autumn.

Again—

Concentrated strength means large blooms.

You cannot grow everything; grow what suits your soil and climate, and the best of these as well as you can.

North borders are safest in winter. They are free from the dangerous alternations of sunshine and frost.

Very little (protection) will keep Jack Frost out, if he has not already been in, either in the garden or in the house.

In drought one good soaking with tepid water is worth six sprinklings.

Flowers, like human beings, are to some extent creatures of habit; they get used to many things which they cannot at all abide once in a way.

Those parts of a plant which are not accustomed to exposure are those which suffer from it.

All these are good tools, and all the better ones because in the book they are clearly and fully explained by the authoress, who, as she tells us, reserves "a sneaking credulity in reference to lucky fingers," or rather a belief that some people have a strange power or tact in dealing with plants, as others have in the control and coaxing of animals. This belief is very much more common in Ireland than in England. I once complained because a pet plant did not flourish. "Ah!" said the gardener, "how can ye expect it to flourish? Sure, didn't Pat Connor plant it, and doesn't everybody know that he hasn't a 'lucky fist,' at all at all?"

The more one looks over this little book the more enchanting does it become. Glints of sunshine, and tender sympathy for the garden at all times and seasons, show themselves on nearly every page. Here is a morsel on the feeling of perennial youth which life in a good garden in some sort brings :—

If ever we do taste anything of the vital hopeful rapture, the elastic delight of the old man of a fairy tale, who leaves his cares, his crutches, and his chimney corner to go forth again amongst the young, it is when the winter is ended and the spring is come. Some people may feel this rising of the sap of life within them more than others, but there are probably very few persons whom the first mild airs, and bursting buds, and pushing flower-crowns do not intoxicate with a sort of triumphant pleasure.

Especially eloquent does Mrs. Ewing become when she speaks of little gardens.

It is such little gardens which have kept for us the blue Primrose, the highly fragrant summer Roses (including Rose de Meaux, and the red and copper Brier), countless beautiful varieties of Daffodowndillies, and the whole host of hardy flowers, which are now returning, like the Chippendale chairs, from the village to the hall.

"All is fine that is fit," is a text from which she preaches eloquently. Even the bedding system comes in for a good word, and she points out what lovely "Whistlerian" effects from shades of the same colour might have been produced instead of the lurid contrasts which helped to lower it in public esteem. Besides the fitness of gardening to the garden, there is, as she explains, its fitness to the owner's taste, and also to his means and leisure. Lastly, if there is but little of taste, and time, and money to spare, surely nothing can be more satisfying than a gardenful of such flowers "as our Englyshe ayre will permitt to be noursed up." Bear in mind these counsels: make a wise selection of hardy plants; grow only good sorts, and of these choose what suits your soil and climate. Give them space and good feeding. Feed them as well as you can from the top. Disturb the roots as little as possible, and constantly cut your flowers. Then you may expect your flowers to be, as they will be, "fine as well as fit." F. W. Burbidge.

Kitchen Garden.

CELERY AND LEEK SHOWS.

These are by no means confined to the counties of Lancashire and Yorkshire, several being annually held still farther south, notably about Nottingham. Anything which an intelligent cottager or mechanic takes seriously in hand is sure to be eventually brought to perfection. Having had good opportunities of contrasting the productions of cottagers' gardens in both the southern and midland counties, I can safely assert that the latter as specialists are simply unapproachable by either their southern or western contemporaries. As was pointed out in The Garden (p. 527), there is a good and a bad side to these friendly rivalries, and, as far as the final proceedings are concerned, I am of opinion the competitors derive more harm than good from them. It may be of interest to note that some of the very finest Celery I have ever seen or heard of was never inside a trench, nor was it earthed up in any way. The plants are put out on deeply dug, very heavily manured land, and assisted by abundance of sewage water mulchings, and perhaps a sprinkling of soot or salt, they grow surprisingly strong. A soon as the outer leaves attempt to assume their natural, that is to say, a horizontal position, they are lightly tied up, the blanching being eventually accomplished by paper wrappings. I have seen Celery fully 4 feet high carefully wrapped up in various folds of paper, only the tips of the leaves, as in moulding up, getting any amount of light. When ready for the show no grub or worm-eaten stalks have of necessity to be removed, but all are beautifully clean and white, and worth three times the number of ordinarily grown sticks. I am convinced that the Wortley Celery Collars were a step in the proper direction, only they were not large enough, and something of the kind may yet become popular. The bad side of these Celery shows is, that they are usually held at public-houses, and to make matters worse the proceedings are made to extend over three days, the middle or show day being on a Sunday, and this in the suburbs of such an important town as Nottingham. On Saturday the exhibits are brought and arranged; on Sunday they are on view, and on Monday the exhibition is broken up and the prizes distributed; so that altogether the exhibitor, and perhaps some of his friends, spend the best part of three days in or about a public-house. Surely this state of affairs might easily be remedied. Any hobby the cottager may have in connection with his garden ought to be encouraged, but it is also advisable to guard against these finishing up in a public-house. W. I.

Hardy Cabbage Lettuces.—A good supply of salading is never more welcome than at Christmas, and, whatever other material may be at hand, Lettuces of some kind are indispensable. There are many good winter Lettuces, but none that give so sure a supply as the small hardy sorts of the Cabbage kinds, such as the hardy Hammersmith or All the Year Round. If these are sown thinly on a border with a good steep slope, to ensure thorough drainage, in August, a good supply of nice little hearts will now be obtainable. Moderately good soil is better than that which is over-rich, as a luxuriant growth is against hardiness, and if very gross they are sure to suffer from frost. In gardens in which there are glass pits vacant, it is a good plan to make sure of the most forward by transplanting them therein. Those who rely on open-air produce must guard against exceptionally severe visitations of frost by placing some kind of covering over the Lettuce bed, or at least a portion of it. Inverted flower-pots serve the double purpose of blanching and protecting at the same time, but for covering I have never found anything to surpass the dead tops of Asparagus, or the dry fronds of Bracken secured by means of Pea sticks laid over them, as rough gales soon displace them. Coverings of this kind admit air, and thus prevent decay, which is encouraged by coverings of a denser character.—J. G., *Hants.*

KITCHEN GARDEN NOTES.

Forcing Asparagus.—In some years Asparagus roots force more freely than in others; and, judging from the way in which the roots are growing now, forcing will be an easy matter this winter. For some years past we have cut the first of our forced produce in November, but as all outdoor vegetables have been plentiful this autumn, our Asparagus was not put in very early; the first, therefore, is only ready for cutting now, but although open air vegetables may be ever so plentiful, Asparagus will be none the less acceptable, being king of vegetables from now until June. All who can force it to have it on the table in December, January, or in any of the spring months may rest assured that their work will meet with approval. It is pretty well known now that roots cannot be forced profitably until they are five or six years old, but after that they are always good so long as they remain strong and healthy. In lifting them for forcing, they should not be broken any more than can be helped, and they should be put into their forcing quarters before they have time to dry up in any way. Some prefer white Asparagus, others green. Where white is most valued, growth must be made in a dark place. A good hotbed with a frame on the top is a good place to produce Asparagus of this sort. A layer of soil should be spread over the surface; on this lay the roots close together, and cover them over with some kind of light soil until the crowns are out of sight; water them with water heated to 90°, and await results. As soon as the heads begin to appear, cover the lights over with a coating of hay, straw, or some old mats to exclude light, and the heads will soon assume a very pale colour. To grow green Asparagus the same system may be followed, only do not use the covering on the top of the glass. The roots may also be put into the bed of a Melon or Cucumber pit where a bottom heat of 80° or so can be maintained. Here a little soil is put under them and over them, as in the frame, and they require more water, as the situation is drier than a damp hotbed. The heads should be cut as soon as they are 8 inches or 10 inches in length, and the very small growths which may not be strong enough for use should be cut off as they appear, as they only rob the stronger ones. Strong, healthy roots will produce dish after dish for three weeks or so, and although the roots are of little use afterwards, the abundance of the produce now will pay handsomely for all the expense incurred in raising the roots.

Mushrooms in sheds.—We are now cutting Mushrooms from several beds in sheds, and they are excellent; but as we are now in the dead of winter, and the weather very trying for them, I would advise that the hay or straw which covers the surface of the bed be changed once or twice a week, and the new covering should always be dry and upwards of 1 foot in thickness. The covering

which is taken off will be moist, and it may be shaken out and dried before being used again. Should any of the surfaces of the beds be dry, water them well with water heated to 95°; but as the smooth surface does not take in the water readily, it should be watered four or five times over, at intervals of five minutes or more. This watering will make beds which are ceasing to bear begin anew and produce a second crop, in many cases almost as good as the first; and should any bed become so dry before bearing as to check this occurring at the proper time, a good watering will generally cause the spawn to move rapidly, and the Mushrooms to appear at once.

Forcing Rhubarb.—In many gardens Rhubarb roots are too numerous, as three parts of the produce go to waste. In early summer Rhubarb is generally a "drug in the market;" but it is not so now, and all who have surplus roots ought to force them, as being the most profitable way in which to utilise them. If any old casks or boxes are turned upside down over the crowns, and the whole surrounded with 4 ft. or 5 ft. of fermenting material, the produce will be fit for use in three weeks. At one time we placed a cask upside down over a Rhubarb crown with the view of forcing it, but no means were provided for the escape of the steam and the root was killed. Since then we have always been careful to allow a little ventilation on the top of whatever covered our forced Rhubarb, and all who force vegetables must observe this.

Large *v.* Button Mushrooms.—Cooks will always have their way, and when they ask for Button Mushrooms they must be supplied; but, in my opinion, the plan of using small quarter-grown Mushrooms in preference to those more fully developed is a great mistake. The little round knobs may be convenient for some dishes, but the question of flavour should be considered. Those Filbert-like Mushrooms generally termed "Buttons" are almost flavourless, but if allowed to remain for a few days longer, until they measure 3 inches or 4 inches across, and are thick and fresh, they are simply delicious, and no more like the insipid Buttons than a Turnip is like a Pine-Apple. I know some good judges of Mushrooms who always help themselves to the largest when the dish is handed round. The flavour of fully-developed specimens cannot be surpassed. Let your readers put this matter to a practical test, and they need not tell me what their verdict will be.

December sown Peas.—As a rule, Peas sown in autumn are put in during November, but December is an equally good month in which to sow them. Those put in about Christmas succeed admirably as a rule, and the sowing of early Peas should be very general at this time. They will not be through the ground until about the end of January, nor will they be very tall by March, but they will be robust and ready to grow away freely in April, and here rests the secret of their success. The ground in which they are sown should be rich and well exposed to the sun. Narrow drills answer best at this season, and the seed should be sown a little thicker than in summer; but, apart from this, their sowing now may be done in the same way as at other times.

Digging and trenching are too seldom done in winter, and the habit of digging over the ground a few hours before sowing or planting is too common. Winter weather, especially frosty weather, helps the soil wonderfully, but neither wind nor anything else can penetrate far down when the surface is like a road, and if the full benefits arising from frost-pulverisation are to be secured, the surface should be made as porous as possible. Trenching and rough digging are the best means of effecting this; therefore all vacant vegetable quarters should be turned up to the weather at once.

Early Radishes.—These are the most easily grown of all early vegetables. A gentle hotbed is the best place for them. A bed 2 feet in height will suit them; soil to the depth of 4 inches or 5 inches should be put on the top of this, or inside a frame furnished with a glass light, and here they will grow freely and at once. The soil is in best condition for them when very poor, as a rich soil at this season only causes them to make a superabundance of foliage and very small or no bulbs. It is almost impossible to have the soil too firm, as they do not bulb freely in light material, and a firm, poor soil is undoubtedly the best for Radishes during any of the winter months, more particularly where they are confined and apt to be drawn up, as they always are in frames.

Green Mint.—Where a quantity of the shoots were cut in August or September with their leaves on and dried they will now be much valued in the kitchen; but green Mint is acceptable at all times, and it is not a difficult matter to have a supply of it in winter, as if the roots are lifted and put into pots or boxes with a little soil over them, and then placed in a temperature of 70°, young shoots will soon appear, and they will push up rapidly until quantities of them may be cut frequently.

Chicory.—This is the midwinter friend of all who are deficient of Lettuces and Endive, as it can be forced into full leaf in a very short time, and it is excellent for filling the salad bowl. The roots are like those of miniature Parsnips, and they should be dug up and potted in tens or twelves in 8-inch and 10-inch pots. They should then be placed in bottom-heat and in a dark place, and the young leaves, which will soon appear in abundance, will be as delicate as the centre of a well-blanched Lettuce. Where there is no dark place in which to force them, another flower-pot the same size as that in which the roots are potted should be inverted over the crowns.

Kidney Beans in pots.—The present is a good time for sowing these for fruiting in February or March. As a rule it takes from ten to twelve weeks for them to come into bearing after sowing at this season of the year, and wherever there is space and heat to accommodate a few, they should be put in, as open-air vegetables generally become scarce in February and March, and kidney Beans then are much valued. Osborn's variety, which was such a favourite at one time for forcing, has been supplanted by Cooling's Ne Plus Ultra, which is equally dwarf in growth, more prolific, and has longer pods. It is also quite as early. The best of all ways of sowing dwarf Beans at the present time is to fill a number of 3 inch pots half full of good soil; put eight or ten Beans into each, and fill up with more soil; then place them in a temperature of 65° or 70°. They do not require much water until the young plants are in leaf, and as soon as the pots are well filled with roots and the plants are 5 inches high, they should be transferred to larger pots. Each lot may be re-potted into a 6-inch pot, or three lots may be put into a 9 inch pot. They enjoy moderately rich soil, and they should be kept near the glass and fully in the light. J. Muir.

Margam.

Potatoes.—It would, I think, be useful to obtain before planting time a list of the varieties of the Potato specially adapted to different soils and situations, for it is true of this vegetable, as of others, that different conditions have a great deal to do with successful culture. I find that Myatt's Ashleaf, Covent Garden, Magnum Bonum, and Red-skin Flour-ball in their respective seasons cannot be beaten in our light soil. We also grow a few of the Beauty of Hebron to succeed the Ashleaf for early digging, and this is certainly a first-class Potato. It is not, however (except in cropping qualities), equal to Covent Garden. This last I look upon as about the very best mid-season Potato in cultivation; there are certainly varieties that crop more heavily, but for the table it cannot well be surpassed. Magnum Bonum turns out well with us. It is good alike in size, shape, numbers, and flavour, and has nothing of the closeness that is sometimes a characteristic pertaining to it on heavy soils. This is one of the Potatoes that vary wonderfully in different soils. I have tasted samples (true) from heavy and from light ground, and found that it could not be recognised as the same variety. Red-skin Flour-ball is the best keeper we have; it thoroughly bears out its name, and is a very heavy cropper. Of other varieties that have been tried from time to time I may mention Schoolmaster, Bedfont Prolific, Woodstock Kidney, White Elephant, Cosmopolitan, Idaho, and Reading Hero. Of these Schoolmaster and White Elephant are the best, but they are not likely to oust the varieties first named by me. Cosmopolitan and Idaho are failures, and Reading Hero is not equal to Flour-ball.—E. B.

AMERICAN TOMATOES.

Are these in any way superior to those raised in this country? I have tried nearly all of them, including Cardinal, Acme, Beauty, Livingstone's Perfection, and the Yellow Trophy, and can confidently assert that we have better kinds of English origin than any of them. The Yellow Trophy is simply worthless; no one would eat such a flavourless sort if any other were forthcoming. All the other sorts named possess the qualifications enumerated by Mr. T. D. Hatfield (p. 527), but solidity I hold to be objectionable. We like Tomatoes to be of medium size, thin-skinned to a certain extent, perfectly shaped, and prolific, but they ought not to be too solid—this implying seeds few and solid core to be in the ascendant. The pulpy matter surrounding the seeds is really the best portion of the fruit—at least, such I believe to be the case—and this is not very plentiful in the majority of the American sorts. In addition to those above named, I have grown Pennsylvania Chief, Mayflower, Vick's Criterion, and King Humbert, all being sent me at different times in packets from America. They were more or less prolific, according to the treatment given, though not remarkably prolific; while in flavour they were inferior to Carter's Perfection and the Dwarf Orangefield, and not superior in any way to Hackwood Park, Dedham Favourite, Reading Perfection, or Hathaway's Excelsior. The latter was, I believe, the first American introduction to this country, and this excellent variety was one of the progenitors of a new race of English-raised Tomatoes. Trophy, the red form, also an American, has done me good service as an exhibition variety in times past, but it required extra good treatment to bring it to perfection, and unless the blooms were particularly well fertilised and selected, the fruits were liable to be both very ugly and very solid. Trophy, or its synonym, Stamfordian, is now fast going out of cultivation, and its place is being taken by one of the Perfections that have cropped up. The new Mikado I have not tried, and the description given will not tempt me to grow it.

W. Iggulden.

PLANTING OUT *v.* POT CULTURE.

There are, as is well known, many plants that bloom in winter and spring that are greatly benefited by putting them out in the open ground during the summer months. One of the greatest advantages conferred by this system is that it enables a comparatively inexperienced person to succeed in the growth of a plant which he would have a difficulty in bringing to perfection by pot culture. Berry-bearing Solanums, Bouvardias, and Arum Lilies are instances in point; it requires a considerable amount of care and much labour to grow such plants into strong, well developed specimens with their roots confined in pots all through the growing season. True, we have resources in the shape of concentrated manures, but judicious, timely feeding is often, through pressure of work, neglected. Perhaps no cultivated plant feels want of nutriment more acutely than the Chrysanthemum. It is naturally a gross feeder, and the naked condition of so many plants that one sees in private gardens is due to absence of food at some period of growth. I was looking some time since at a collection of Chrysanthemums, and I could not help coming to the conclusion that the grower had given himself

much pains to little purpose. The plants bore individually about a dozen blooms of fair quality, but they were defoliated half-way up the stems. There are doubtless good reasons for growing Chrysanthemums in pots, and it is probable that fine exhibition flowers cannot well be obtained in any other way. But the Chrysanthemum grower who needs good specimens bearing an abundance of well-developed blooms and clothed with healthy green foliage down to the soil may certainly go to work in an easier way than by keeping his plants in pots all through the growing season. Of all flowering plants with which I am acquainted, the Chrysanthemum bears transplanting best. With ordinary care, plants taken up from the open ground when the buds are beginning to burst will show no signs of removal. Few who have written on Chrysanthemum culture appear to have given the planting-out system much attention. In the course of time I, however, venture to predict that for all ordinary purposes it will be the system generally followed.

Last spring I planted out about 300 of a late white Chrysanthemum. They remained in the open ground until housing time, and were then carefully lifted and planted again in a light house. I shall begin cutting from them at Christmas, and through January they will yield about 7000 blooms of fair average quality. Taking the cultural expenses into calculation, I am sure that they will pay me much better than if they had been grown in pots, in which, moreover, they would not have made such good specimens. The old stools were very weakly; they were taken up from the open ground late in autumn, and many of the shoots through overcrowding were blanched. They were wintered in a cold frame, and it was late in spring before they were ready for propagation. At that time there was not one cutting on them that a Chrysanthemum grower would like to have used. They were pulled to pieces and were planted out late in April 6 in. apart. Some of the suckers were very spindly and had very few roots. I had no great hopes of their doing much good, but by the end of the autumn they developed into bushes 4 feet high, each carrying after disbudding on an average three dozen blooms. All the attention they had when growing was an occasional soaking, and in very hot weather a sprinkling overhead.

Just to illustrate how indifferent the Chrysanthemum is to root-disturbance, I may mention that, as the plants got too thick, one-half of them were transplanted when about 2 feet high. The weather at the time was very dry, accompanied by an unusually parching wind. I should not have voluntarily chosen such a time for moving them, but I was afraid of their spoiling. A few stakes were put in with cross pieces tied to them, on which canvas was laid to keep off the hot sun. Twice a day they were syringed. In the course of a fortnight they needed no further care, and not a leaf discoloured. A friend came in one day and was surprised to be told that plants so large had been moved without sustaining a check. There seems indeed to be no danger attending the lifting of Chrysanthemums at any period of their growth.

The good results of planting out are certainly most marked in the case of plants of a gross-growing character, and which have to attain considerable dimensions before they have much decorative worth. Arum Lilies, Habrothamnuses, and Abutilons are instances in point. The two last-mentioned are comparatively of but little value in a small state. It is only when they come into tolerably large pots they give an idea of their worth. Only those who are utterly regardless of labour and time would think of growing these in pots through the summer. Put into a rich bit of ground and given a mulch of manure, they will make good growth, with the aid only of an occasional soaking with water. With respect to Arum Lilies, everyone knows what planting out does for them. Cyclamens can be grown much more easily planted out in a frame for the summer than kept in pots, and many would get good plants in this way who cannot get on with them under pot culture. I have grown Cyclamens as large as a small Cabbage in this way, the roots being so numerous that I could hardly get them into an 8-inch pot. I could never get them so good wholly under pot culture, and they required only about one-tenth the labour to grow them.

Most readers of The Garden have seen the Belgian-grown Azaleas that annually come in such quantities to this country and noted the amplitude of their foliage and generally robust appearance. It is a free root-run in congenial soil that gives this, and experience has proved that we can grow them equally well in this country by the same method. It is as well to mention that planting out Azaleas for the summer is a common practice in Belgium. Even quite large specimens are treated in this way—if not every year, now and then—which gives them renewed vigour. The difference in the appearance between plants that

The Dove Orchid (Peristeria elata).

have been in the open ground and those that have been grown along in the ordinary way is great enough to warrant the practice. Passing once through Van Houtte's nursery at Ghent, I was shown two lots of large Azaleas, one of which had been planted out; the other had been grown in pots. The difference between the two was so great as to make one wonder that Azaleas should ever be kept in pots all through the summer. Cape Heaths are amongst the most unlikely things one would think of treating in this manner, but it is a rather common practice to grow them thus in some parts of the Continent. I have seen the free-growing, soft-wooded kinds brought to good-sized specimens in a short time in this way.

Coming to fine-leaved plants, there is no comparison between those that get an unlimited amount of food and such as have the roots confined in pots. Ficuses, the coloured Dracænas, and some other things are largely and successfully cultivated in this way in Germany. The finest lot of India-rubber plants and Dracæna terminalis I ever saw was planted out in span-roofed frames on a bed of fermenting material in spring, to be lifted carefully and potted in September. One advantage of this way of growing them is that one can get large plants in small pots, as, when taken up, the greater portion of the soil can be worked away from the roots, which are crammed into pots just large enough to contain them. With ordinary care they soon strike root again, and are then equal to root-bound plants. Very good crops of Strawberries may be had from plants that have been grown liberally in the open ground, and are taken up and potted in October, keeping them in frames until wanted for forcing. This plan will not do, however, for early work; for this purpose the plants must be well established in their pots by the end of the autumn. For late crops it answers admirably. I have gathered much fine fruit in this way with comparatively little trouble. Whether planting out or pot culture is the better plan entirely depends upon the purpose to which the plants are to be put. Plants that have to be subjected to anything like a forcing temperature should get no check of any kind, and they cannot have the pots too full of active fibres at the beginning of the winter. If Azaleas are required to be in bloom at the beginning of the year, they must be pot-bound when placed in warmth; and all kinds of plants that have to bear rough treatment should be similarly circumstanced. For this reason market growers do not favour planting out, as their customers soon complain if the plants do not "stand well." There is the check that a plant experiences when brought to market, which, added to a change of atmospheric conditions and more or less unskilful treatment, soon takes the life out of it, unless the vital forces are at a high point. A newly-potted plant at the dull season of the year needs more judgment in watering than the average window gardener possesses, and one overdose of water will suffice to ruin a plant in that condition. The moral to be drawn from this is that planting out is a useful auxiliary to, but cannot entirely supersede, pot culture.

J. Cornhill.

Orchids.

THE DOVE ORCHID.

(PERISTERIA ELATA.)

From time to time various Orchids have been placed in this genus, but all are now removed from it to the nearly allied family Acineta. The plant in question is a vigorous grower; the pseudo-bulbs are ovate, pale green, and bear from three to five large, prominently ribbed leaves, which attain a height of 4 feet or more. The flower-stem is erect, longer than the leaves, rising from the base of the growths, and bears flowers on about one-third of its length. The e are somewhat globose, thick, and waxy in texture, delicately fragrant, and creamy white in colour, more or less freckled with lilac. The resemblance of the column of the flower to a little dove with expanded wings led its first discoverers to name it El Spirito Santo, or the Holy Ghost plant. To flower it satisfactorily it requires strong heat and abundance of moisture, both as regards its roots and in the atmosphere during the growing season; but after the growth is mature, water should be entirely withheld and the temperature reduced. It is a native of Central America.

W. H. G.

Winter Orchids. — Amongst the numerous Orchids now in flower at Kew, the following are well worthy of notice by those who wish to keep their plant houses attractive at this time of year. Amongst those content with cool treatment may be noted numerous forms of Lycaste Skinneri, the large wax-like flowers of which are so beautiful; Odontoglossum crispum and O. Rossi majus, species now largely used for button-holes. Oncidiums are represented by the small-flowered, yet elegant, O. cheirophorum, O. aureum, and O. Jonesi-

anum, the lovely coloured flowers of which appear to be highly appreciated, judging by the quantity of them now in the market. Lady's Slippers are also now in great beauty, and the length of time during which their flowers endure should commend them to all lovers of Orchids; the most noticeable of these are Cypripedium insigne, in masses; C. calurum, C. Roezli, C. porphyreum, and the chaste C. Spicerianum, the large white upper sepal of which is in some forms slightly flushed with violet, and peculiarly attractive. Amongst Lælias, the Mexican L. autumnalis, L. anceps, and its variety, Barkeriana, are well represented. Of scarlet-flowered Orchids, there are fine examples of Sophronitis grandiflora, the curious Ornithidium Sophronitis and the rosy red Mesospinidium vulcanicum. Amongst blue flowers is the lovely Vanda cærulea and Zygopetalum Mackayi; the white Masdevallia tovarensis is flowering most profusely; whilst M. ignea and M. Chelsoni are likewise in good condition. Calanthes have evidently felt the ill effects of the late fogs. Some other Orchids are flowering out of season, notably a fine example of Saccolabium Blumei majus, Dendrobium formosum giganteum, and Miltonia Moreliana. Fine specimens of the Madagascar Angræcums—eburneum and eburneum virens—bear numerous spikes of inverted white flowers, whilst the West African Ansellia africana, with its greenish flowers, richly banded with chocolate-brown, is well represented.

EASTERN ORCHID CLIMATES.

The information gathered as to the conditions influencing the growth of Orchids is almost entirely due to experiments made by gardeners. In a few cases, to be sure, a new species or variety is collected by some one who gives full details of the climate in which he has found the plant, but only rarely. You consult some standard authority, and are tantalised by being informed that your species is a native of India, or a part of India, as Assam or Burmah, which are spoken of as though they were climatological hen-coops. In the latter country, the surveys which will soon be instituted will undoubtedly give greater elevations than have hitherto been quoted, but even in the portions long since known, the elevations vary from the sea to 6000 feet above it. Take Assam, again, and we have places such as Gowhatty, 134 feet above the sea, and the Upper Phoongan-Boom, 15,474 feet above it. So, again, with Munneepoor, Jerce-Ghat is only 131 feet above the sea, while Kewho peak is 8202 feet above it. Similar elevations occur in Arracan, Cossyah, Chittageng, Sylhet, Nepaul, Neilgherries, Ceylon, Java, Darjeeling, the Himalayan regions, and even on many portions of the western Ghauts, and yet when speaking of the home of an Orchid, all that is deemed necessary is to say "India;" and all there is to do is to place it in the East India house. Now, let us look for a moment at a few of these East India climates, and see if it be likely that plants from there can all possibly flourish, or even exist, under one set of conditions. They do not flourish, nor can they. It is singular enough that Orchids from the western hemisphere have to some extent been divided into tropical, intermediate and cool, a division requiring a very great deal of revision, no doubt, while those from India are almost all regarded as tropical. How untrue it all is, I hope the following table of elevations and temperatures will show:—

	Elevation, feet.	Jan. temp. Fah.	July temp. Fah.	Lat.
Calcutta	....	70°	86°	....
Assam	134	60	82	27 N.
Munneepoor	2500	58	79	24 N.
Chota-Nagpoor	2010	62	77	....
Cossyah	4200	53	72	....
Nainee-tal	6200	42	69	....
Darjeeling	7000	40	64	....
Simla	8000	40	80?	....
Kotagherry	6100	66	70	11 N.
Ootacamund	8000	55	61	11 N.

Now, here is a range of climates which embrace all the varieties of Orchid house temperatures, and Vandas and Aerides, Saccolabiums and Dendrobes are found, in the shape of one species or another, in nearly all of them; yet in our very best places everything goes into the "Orchid house," or into the "Vanda house," or the "Dendrobe house." I do not know anything which would be of more use to Orchid growers than a conspectus of the popular species of each country, with the elevations at which each is found, and the amount and season of the rainfall. Who will compile it?—James MacPherson, in *Country Gentleman*.

Lælia albida bella.—This form produces much larger flowers than those of the original L. albida, and the colour is also richer and more intense. The sepals and petals are creamy white and waxy in texture, tipped with rose or rosy lilac. The lip, which is yellow, is deep orange in the throat; whilst the middle lobe is broadly margined with rich magenta. It is a charming Mexican Orchid, suitable for block culture. We recently saw it in the Marks Tey Nursery.

Lælia præstans.—This beautiful dwarf-growing Brazilian Lælia is now flowering in profusion in Messrs. Horsman's Marks Tey Nursery, Colchester. It is a charming plant for block culture in a cool house. It somewhat resembles Cattleya marginata, but is a much better growing plant, and, as regards its blooms, it is abundantly distinct. The short, stem-like pseudo-bulbs produce a single-flowered spike, the flowers being from 3 inches to 4 inches across. The sepals and petals are deep rose. The lip, which is broadly margined with deep velvety purple, has a yellow throat. It is an extremely beautiful Orchid for blooming at Christmas.

Lælia anceps.—Amongst hundreds of spikes of this fine old Mexican Orchid, now bearing flowers and buds in the Marks Tey Nursery, Colchester, there are some very beautiful forms, especially the variety Percivaliana, numerous plants of which are carrying about a dozen spikes. The sepals and petals are about the same shade of rosy lilac as the normal form, but the lip is more beautiful; it is much broader in front, and the colour is deep purplish magenta, suffused with mauve, streaked with lines of deep purple, and crested with yellow. The rare variety coccinea has extremely rich, dark-coloured flowers. Many other forms are also in great beauty just now, especially L. anceps atre-rubens.

Aganisia cærulea.—This is a charming little Orchid, the flower of which measures 1½ inches across, and resembles in shape somewhat a gigantic bloom of Calanthe masuca; the exterior of the sepals and petals are about the same blue as that of Vanda cærulea; interiorly they are slightly paler; the lip is reddish brown. A specimen has been sent to us by Mr. W. Holland Linwood, Mossley Hill, Liverpool, who says: "It is evident that the plant will prove easy to grow in a warm, damp atmosphere, and from its peculiar colour should prove a valuable acquisition to our gardens."

Dendrobium nobile.—I send you a flowering bulb of Dendrobium nobile to show you how beautiful the blooms are at this dull season of the year. I find if the plants are grown in an ordinary greenhouse through the summer months up till about the middle of October, and then put in a temperature of about 60°, they will be in flower by Christmas. The Cypripediums have been grown in just the same way; they are in good health and full of flower.—George Jupp, *Brantridge Park, Balcombe*.

*** The Dendrobium represents an excellent variety, and is flowering upon this season's growth, with the leaves still fresh upon it. The Cypripediums are ordinary forms of C. insigne and venustum. —Ed.

Angræcum bilobum.—The plant referred to under this name in The Garden (p. 549) is, I presume, the variety known as A. bilobum Kirki, a much smaller plant than Lindley's A. bilobum, figured in the *Botanical Register*, 1841, t. 45. Of this plant, which is a native of West Africa, some fine examples existed in the Kew collection upwards of twenty years ago. The leaves are intensely green on the upper side, and deeply notched at the apex. The spike is decumbent, and bears from nine to twelve flowers, some 2 inches across; the colour is creamy white and the lip has a long slender spur at its base. This species blooms during the autumn and winter months, and lasts in perfection a considerable time. It was by no means uncommon a few years back in collections of Orchids, but it seems to have been pushed on one side by the more recently introduced and showier kinds.—X. Z.

A grand new Orchid.—One of the finest new Orchids that have appeared in London for a long time was sold at Stevens' Rooms on Thursday last. It is named Catasetum Bungeroti, and is, without doubt, the finest of the genus. In growth it strongly resembles the other species, the bulbs being spindle-shaped, terminated by a tuft of ribbed leaves. The flower-spike, which is produced from the base of the bulb, is borne almost horizontally. The blossoms measure about 4 inches across, and the whole flower is waxy white flushed with green. The shape of the flower is different from that of most other Orchids, but the labellum resembles that of Angræcum eburneum in shape, except that in the centre there is a deep cavity formed by the spur, and which is coloured with bright orange-red. Six flowers were borne on the spike of the specimen in bloom, and were a great attraction to orchidists. Three plants were sold; the largest fetched 50 guineas, the other two 32 guineas and 20 guineas. The plants came, we believe, from M. Linden, of Ghent. Another high-priced Orchid was also sold on Thursday. This was a finely-flowered specimen of Odontoglossum crispum Stevensi, which fetched 80 guineas. It is a very handsome variety, the large, bold flowers being white, heavily blotched with chestnut-brown. Dendrobium nobile nobilius, a small plant with two leads, fetched 12½ guineas, and Cœlogyne cristata alba was sold for 10½ guineas.

WILD FORMS OF TUBEROUS SOLANUMS.*

The well marked distinct species of tuber-bearing Solanum are five in number, and are all natives of America, viz.:—

1. Solanum tuberosum, including numerous subspecies and varieties; 2, S. Commersoni; 3, S. cardiophyllum; 4, S. Jamesi; 5, S. oxycarpum.

The Potato of cultivation originated from the first. I will say a few words about the others and then return to this one, S. tuberosum.

2. S. Commersoni is a native of Uruguay, Buenos Ayres, and the Argentine territory, in rocky, arid situations at a low level. It is a dwarfer plant than tuberosum, with small, oblong, obtuse, subequal leaflets and larger flowers, with a corolla always pale lilac, and deeply cleft. It has been cultivated successfully in France, but is probably too sub-tropical in its climatic needs to be adapted for our own country.

3. S. cardiophyllum is more like some of the tuberosum forms in general habit, but the corolla is different in structure. It is a native of the highlands of Central Mexico at an elevation of 8000 feet to 9000 feet above the sea level. It was cultivated many years ago in the Chiswick Gardens, but is not in this country now, and no record seems to have been left about the shape, size, and quality of its tubers.

4. S. Jamesi is a northern type, being a native of the mountains of Colorado, New Mexico, and Arizona. It is very different from the cultivated Potato in size and habit, much dwarfer, with oblong acute sub-equal leaflets, and small pale flowers with a deeply cut corolla. It has been grown at Kew and many other places in England. The tubers are very palatable, but I have never seen them larger than marbles.

5. S. oxycarpum.—Of this I have never seen even dried specimens, and know it only from a drawing. It is like Jamesi in general habit, and differs very much from all the others in its fruit, which is oblong and sharp-pointed, hence its name. It is a native of Central Mexico, and the flowers and tubers have never been described.

Tuberosum, using the name so as to include under it all the tuberous-rooted Solanums with short deltoid segments of the corolla, extends down the western side of the American continent, from the Rocky

* A paper read at the Tercentenary Conference, December 2, 1886, by J. G. Baker, F.R.S.

Mountains in latitude 30° north, to the Chonos Archipelago, off the coast of Patagonia, in latitute 45° south, so that it is spread over a latitudinal range of 75°. Within this area we get no less than sixteen forms, so far different from one another that they have been named by some one or other botanical writer as distinct species. They are not, however, species in any comprehensive sense. They all coincide in the general characters of tuber, leaf, inflorescence, flower and fruit; tuberosum, therefore, is one of those polymorphic vegetable types of which we have examples in the Old World in Rosa canina, Rubus fructicosus, Narcissus pseudo-Narcissus, and Nephrodium Filix-mas. The case is very similar to what we have in England in the genus Rubus. Chamæmorus, Idæus, and saxatilis are well marked, definitely bounded, and clearly characterised types. In the tuberous Solanums, Commersoni, cardiophyllum, Jamesi, and oxycarpum are the distinct types, and tuberosum, like Rubus fruticosus, a comprehensive species in the sense of Bentham and Hooker, a group of closely allied species in the sense of Dunal and Babington. The extreme forms look very different from one another when they are placed side by side, but if the whole series is taken there is no very decided gap to be found in any one character, but between the extreme types we get gradual intermediate stages of gradation. In the present case the principal differences between the sixteen forms lie in the robustness of growth and hairiness of the whole plant, the shape and number of the leaflets, the absence or presence of little leaflets intercalated on the leaf axis between the big ones; the shape of the calyx and segments, and the colour of the corolla. Although the Potato has been cultivated in Europe for 300 years, in point of fact we know extremely little that is trustworthy about the alterations that may be produced in these characters by change of climate and soil. On the present occasion I will enumerate them geographically, referring those interested in the matter for botanical details to a paper which I published in vol. xx. of the *Journal of the Linnean Society* (pp. 489–507), with six plates.

Chili.—The Chilian types are Maglia, etuberosum, Bridgesi, and Fernandezianum. We have had Maglia at Kew since 1862. It differs from etuberosum by its fewer leaflets, intercalated little leaflets absent or scarcely present, hispid peduncle, and white flowers. It is abundant on the coast near Valparaiso. A closely allied form was found by Darwin in the Chonos Archipelago. Etuberosum is very little different from the cultivated Potato in leaf and flower. When it was first described it was said to have no tubers at all, but in a plant I saw last summer, grown at the Edinburgh Botanic Garden under the name, tubers were present. Fernandezianum comes from the island of Juan Fernandez. It looks very like the ordinary cultivated Potato. Bridgesi is a high Andine form with numerous narrow leaflets and obtuse calyx segments.

Andes of Peru, Ecuador, Bolivia, and Columbia.—In Peru a plant is widely spread which quite agrees with the common cultivated Potato. This I will therefore call eu-tuberosum, as I think it best to keep the name tuberosum for the whole group, and have a separate name for each of the distinguishable forms. The drawing of it which I now exhibit was made from a plant gathered by Matthews on the rocky hills of Amancaes, near Lima. Whether this eu-tuberosum is really native in Peru I am not able to say with certainty, but I should think this is most likely. The other named Andine forms are Mandoni, immite, columbianum, and valenzuelæ, none of which have been seen alive in Europe.

Mexico.—The Mexican types are verrucosum, suaveolens, stoloniferum, demissum, utile, and squamulosum. Verrucosum was cultivated for several years on a large scale near Geneva, but was not able to compete with eu-tuberosum, and was abandoned. Suaveolens was once grown at Kew, but we have not got it now. Demissum was described by Lindley from specimens grown at Chiswick. Of stoloniferum I have seen plants grown at Leipsic. Squamulosum and utile I know from descriptions alone.

Rocky Mountains.—Here we get Fendleri, the most northern of the tuberosum varieties. It is much dwarfer and weaker than eu-tuberosum, with three to seven thin, ovate, sub-acute leaflets, intercalated leaflets few or none, and few-flowered cymes. What is the economic value of its tubers still remains to be tested.

I take the names as I find them in the botanical books. I do not mean to say that I can undertake to identify sixteen sub-species and varieties. Taking eu-tuberosum as the type, Maglia and Fendleri, the two geographical extremes, look to me to recede from it most. All that I know about their characters and localities I have given in the paper to which I have already referred. I wish much that some one would monograph these tuberous Solanums in the same thorough way that Mr. George Maw has just monographed the Crocuses. We do not even know clearly whether eu-tuberosum, the common cultivated esculent so freely displayed on the tables in front of us, be really an original type, or a form produced by the agency of man; and in investigating the relations to it of the other fifteen tuberosum forms, there is scope for the labour of a lifetime. I leave to those who are better qualified than myself the task of thinking out what are the practical deductions to be drawn from these facts.—*Gardeners' Chronicle.*

Garden Destroyers.

INSECTS ON FRUIT TREES.

All fruit trees infested with insects in summer will be sure to retain many of them throughout the winter, as although some of them may fall off with the leaves, those on the wood are not so easily detached, and in spring begin their depredations anew. Thrips and greenfly are foliage pests, but scale and American blight cling to the wood, and it is these two that ought to be exterminated in the winter-time when the foliage is off the branches. Scale and American blight are not easily destroyed. Frost and severe weather have no effect on them, and, as a rule, they increase in numbers spring after spring until the tree suffers greatly in health. Those who know the advantages of keeping their trees free from insects will be only too glad to adopt any measure which will act either as a prevention or a cure. Of all the insecticides we have tried for killing American blight and scale we have found none to equal petroleum. No fruit-tree insect can survive a good dose of it properly applied. American blight is absolutely consumed by it, and scale drops off in quantities. The best way of using petroleum is to add one pint of it to six gallons of hot water, and a piece of washing soda about the size of an egg; stir it all well up, and then syringe the trees with it. In applying it, many are inclined to syringe it as forcibly as they can, but that is useless, as hard syringing will never kill insects, while a great deal of the mixture is lost in the operation. If it is syringed gently, just to moisten the branches, it is equally, or indeed more, effective than when applied with force. In the case of wall trees, it may be syringed on them in such a way as to moisten the wall and damp the joints between the stones or bricks, as many insects lurk in such spots. The petroleum may be allowed to remain on the trees five minutes; it should then be syringed off with water heated to 90°. One dressing of this kind is quite sufficient to clean the worst affected trees, and with such a simple remedy at hand no one ought to allow their trees to be infested with insects of any kind.

Cambrian.

SQUIRRELS.

I observe that "G." omits Strawberries in his list of fruits devoured by squirrels; but for many years in our gardens they have done far more mischief among these than amongst Cherries, Apricots, or Peaches. Next to Filberts and Nuts, Strawberries seem to be their favourite fruit, and they climb our Cherry-clothed walls in their way to these, and mostly leave the Cherries alone. A couple of squirrels among the Strawberries are something to shudder over and dream about. They cut the entire truss over as if with sharp seissors, even in many cases where there is no ripe fruit, as if in very wantonness, and thus destroy many quarts in a single night, and once they find Strawberries nothing but prompt destruction will arrest their ravages. It is impossible to net fruit, for I have seen them cut their way through double or treble nets with a dog at their heels as rapidly as if slashed with a sharp knife. In regard to nut-storing, &c., the wisdom and provident provision of the squirrel have been greatly exaggerated; for where squirrels abound they destroy all the nuts months before there are any kernels worth storing. Hardly are the nuts fairly formed when they are devoured, the major portion of the soft shell and its spongy contents being cleared off, while the kernel is a mere rudimentary speck in the centre of the mass. The squirrels are too wise to store these nuts in embryo, and too impatient to wait till they are fit for storing, as a rule, though some of the more sage squirrels do make goodly stores of prime nuts when they come upon them.

Mice and rats, however, are more diligent in transporting and storing supplies when they find them, but, with a short-sighted fatuity that defeats its purpose, they heap up choice food, offal, and excrements in such heterogenous mixtures, as to hasten decomposition and render the contents of their granaries too offensive for the unsavoury palates of such rodents. Such modes of storing, of which most horticulturists have had all too many examples, seem to reveal a fault in the instinct of these destructive rodents. For it can hardly be that they steal and carry away our choice Nuts, seeds, and fruits for sheer love of mischief, and without reference to the abundant supply of their own future wants. And yet their storing is so filthy and faulty, that their stores speedily become uneatable, or are transformed into loathsome masses of corruption even more useless to the thieves than to the losers of the stolen property.

Hortus.

QUESTIONS.

5535.—**Nigritella angustifolia.**—Can any reader inform me where a little Orchid called Nigritella angustifolia is to be obtained?—J. H.

5536.—**Daisies on lawns.**—Will some one kindly tell me the best way of getting rid of Daisies on a lawn?—R. L. Allman.

5537.—**Spent Hops for potting.**—Can any reader inform me if refuse Hops can be used, or if it is advisable to put them to any use in a garden, more especially for pot plants?—C. Edwards.

SHORT NOTES—VARIOUS.

Lilac-like Privet (*F. W. Y.*).—You probably mean the Chinese Privet (Ligustrum sinense).

Double seedling Primulas (*J. Cruickshank*).—Fine flowers of a pretty variety, but not superior to the best sorts of double Chinese Primulas sent out a few years ago.

White Cineraria (*T Stratton*).—The flowers represent a really fine, pure white Cineraria, the petals being of good shape and substance. It will undoubtedly be an acquisition, being dwarf and early.

Lathyrus Drummondi.—As I judge, from notes in The Garden, that some of its readers have not been able to procure this pretty and uncommon red-flowered Pea, I shall be very pleased to send some seeds of it to any of your readers who either failed to raise it before, or who wish to grow a very effective hardy border plant. I can send the seeds now on receipt of stamped addressed envelopes.—J. T. Poë, *Riverston, Nenagh.*

Diseased Eucharis.—I have sent a Eucharis bulb which, I am afraid, is attacked by the Eucharis mite. I should like to know if the mite is the cause of the mischief. The plants appeared to be in good health till within the last week or two.—R. J. W., *The Hermitage, The Park, Nottingham.*

The Eucharis bulb sent is undoubtedly infested with the bulb mite (Rhizoglyphus echinops), remedies for which have been recently given in the columns of The Garden.

Auricula shows.—As this seems to be the usual time for making show fixtures, I would like to make a suggestion to our Scotch friends. There is a considerable number of Auricula growers north of the Tweed, and I think a very creditable show might be got up if the matter is promptly taken in hand. I would suggest Edinburgh as the best centre for holding it, and Wednesday or Thursday, May 11 and 12, as the best dates. I will undertake to send from thirty to fifty plants—not necessarily for competition.—W. Stratton, *Annfield, Broughty Ferry.*

Names of plants.—*H. Rondebosch.*—1, Eriocephalus racemosus; 2, Osyris abyssinica; 3, Indigofera cytisoides; 4 not recognised; 5, Gerbera asplenifolia; 6, Osteospermum moniliferum; 7, Lobostemon fruticosus; 8, Hermannia sp.; 9, Amphithalea multiflora; 10, Gnidia pinifolia; 11, Belmontia cordata; 12, Rhus sp. We should be glad to get good seeds of these plants, and all others named for this correspondent.——*J. W. R.*—Specimens of Epidendrum insufficient; send more details and better examples.

Names of fruits.—*C. C.*—2, Doyenné du Comice 14, Beurré de Jonghe; 9, not recognised; 4, Winter Nelis. ——*J. A. W.*—Your Pear is Beurré Diel. —— *Rogler.*—Pear Vicar of Winkfield.——*Stella.*—Yellow Pear is Broompark green, Vicar of Winkfield.

WOODS & FORESTS.

HOW TIMBER IS VALUED.

As "Y." withdraws (p. 531) one of the statements to which I objected, viz., that relating to a lot of Larch from this estate, which he alleged had been delivered in South Yorkshire for less than 1s. 1d. per foot, although he ignores my denial of the other, I do not see it is incumbent upon me to notice further his remarks. But to gratify his curiosity I may say that for the last lot of Larch, which I sold a few weeks ago, I got 9d. per foot in the wood. For the one previous to that in the same place, but not quite such a big average, I obtained 8d. per foot. These lots will contain about 8000 feet each of Larch, and are not selected trees, but a clearance of the woods. The cost of removal to the station, which is, of course, borne by the buyer, will be from 1¾d. to 2d. per foot. The trees are measured up to 4 to 5 inches diameter at the small end, and only quarter of an inch allowed off the girth for bark, excepting in a few of the largest trees, when half an inch is deducted. We allow 2½ per cent. discount on all our sales, which are cash transactions.

I am still unable to test "Y.'s" figures as to the cost of removal by rail, for although he professes to deal closely with "details," and invites me to follow him, yet he neglects to say to what station in the wide district of South Yorkshire this Scarborough (not Helmsley) timber was delivered! The cost of removal by road from the wood to the station is here between ¾d. and 3d. per foot, or rather less than what "Y." states in his first article.

"Y." also says (p. 531) that the "Larch growers in North Yorkshire depend largely for their market on South Yorkshire." Now, I can only speak authoritatively for the estate with which I am connected, and so far from what "Y." states being the case, the opposite is more in accordance with the facts. Only a very small proportion of our Larch is taken to South Yorkshire; nine-tenths of it goes north into the Cleveland district and county of Durham.—THE FORESTER ON THE DUNCOMBE ESTATE.

—— Before "Another Forester" indulged in remarks upon other people's "amusing simplicity" he would have done well just to have re-perused his own remarks before committing them to print, and tried to regard his own assumptions of wisdom with a grave face. His little lecture about the fluctuation of prices, a subject familiar to any butcher's boy, he delivers as if the things he writes about had never occurred to anyone before, and all his arguments are based upon that assumption. This is what I call simplicity pure and simple. As it is probable that "Another Forester's" sale transactions are much fewer and smaller than our own, unless they are amongst the largest in England, readers may be left to judge whether he or I know our business best. As to the subject under discussion, the price of Larch and its valuation in certain districts, I have only to say that I may be a trifle under or above in the carriage rates by road or rail and such like costs, but I am certain that what was left out of the shilling after these were paid was the price the vendor received, for there was no change in prices in the interval between the forester's and the merchant's sales, and the latter did not sell without a profit. There is no "wild guessing" in the matter at all, and "Another Forester's" wild surmises in that direction are therefore quite irrelevant. But the "reckoning-back" process is not my only ground of calculation. Some of the foresters in the localities referred to by me state both the number of trees and feet for sale, and in a sale that happened about a year ago I learned the exact amount of money the lots realised, and had only to reckon the average price per foot or ton straight off. It is no one's business, of course, as to what his neighbour sells at, but when one reads these long rigmaroles about the difficulties of valuing and knows at the same time what is actually going on, one is apt to lose patience. There is more Larch to be sold where the last came from, and which will probably soon be set out, so I may be able to give you further and more exact particulars by-and-by.—Y.

GATHERING AND STORING TREE SEEDS.

THE best seeds are of course produced by fully fertile, healthy, vigorous trees growing not too close together in a favourable soil and situation. Very young trees usually furnish a large proportion of barren seed, while very old or weakly trees yield seeds which are not only difficult to keep, but also produce weak plants. Seeds ought to be collected only when they are ripe; such as are not fully ripe when taken off the tree do not possess the germinative faculty in the same degree as ripe seeds, and, moreover, lose that faculty much sooner. The ripe fruits of some species hang on the trees for a considerable time, and such one need be in no hurry to harvest; but there are other species, the majority of the seeds of which, with or without the rest of the fruit, are shed as soon as, or soon after, ripening. Among these are several kinds of deciduous Oaks, Silver Firs, Birch, &c. The collection of such seeds evidently admits of no delay. Rainy weather ought, whenever possible, to be avoided for the collection of seeds, especially of such as are small; but this prohibition, as a matter of course, does not extend to such seeds as are to be sown at once, or, which comes to the same thing, as cannot under any circumstances be preserved.

Hand-gathering from the trees is the most costly method, but is the only one applicable in the case of small or light fruit, such, for example, as Elms, Maples, Ash, &c., or of small light seeds that escape from the ripe fruit still hanging on the tree, as those of the Deodar, Silver Fir, Birch, &c. The seed-collector must climb to the crown of the tree, with or without the help of a ladder, as he can best manage, and with a sack slung over his shoulder. What he cannot reach directly with his hand he must draw to within arm's length of himself by means of a hook attached to the end of a light, but strong sapling of sufficient length. Branches and branchlets break off less easily when drawn upwards than if pulled downwards; hence it is always advisable for the collector to climb up to the highest point he can attain and begin by plucking off the fruit hanging at the summit of the tree. Gathering seeds or fruits from the ground after they have fallen from the trees is economical, and applies especially to large, heavy fruit which fall more or less perpendicularly, and which do not break up and allow the enclosed seed or seeds to disperse. To facilitate the fall of the seed or fruit, the branches of the trees may be shaken.

When trees marked to fall within a year or so are chosen as the seed-bearers, it may be found inconvenient or impossible to fell the trees as soon as the fruit ripens. On account of the nature and small size of the fruit and seed, shaking the trees and picking the seeds from the ground may also be inapplicable, while hand-picking would be unnecessarily expensive, since there is no reason for sparing the fruit-bearing branchlets and twigs of such trees. The fruit may then be broken off singly or in bunches with the aid of a strong hook forming a sharp angle of about 30° firmly attached to one end of a long sapling. The inside edge of the hook should be sharp and serrated and slightly curved inwards. The hook should be passed over the fruit-bearing branchlet or twig at the point at which it is to be broken off, and jerked downwards; or, if that does not suffice, it should be twisted round once or twice, by which means the branchlet or twig, as the case may be, will be firmly caught in it and a single jerk will then suffice to cut the former through. Where small wood has no value, and there is no objection to thinning out the crowns of the trees, branchlets of a certain thickness may be cut off with a bill-hook, and the fruit then hand-plucked from them. Some trees produce bunches of fruit, the common stalk of which dries up at maturity and early disarticulates from the rest of the branchlet.

In the case of seeds having a thick and fibrous covering the rind must be torn off with the aid of special shears, and in the case of seeds included in a capsule or pod, or between scales, the quickest method, when practicable, is the application of heat, under the action of which the valves of the capsules or pods and the scales of cones open out or disarticulate, and allow the enclosed seeds to escape. In many cases simple exposure to the sun suffices; in others, however, a higher and more sustained temperature is required in order to bring about the full expansion of the seed vessel.

With seeds having leafy appendages, the wholesale removal of the appendages, except one by one with the hand, is not always possible without injury to the germinative power of the seeds; but whenever practicable, it should be effected. If the seed is hard or tough, friction, more or less rough, suffices to detach these appendages. When this is the case, a very expeditious method is to nearly, but not quite, fill a large stout sack with the seed, and to thresh these or work them violently backwards and forwards, according to the toughness of the seed, until the appendages are detached or crushed, when they can be easily separated by the ordinary process of winnowing.

The seeds of many trees have to be plucked before they are quite dry, in order to prevent their being disseminated and scattered far and wide. Other kinds of seeds contain a great deal of moisture even when they fall off naturally. Such seeds should be spread out not more than from 2 inches to 3 inches high in a dry, airy, sunny place, and turned over with a rake twice or thrice daily for a period varying with the kind of seed and the dryness and temperature of the weather. After this they should be piled up higher, the raking being continued as before, but being limited to only once a day. This latter process should go on until the seeds are sufficiently dry. Experience alone can tell when this is the case. It is needless to say that in cold weather the seeds should be removed under shelter while dew is being deposited. As regards seeds that are moist even when they are shed naturally, this drying is really the completion of the ripening process. W.

LIME AS A WOOD-PRESERVER.

A NOTE upon this subject in a recent number of the *Field* has interest as to the possibility of using lime extensively in preserving the more porous of our common wood, such as the Scotch and Spruce Firs. With any of the processes now in use there is really nothing to be done, as they can only reach large masses of wood, such as railway balks and sleepers, on account of the expensive plant which has to be laid down. If anything practical is to result in the direction of chemically preserving our common timber, it must be from an exceedingly simple and cheap process, one in which the apparatus can be constructed on the spot without skilled labour and from materials at hand. The *modus operandi* of the lime process is simplicity itself, and the materials are everywhere at hand. The only point is to be satisfied as to its efficacy. In the mind of the writer referred to this seems to be satisfactorily established, and he quotes an instance of having preserved some Scotch Fir in this way, and then using it in a mill-loft. This occurred in 1850, and the timber is still in a perfect state. If we had any data as to the length of time the Scotch Fir would have lasted under similar conditions if it had not been preserved, this evidence would have been very conclusive. As it is, it shows that Scotch Fir, so preserved, is as good after a lapse of nearly forty years as it was when put there. In weighing the merits and demerits of the system, an important question is the behaviour of the impregnated wood when exposed to the wet. To anyone looking at the subject from this point of view, it would seem natural that, by exposure to rain, in course of time the preserving substance would be gradually washed out by the same agency it was, in the first instance, soaked or washed into it. It is quite possible there are some readers of these pages who can answer this question from their own experience; if so, their evidence will be valuable. If lime-impregnated wood will withstand the action of the weather, then it opens up a new use for wood which has hitherto been at a great discount in anything like permanent structures. If Scotch or Spruce Fir boards, for instance, can be used for weather-boarding with a reasonable expecta-

tion that they will last for forty or fifty years, the introduction of the lime-preserving process will be a boon. As the length of timber taken up in charging the wood with the solution depends on the size or thickness of the scantling, the time occupied in preparing weather-board of an inch or less in thickness would be relatively very short. Before storing away the boards or scantlings in the pit or tank, it is obvious that it is very necessary that they should be cut into the exact form required for use, and in the operation of stacking in the pit should be so laid as to give the least possible chance of being bent out of shape or of warping. Joists or beams would occupy a longer time in getting thoroughly saturated, but this would be of little moment, as they would not be liable to get out of shape, and a few months can generally be afforded in getting material ready. If there are good grounds for believing it to answer for outdoor as well as indoor purposes, there is no reason why fence posts and rails should not be treated. Given a large water-tight tank or pond and a good supply of lime, which, when the quantity to be done is enough could often be burnt upon the place, there is nothing to be done but stack away the wood and supply the lime as wanted. There is just this about it, that arrangements will be necessary to empty the tank or pond preparatory to placing the timber in it, and also for filling it up with water when the wood is ready. A little ingenuity will, however, overcome this, as there are few places where some existing water supply cannot be diverted temporarily to serve such an end. It would not, I take it, do to allow a stream of water to run through the tank or pond, unless there were a series of reservoirs, as the waste of lime would be so great and the solution would never be at rest.

D. J. Y.

THE DOUGLAS FIR.

Abies Douglasi is now a well-known tree, and probably the most popular of the many excellent introductions of its original and ill fated discoverer, whose name it bears. The first appearance of the Douglas Fir in Great Britain, says Mr. Hutchison, was about the year 1827, when it was raised from the seeds of cones brought by Douglas from the banks of the Columbia River, where it abounds in immense tracts, covering the lofty hill-sides, and appearing near the summits of the Rocky Mountains no larger than a mere bush, and gradually increasing in its proportions until in the valleys and at the foot of the mountain ranges it attains a height of 200 feet, with a straight noble stem fully 10 feet in diameter. It is common also in California, and in Mexico a variety of smaller growth, and with longer leaves of a deeper green colour, is found. In Scotland this Fir has proved perfectly hardy, of very rapid growth, a most graceful tree for ornamental or park purposes, and a valuable timber producer. It has been planted in every conceivable soil and situation, and adapts itself to almost any description, provided the drainage of the subsoil be porous, so that it does not become "water-logged." It thrives at any elevation, and the only drawback is its tendency to lose its leading shoot in early spring, or liability to have it broken over by any bird alighting upon its sap-surcharged stem. This is, however, in a great measure only of secondary importance, for the rapidity with which the Douglas Fir repairs the damage is amazing; and we do not think, unless in very exposed open situations, where it is liable to receive the full force of the west and south winds, which are so prevalent in Scotland, that this tendency should be any detriment to its cultivation. There are many other important qualifications, superior to both the Laricio and austriaca, which the Douglas Fir possesses, and which will, we think, tend ultimately to its being preferred by planters generally. While we can hardly point to a single specimen of either of the two former-named Pines of 50 feet or 60 feet in height in this country, we have instances of the Douglas in many places throughout the country of fully that size. At Dropmore, where one of the original seedlings is luxuriating in a naturally poor soil, this noble tree has already attained an altitude of over 100 feet! In many other situations, both in England and Ireland, we find it, not certainly of the great height of the famous Dropmore tree, but of large tree dimensions, and in all kinds of soil, from sandy light porous earth to deep heavy loam and clayey subsoil. Many instances might be cited showing the adaptability of Abies Douglasi to all sorts of soils and situations in Scotland. The tree at Baith, near Kirkcaldy, in Fife, planted by Douglas himself, is now a grand specimen, and grows within the influence of the sea-breeze, though in a somewhat sheltered site; and inland, on poor soil at Dolphinton, Lanarkshire, at nearly 1000 feet above sea-level, it is thriving in quantities. When young the bark of the Douglas Fir is covered with numerous small blisters surcharged with highly aromatic and resinous sap, and breaking one of these, in passing through amongst a group of plants, quite perfumes the air, around. As the tree grows older, the bark becomes dry, and of a greyish and rough appearance, quite different from the younger stages of its growth. The wood is reported to be very durable, tough, elastic, beautifully grained, and susceptible of a high polish. No doubt the utility and beauty of the fibre of the wood in old specimen sections point it out as suited for either constructive or decorative purposes; and the beauty, symmetry, and gracefully branching habit of the dark green-clad branches and side shoots, combined with its rapidity of growth, render it equally well adapted in the live state for either ornament or profitable planting.

SEASONABLE WORK.

When the weather is dry and open, seeds of most hard-wood trees may be sown in the nursery, choosing a piece of well-worked pulverised soil for the purpose. Young seedlings of Elm, Oak, Ash, Sycamore, &c., may be transplanted from the seedling beds into nursery lines, and cuttings of all deciduous trees should now be put in.

As the different plots of ground are cleared of young trees, lose no time in having the ground dug into rough ridges, which will not only keep it dry, but also expose it to the influence of frost, which will renovate and prepare it for the next crop. In places where the soil is of a poor, thin nature, take advantage of frosty weather to cart and apply a dressing of good loam, in order to improve it. Turn over compost and manure heaps, so that they may be ready when wanted.

Gather cones of the Larch and Pine tribe, which, as a rule, are generally ripe at this season. The cones of the following species are, however, improved and ripened thoroughly after severe frost, which has the effect of changing them from a green to a yellowish brick colour, namely, the Scotch, Austrian and Corsican Pines, Pinus romana, P. contorta, P. Pallasiana, P. muricata, P. Pinaster, P. Hamiltoni, P. Pinea, P. Pumilio, P. pyrenaica, &c. The cones of P. romana, though of a large size, are always hid among its dense foliage, so that a person may pass the tree and never observe them, except by searching for them. The seeds may be extracted from the cones during weather that is unsuitable for outdoor work, and kept in a dry place till wanted in spring. In collecting Larch cones it is a matter of importance to gather only such as are produced by fine, well-developed, healthy trees, and any small cones less than medium size should be rejected, as the seeds of such are small, and produce inferior plants.

As the buds of the Hawthorn expand at an early time of the year, no time should be lost in finishing the formation of new Quick hedges, and filling up blanks where necessary, before the buds begin to swell. Finish planting ornamental hedges as soon as possible; any of the following list of plants are suitable for such a purpose, and may be used according to taste: Holly, Yew, Berberis Darwini, Cotoneaster Simonsi, C. buxifolia, Evergreen Privet, Portugal Laurel, common Laurel, Laurustinus, common Box, Arbor-vitæ, Sweet Bay, and Sweet Brier.

In woodland work, take advantage of mild, open weather to push forward planting operations as vigorously as is consistent with the proper execution of the work. All dry, warm soils should be planted in autumn, but stiff argillaceous soil and deep peat bog which retains an excess of moisture had better not be planted till spring. On such situations Black Italian Poplar, Goat Willow, Huntingdon Willow, Bedford Willow, Alder, and Birch may be planted with success, and as there is always a demand for this class of timber, it soon turns into money. I have sold Alder at 20s. per ton—the purchaser undertaking delivery from the plantations himself—the size of the timber being not less than 6 inches in diameter at the small end of the tree. Birch at 12s. 6d. per ton for all shapes and sizes, from branches of half an inch in diameter up to any size. Such being the case, I think proprietors of waste bogs, that produce nothing but Heather and Bog Myrtle, should have them drained and planted at once, and in doing so they would only be consulting their own interest and that of their family.

In addition to the hard-wood trees named above, and in cases where it is desirable to get up cover, the following Conifers may be introduced with the most good results, namely, Scotch and Austrian Pines, Pinus Pinaster, P. Pallasiana, P. Pinea, P. excelsa, P. Cembra, the Norway, Douglas, Black American, and Oriental Spruces, Chamæcyparis of kinds, Cupressus Lawsoniana, Thuja gigantea, and Sequoia sempervirens. These are a few of the hardiest, but the list is by no means exhausted of trees which we have found to thrive on peat bog. In planting these trees my practice has always been to mix a small quantity of soil with the bog at the time of planting.

One of the principal occupations of this month will be the felling of heavy timber when hands can be spared, and in doing so use the cross-cut saw in preference to the hatchet, which will not only prevent unnecessary waste of timber, but also give the timber a better and more marketable appearance when put up for sale.

Continue the thinning of young plantations, and allow plenty of room for the development of the trees in early life, which will be in their favour in after years. In the case of Fir plantations, collect a quantity of branches in an open place in the vicinity of the wood to be left as a trap for the Pine beetle and Pine weevil, which will begin to breed among them in April, and, as soon as they are observed to commence their sub-cortical burrows, the whole should be burned up, which is a wholesale way of getting rid of these pests. As the woods and covert, in most cases, will now have to be shot through, all drains and ditches should be examined, and such as are in want of scouring or repairs of any kind can now be done without disturbing the game. Gather leaves from roads and walks, and store them up to rot for future use. Newly planted ornamental trees and shrubs should be properly fenced and tied, to prevent wind-waving; likewise a good mulching round the roots will be beneficial. In the case of newly planted half-hardy trees, protection should be provided for such in a time of hard frost—a few branches stuck in round the plants will often prove invaluable in severe weather.

J. B. W.

Abies Nordmanniana.—If Abies nobilis is the best of the new Californian Silver Firs, this is undoubtedly the finest of the European or Asiatic species. It is likely at no distant date to supplant the common Silver Fir for ordinary planting, the timber being of better quality, and as it starts later in growth it is less apt to be injured by late frosts. Its growth is rapid and symmetrical, and the foliage of a bright grassy green, which has a very cheerful effect in mid-winter. The colour of this tree varies at different hours of the day; the leaves, which in sunshine spread out and show the green upper surface, curve upwards when the sun is off them, and show the silvery lining.

Acer platanoides Schwedleri.—The merits of this Maple are, I consider, over-estimated. Its peculiar characteristic, viz., its colour, should be as constant as possible; whereas, in this case the bronzy hue of its new leaves lasts only for a very short time. It usually makes its growth in the spring very rapidly. When the leaves first unfold their colour is deepest and brightest, but this quickly passes away, and they gradually acquire a dusky, unpleasant brown hue, and finally a dirty green, and, besides, the leaves are rarely perfect, often having broken edges, a peculiarity for which I can scarcely account. I think we are often much too prone to neglect old friends for new ones.—S.

No. 788. SATURDAY, Dec. 25, 1886. Vol. XXX.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

BOARDED GARDEN WALLS.

HAVING had some little experience both as regards the erection and utility of wooden walls, I can endorse all that "T. B." (p. 568) has said in their favour. Where money is plentiful and every part of a domain must be in keeping, by all means build substantial brick walls, and do not forget to cope them well; but where cash is scarce, or where the owner is unwilling to be convinced that the light will pay for the candle, no one need despair, as the finest Peaches and Pears can be grown upon timber fences. My first experience of walls made of deal boards carries me back a little over thirty years to a delightful spot made highly interesting, and I should think, profitable, by Mr. Niven, of the Garden Farm, Drumcondra, near Dublin. Foreign timber at that time being much dearer than it is now, that highly intelligent horticulturist set up stout sawn Oak posts and rails and nailed thin deal boards against them, making when finished most excellent walls about 6 feet in height. Fruit trees of all kinds did well, but what struck me most was the collection of young Vines which Mr. Niven grew against them, just such canes as any Grape grower would be delighted to have for stocking his vineries. These Vines, to the best of my recollection, were struck from eyes on open-air hotbeds, and planted out the following spring on slightly raised banks, resting at the foot of walls facing full south. The canes were the thickness of one's smallest finger; short-jointed, bright as gold, and models of what first-rate Vines for planting should be.

Convinced in my own mind that warm resinous timber was an excellent as well as a cheap substitute for brick, an opportunity a few years later enabled me to put Mr. Niven's system into practice at Eastnor. The walls here built of brick and flued, upon which Peach growing had been indifferently carried out, were not more than 9 feet in height; consequently the knife as well as the spade came into use soon after the trees got into bearing. Strongly opposed to restrictive training, I made up my mind to add a cubit or two to their height, but finding these old hollow foundations would collapse under an additional weight of bricks, I took off the coping and raised the wall with 11-inch deals, one on each side set on edge and well spiked to blocks to keep them in position. In this way I have made an excellent Peach wall over 12 feet in height, and when I state that I think of adding another deal, your readers may conclude that my crops of fruit are satisfactory. From a south wall I turned my attention to an old limestone boundary wall, well capped or coped with Ivy, but too cold, although facing full west, for Plums to ripen well upon it. Brick facing was suggested, but for certain reasons I decided upon using rough, unplaned red deal boards three-quarters of an inch thick, which I can buy in Gloucester at 8*s.* 6*d.* per 100 feet. Home-grown Oak was used for light posts and rails; an 11-inch deal forms the cap and a very important part of the structure, and my first twenty yards of almost useless limestone now ripens good Peaches and Nectarines with this advantage, that any given variety is about two weeks later on the west than it is on the south aspect. For training purposes these boarded walls are admirable, and where large numbers of young trees are grown in nurseries surely these shelters would soon pay for themselves, as a man would nail in half-a-dozen trees whilst fixing the stakes and crosspieces on the old, I may say present, cumbrous system.

Again, in these days and within a week's steam of Canada, what grand cordon Apples and Pears might be grown upon them. Indeed, so satisfied am I with the plan, that I now have another 60 yards run of stone wall in hand, also facing the west, specially for Peaches. "T. B." suggests iron posts, but the rails must be of wood, and I question if good Oak would not be the best for posts also. Then, again, he recommends gas tar, but, excellent as this material is, it must be used with care, otherwise mischief may follow, and few, I think, would care to look upon walls of this sombre colour. There are, of course, exceptions to every rule, but in the majority of old places we find the warm lichen-grey or warm brick-red colours prevailing, and it has always been my practice to make new work blend with the old, by the use of colours with lime and oil or Russian tallow for the foundation. Lime in itself is an excellent wood-preserver, and when good linseed-oil is added, Venetian red, red lead, soot, and other materials for giving tone and colour may be added. This I have always used, and although my first deals are resting on their edges, apparently they are as sound as when first put up more than ten years ago. This is not, however, the best position for timber that is exposed to the weather, neither is it the most convenient for fixing new fences. The first thing to determine is the height, and when the skeleton framework has been securely fixed, the boards should be nailed on in a vertical position. Narrow boards, say 9 inches in width, answer better than wide ones. The ends should not touch the soil, and a broad, throated or undergrooved cap-board, 1½ in. thick and 11 in. wide, should always complete the structure. W. COLEMAN.

Eastnor Castle, Ledbury.

Snowdrops.—When the wind suddenly veered round to the south-west on the shortest day, and the snow vanished from the flower borders, the one thing which caught my attention was the sudden growth of the Snowdrops. They are now almost an inch above ground, and the sight of their soft grey leaves is most cheering. The popular French name of Pierce Neige is quite justified by the habit Snowdrops have of growing at a low temperature, and especially when the ground above them is covered with snow. After all, there is often, and always in the best of popular names, a deep-laid truth or meaning. Not only does the Snowdrop grow rapidly under the snow, but the converse of this is true also, as anyone who has tried to force Snowdrops in artificial heat will tell us is a fact, all of which simply points an old moral, and shows us somewhat of the varied idiosyncrasies of plant life in the garden. I think it was the sight of Mr. Alfred Parson's Salon picture of "The First Frost" to-day which set me thinking of the waning year. Like all good art, it is simple and true. It is only an old Horse Chestnut tree with uncropped, drooping boughs hanging over the reedy margin of a lake or pool; but a slender, fur-clad figure in black walking over the carpet of its ruddy brown fallen leaves tells the tale. So also in the garden all art should be true and simple, for a garden worth the name contains far more than the mere beauty-worshipper or the economist can express for us. It contains, indeed, a world of sympathies peculiarly its own. Now-a-days it is not uncommon to find our best artists interested in gardening and expressing therein some of their finest thoughts. Art effected by the spade may be as precious, even if not as endurable, as that of the chisel, or the brush, or the pen. A garden supplies food to our minds throughout all our varying moods and phases of feeling; it gives us Laurel wreaths or Cypress boughs for the old who precede us, as well as bridal garlands for the young who remain. Above all, do I object to the popular notion that a garden, because flowerless, is necessarily uninteresting. A good garden is full of buried hopes and glorious resurrections; of swelling bulbs and rooting seeds of a thousand kinds; it is, indeed, the birthplace of miracles, which would be even more wonderful if less common, or if we had the power of seeing and of understanding the full and true value of simple things.—F. W. B.

SMALL GARDENS.

THERE is no doubt whatever that small gardens, when planted and attended to with intelligent care, yield more real pleasure even than many large ones. A few weeks ago I visited that of Mr. P. H. Rooke at Weybridge, and certainly no garden of equal size has ever afforded me so much interest as this did. It was designed and planted by himself; it contains a few glasshouses, a fernery, and an arboretum, in which are some fine Conifers and flowering shrubs, bordered by herbaceous plants, Bamboos, Arundos, and similar vegetation, the whole forming a pleasing combination of tree, shrub, and flower life. Amongst other matter I noticed a fine example of Magnolia grandiflora, about 16 feet high and 10 feet across, the branches of which sweeped the ground. Taxodium sempervirens and variegated Hollies formed distinct features. Penetrating the arboretum by means of small winding paths, we found some grand masses of hardy Ferns, such as Scolopendrium vulgare and its varieties, crispum, crispum lætum, cristatum, and others; Cystopteris montana, a mass of fronds a yard or more across; Polystichum aculeatum plumosum, Lastrea Mapplebecki, Polypodium vulgare trichomaneoides, several very rare varieties of Athyrium Filix-fœmina, all large and well-grown specimens. Each plant of the Scolopendriums if taken up would fill an ordinary wheelbarrow. Emerging from this shady hardy fernery, we find clumps or belts of trees flanked by herbaceous plants, and in a delightful dell were massive specimens of some of the very rarest of hardy Ferns —Mr. Rooke's special favourites. These grew through an undergrowth of Ivy, which set them off to excellent advantage. Beyond this lies the rock garden, in which are many fine examples of rock plants—all beautiful and some rare. Amongst others which I noticed doing well were Androsace sarmentosa, Saxifraga oppositifolia, Meconopsis simplicifolia, Arnebia echioides (the Prophet flower), Polygala Chamæbuxus var. purpurea, Cistus crispus, C. formosus and C. algarvensis. Associated with these were perfect carpets of Acæna Novæ-Zelandiæ, Omphalodes verna, Hypericum reptans, Alyssum alpestre, Pelygonum vaccinifolium, Thymus thuriferus, Arenaria montana, Erysimum alpestre, and Helianthemum tomentosum. Some of these were from 1 foot to 3 feet across. Ramondia pyrenaica was growing here nicely, as were also Lithospermum petræum, L. prostratum, Erica Maweana, and many others. Gentiana verna was really good—better in fact than one is accustomed to see it in the south of England. Another feature to which Mr. Rooke drew my attention was a large bed of Vincas; with these, though highly interesting, Mr. Rooke wished to plant something to break the monotony and to give colour at different seasons of the year. He therefore inserted 4-inch pipes 2 feet long in an upright position, and filled them to the top with good loam. In these were planted double Whin, Genista hispanica, and various species of Cistus. These have now grown into large bushes, and hang down over the sides of the pipes sufficiently to conceal them, an arrangement excellent as regards effect, especially when the various shrubs are in blossom. Another matter to which Mr. Rooke pointed with evident interest was some large tubs or barrel ends, that is, a barrel sawn in two. In these were grown Cypripedium spectabile, C. Calceolus, Orchis foliosa, Montbretia Pottsi, &c. The tubs are furnished with handles, and when the plants are in flower they are carried

to wherever they may be wanted, either indoors or out. When the flowering season is over they are again removed to their winter quarters, plunged in ashes, and well top-dressed with manure. The plants have now been in the tubs for many years, and better examples of good growth could not be desired. R. P. Y.

NOTES OF THE WEEK.

Stephanophysum Baikiei.—This useful West African plant for winter decoration does not find so much favour as it deserves, because it is not serviceable in a cut state. It is a shrubby plant, with opposite, somewhat square branches, and roundish, lance-shaped, dark green leaves. The flowers, which are borne in large terminal panicles, are tubular, scarlet in colour, and upwards of 2 inches in length. This plant should be grown from cuttings struck every spring. It comes from low districts bordering on the river Niger.

Catasetum Bungerothi.—This new Catasetum is now flowering for the first time in this country with Mr. F. G. Tautz, Studley House, Shepherds Bush. It is at once the largest and most interesting representative of this singular genus. Its large, thick, fleshy, ivory-white flowers have just a tinge of green pervading the sepals and petals; the lip is ivory-white, cordate in front, with a deep, round cavity at the base lined with orange-yellow. The individual blooms measure upwards of 4 inches across.

Ruellia Herbsti.—We have recently seen this fine old plant in bloom in several suburban gardens, and few plants are more beautiful, chaste, or bright than it is in a cool stove in mid-winter. It is somewhat shrubby, the branches bearing on their summits large heads of rosy purple, tubular blossoms of peculiar shape. The leaves are deep green on the upper surface, ornamented on each side of the midrib with a conspicuous feathery white border, the under part being red. Like the majority of Acanthads, this forms a more handsome plant when young from cuttings struck annually than when older, and these young plants, moreover, produce the greatest quantity and the finest flowers. It was figured in the *Botanical Magazine* under the name of Dipteracanthus Herbsti. Its native country is unknown.

Dendrobium Dearei.—Some time ago one of your correspondents noted how long this fine Orchid remains in bloom. If I remember rightly, it was stated that for sixteen weeks the blooms had remained fresh. I have now a plant of this Dendrobe in flower, and two of the spikes on it opened in the second week in July last, now over five months ago, and it was only within the last week that they began to show signs of fading. Flowers of such purity, substance, and endurance are most valuable, and a striking contrast to the fleeting beauty of some of the evergreen Dendrobiums.—J. T. Pcë, *Riverston*.

The great Christmas Rose.—If there is one flower more than another to which the title of "December's Glory" might rightly be applied it is the Christmas Rose (Helleborus niger), and most especially is it applicable to that form well named maximus, and sometimes called the Scotch variety. The flowers are produced in twos or threes on stout, erect stems, fully 8 inches long; they are 4 inches across at least, and, rising well above the soil, in addition to the natural protection afforded by the autumnal leaves lying on the surface of the ground, the broad expanded cups of lovely whiteness remain unsullied by even a speck of the closely adjacent soil. I ought to mention that the flowers do not all expand at one time, but follow each other in rotation. The foot-stalk is of a lovely marbled pink colour, which colour, by the way, expands in gradually softening tints over the entire upper portion of the sepals, giving to the flower, as viewed externally, a charmingly delicate roseate hue that is never met with in the old species. Added to the colour and magnitude of the flowers, we have equally distinct characteristics as regards foliage. The leaves are double or treble the size of the old species, supported on long, stout foot-stalks, and remarkable for the broad, deflexed character of the lobes—so distinct, in fact, is the plant in every way, that I have no hesitation in saying, were it a new introduction, it would receive at the hands of our descriptive botanists a distinct specific title, and none could be more appropriate than Helleborus maximus, omitting the niger altogether. When pure and unsullied there is no more lovely flower for the decoration of the hair than this Christmas Rose, and not one in a ball-room would ever suspect its humble origin. Though I have written thus enthusiastically about this variety, I do not for one moment wish to disparage the old species itself, or its narrow-leaved form; though blooming a little later it still comes, and comes naturally, at a time when it has scarcely a rival. It is one of the few legitimate December-flowering plants that are able to stand all sorts of weather.—G.

New plants at Ghent.—At the last monthly meeting of the Horticultural Society of Ghent (held on the 15th inst.) certificates of merit were awarded to the following: To M. A. D'Haene for Calanthe Veitchi rosea alba; to M. Louis Van Houtte for Cypripedium Leeanum and the variety superbum; to M. Jules Hye for Cypripedium caudatum roseum splendens, C. politum and C. Lawrencianum, fine variety; to MM. Boelens frères for Odontoglossum Alexandræ album, and Dracæna fragrans aurea lineata from M. Louis Desmet-Duvivier. Cultural certificates were awarded for Tillandsia tessellata from Madame Ve. Van Acker-Maenhout, Cycas circinalis from M. B. Spae, and Restrepia antennifera from M. Jules Hye. Honourable mentions were accorded to M. Jules Hye for Cypripedium tonsum, and C. sylhetense from M. Jules Hye, and Cycas sinensis from M. Spae-Vander Meulen.

Calanthes.—These beautiful deciduous Orchids may now be seen in perfection at The Dell, Egham. The varieties grown are Veitchi, a very deep rose strain, the finest we have seen; vestita rubra and vestita oculata, two charming kinds—these in all cases have developed some extra fine spikes, on which there are on an average from thirty to forty flowers. Success, says Mr. Ballantine, is mainly due to giving the plants extra heat from the time when the spikes begin to show themselves until they are in full bloom and keeping them much drier than usual; very little water is given during the flowering time; the flowers expand much brighter and larger when kept dry. C. ignea oculata gigantea, a noble variety, was also flowering in the same house. Its flowers are large, creamy white, double the size of those of the ordinary vestita with a rich ignea eye. This Calanthe has been flowering since the beginning of July—over six months; surely a Calanthe of this duration and with its fine flowers must be an acquisition, and when better known largely grown.

Christmas Roses.—These are now attracting attention, for the niger forms are in full bloom, and later on we shall have many fine hybrids in bloom. These crosses are generally between Helleborus abchasicus and H. guttatus, and also between H. orientalis and H. niger. Of the types, perhaps, H. niger maximus is the best. It grows 2 feet in height, and has large white flowers 4 inches or 5 inches in diameter, but requires, as do all the varieties, to be well established before it is seen to advantage. There is also a small variety of H. niger (H. n. minor), but it is scarcely worth growing, excepting in large collections. H. orientalis is a good kind, with pale rose-coloured flowers. The leaves are deciduous and appear with the flowers, and are much divided. H. abchasicus has green flowers, with pale yellow anthers, and requires a well-drained soil and a sunny situation. H. atrorubens has purplish flowers, and does not bloom until late in March; whereas the other kinds are generally in perfection by February. H. purpurascens resembles a dwarf form of the preceding, and does not attain the height of more than 6 inches or 8 inches. The blooms are purple (as also are the stems) with white stamens, and they measure about 1½ inches across. An interesting winter garden may be made with the different species and hybrids of Christmas Roses alone, but we must bear in mind that we cannot see them in perfection except when permanently established, and I should say that they require at least two years to become so. I hope that these Christmas Roses (blooming as they do when there is nothing else) may have more attention paid to them, particularly as they force well, in addition to their other good qualities.—O.

The public gardens of the world.—The last report of the Montreal Horticultural Society contains a list of the chief public gardens of the world. This list (see pp. 594-5), which we have revised, will no doubt be useful to many of our readers. The report states that a classification of the countries of the world, according to the number of gardens they support, would give the following:—

Germany	36
Italy	23
France	22
Russia	16
Austro-Hungary	14
Great Britain and Ireland	15
Hindostan	7
Scandinavia	8
West Indies	6
Belgium and the United States	5 each.
Australia and Holland	4 ,,
Cape of Good Hope, Portugal and Switzerland	3 ,,
Denmark, Roumania and Spain	2 ,,
Algeria, Brazil, Canada, Canary Islands, Caracas, Ceylon, Chili, China, Cochin China, Ecuador, Egypt, Greece, Guatemala, Guiana, Island of Reunion, Japan, Java, Malta, Mauritius, Natal, New Zealand, Peru, Philippine Islands, Servia, Siberia, and Tasmania	1 ,,

It will be also interesting to see, from the following classification, how far each of the nations of the world is responsible for these gardens:—

England and Colonies	42
Germany	36
France and Colonies	27
Italy	23
Russia and Siberia	17
Austro-Hungary	14
Scandinavia	8
Belgium, Holland and Colonies, Spain and Colonies, United States	5 each.
Portugal, Switzerland	3 ,,
Denmark, Roumania	2 ,,
Brazil, Chili, Ecuador, Egypt, Greece, Guatemala, Japan, Peru, Servia	1 ,,
Total	206

The Veronica which I showed before the floral committee at South Kensington on the 7th inst. excited some interest owing to the flowers and foliage having stood 17° of frost. I was asked to get the correct name of it, as the one I had it under, V. salicifolia, was disputed. A spray was therefore sent to Kew to Mr. Baker, and he has kindly named it, saying that it will not pass muster for a form of V. parviflora, but considers it to be V. ligustrifolia of Allan Cunningham.—George F. Wilson, *Heatherbank, Weybridge Heath*.

Cutting off green leaves.—It is a mistake to cut off the top of any plant as long as it has any vitality in it. In the case of bulbs and tubers, if I am compelled to lift them before the tops are quite dead, I always leave the tops full length, for I am convinced that the leaf-sap goes into the bulb and strengthens it; in fact, one has only to compare the size and weight of bulbs lifted early in autumn and those left as late as possible, to be convinced that it is the descending sap that aids the growth of the bulb, for it swells but slowly while in full leaf growth.—J. G. H.

Japan Anemones.—As a contribution to the Japanese Anemone discussion, I wish to say that I think the Japan Anemone must have been known in England before 1845. Some relations of mine of an old Devonshire family have a set of crewel-worked curtains, said to be more than 100 years old. Upon them are worked all sorts of flowers, some highly conventional, others true to Nature. Among the latter is what can only be a Japanese Anemone, the red kind; leaves, shape of flowers, stamens, and growth are all like it. As William III. landed at Torbay, might not some of his Dutch followers have introduced it, as the Dutch knew Japan before that time?—A. J. C., *Twyford, Berks*.

Camellia Sasanqua (*S., Guernsey*).—All three specimens represent varieties of C. Sasanqua, an uncommon plant in this country. The white is less rare than the pink. We have not before seen the variety with white flowers tinged with rose.

A NEW ORLEANS GARDEN.

About gardening in New Orleans, and about our own garden in particular, I am sorry to say there is not much to record. Ground being very cheap here, all the best residences, the majority of which are wooden, are built upon large "lots," measuring each from 80 feet to 125 feet in front by 160 feet to 250 feet in depth, and in some cases much more. This arrangement allows free ventilation and sunlight, and sufficient space for town gardening where people choose to take advantage of it. There have been but few attempts, however, at artistic effect; on the contrary, the grounds are planted in the most desultory manner, the main effect being apparently to get as much into them as possible. Notwithstanding, the general effect of these "wild gardens" is decidedly pleasing, and, in consequence, New Orleans has a wide-spread reputation for beauty, in addition to the quaint picturesqueness of the French quarter, about which so much has been said. As our winters are generally short and mild, and the atmosphere quite moist, vegetation is strong and rapid in its progress, so that in two or three years new dwelling-houses, which are never more than two stories high, become imbedded in dense verdant thickets, which, but for the saw and shears, would soon crowd these structures not only out of sight, but occasion speedy ruin and decay.

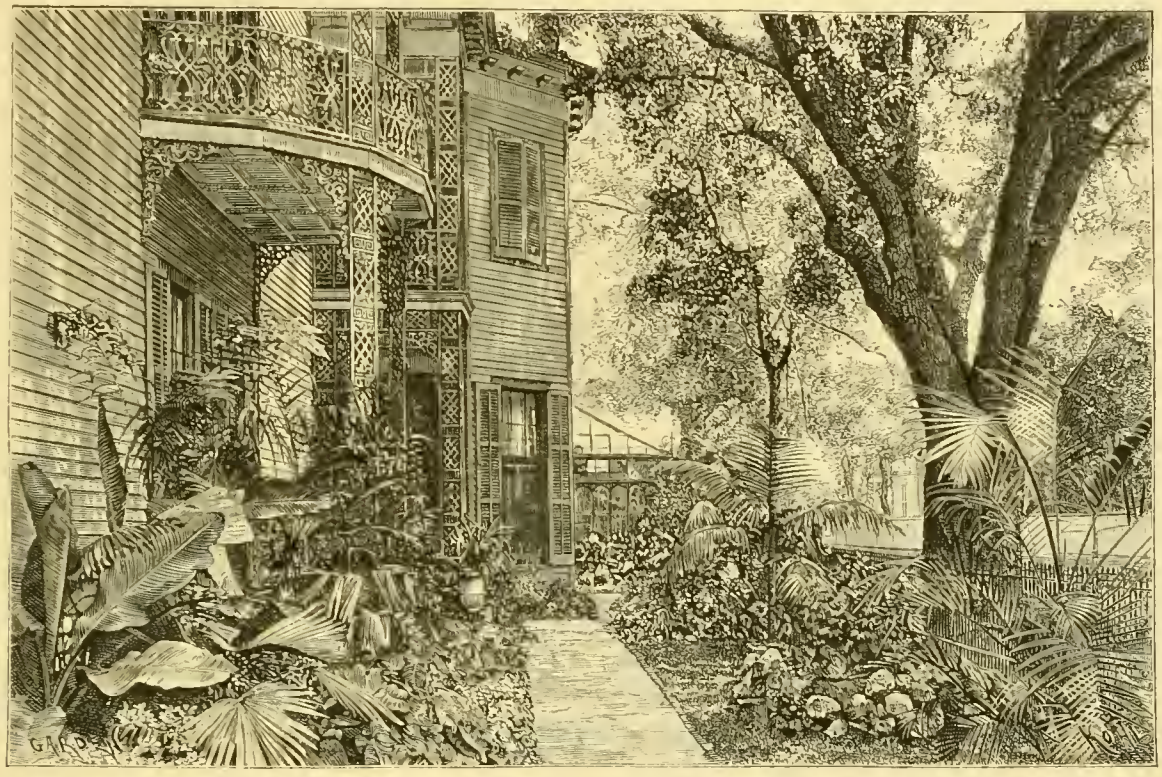
Our shade trees are for the most part natives, such as Oak (several species), Cypress, Elm, Catalpa, Sweet Gum (Liquidambar)—probably the most beautiful of all—Plane, Hackberry, Magnolia grandiflora, Pine, Cottonwood, &c.; to which may be added, of foreign introduction, Tallow Tree (Stillingia sebifera), Privet (Ligustrum japonicum), Pride of India, or China (Melia Azedarach), Japan Varnish (Sterculia platanifolia), and Ailantus. For ornament the Orange tree is in general use, especially the bitter species, which is not only somewhat hardier than the edible Orange, but holds undisturbed possession of its beautiful fruit from one season to another. In addition to Oranges we have Palms, of which there are three indigenous species, and about as many more from abroad which are equally hardy; also Pittosporums, Magnolia fuscata, Oleander (pink, crimson, purple, lilac, and white-flowered), Sweet Olive, Smoke Tree, Laurustinus, Chinese Azalea, Bottle-brush, Castor-oil, Camellia, Crape Myrtle (Lagerstroemia—crimson, rose, lilac, and white-flowered), the prince of all flowering trees; Cape Jessamine (Gardenia florida), Pomegranate, Yucca, Cycas revoluta, Banana, Bamboo, Poinsettia, Agave, Acalypha, Alocasia, and others too numerous to mention.

In regard to my own garden, after several years of unsatisfactory work, I laid it out upon what is sometimes called the French system, *i.e.*, in circles and in portions of circles, and it has proved to be quite a success. It has no walks, the result being a long, unbroken sward,* which, besides its intrinsic beauty, deepens the perspective, and adds very greatly to the effectiveness of the water, rockery, and tree plantation in the rear.

For flowering plants we rely mainly upon Roses, more especially Teas, all of which flourish in the open air without protection, and the display of colour which they produce in March, April, and May is truly magnificent. Even now and until Christmas an abundance of blooms may be cut for house and table decoration. Besides Roses, Cannas—of which Ehemanni is by far the best—Crinums, Hydrangeas, Chinese Hibiscus, Lantanas, Abutilons, Plumbagos, Chrysanthemums, and a host of others with which readers of The Garden are familiar adorn the borders. For bedding purposes we rely principally upon Pansies, Anemones, Phloxes, Gladioli, and Hyacinths for early spring; Portulacas, Pelargoniums, Petunias, Torenias, Salvias, Asters, Balsams, and Coleuses for summer; and Chrysanthemums, Dahlias, Zinnias, &c., for autumn and early winter. At present (Nov. 20) the garden is all ablaze with Roses, Zinnias, Alternantheras, Acalyphas, Poinsettias, Chrysanthemums, Acacia corymbosa, perennial Ipomæas, Antigonums, annual Thunbergias, Manettias, &c. For covering trellises and verandahs, we make another large draft upon Roses, such as Maréchal Niel, Solfaterre, Lamarque, Queen Henrietta, Gloire de Dijon, Ophirie, and Perle des Jardins; but in addition to these much use is made of Rhynchospermum jasminoides, Solanum jasminoides, Wistarias, Bignonias, Clematises, Antigonums, Honeysuckles, Ipomæas, and Aristolochia elegans. The seed of the Aristolochia was received by Mrs. Richardson some years ago without any name, and has been extensively cultivated ever since. It requires but little protection in winter, and when killed to the ground shoots up again early in spring.

In our pond, which is cemented, we grow several species of Nymphæa, of which devoniensis and rubra are probably the most satisfactory; also Nelumbiums (speciosum and luteum), Pontederia crassipes, Limnocharis Humboldti, Pistia, and Trapa. The last, in consequence of its very rapid development, has to be cleared out every few weeks. Last season we succeeded in flowering the Victoria regia without artificial heat, the young plant having been started in the propagating house, and transplanted early in June.

For some years past I have been endeavouring to acclimatise some of the sub-tropical Palms which grow at considerable altitudes in their native countries, and thought that I had succeeded in adding quite a number to our old list until



View in Dr. Richardson's garden, New Orleans. Engraved for The Garden from a photograph.

* Our best lawns consist of Bermuda Grass (Cynodon Dactylon?), which forms a beautiful turf, but unfortunately loses its leaves by the first frost. Has its seed ever been discovered?

last winter, when the extreme cold which we experienced wrecked all my hopes. Only one genus (Sabal) is indigenous to this locality, and of this we have two species, Adansoni and serrulata; to this may be added S. Palmetta and Pritchardia filifera, which belong to the same latitude, the former in Carolina and the latter in California. Two species of Chamærops, excelsa and Fortunei, and Phœnix dactylifera were naturalised long ago, and of late years Cocos australis has also been found to be quite hardy. To these I had added Phœnix tenuis, sylvestris, reclinata, canariensis, spinosa and rupicola, Sabal Blackburniana, Jubea spectabilis, Corypha australis, Latania borbonica, Kentia Belmoreana, and Rhapis flabelliformis, and by means of such protection as was afforded by stuffing Spanish Moss (Tillandsia usneoides), which hangs in such profusion from our forest trees, between the petioles so as to envelop the crown, all went well for some time. Phœnix reclinata and canariensis and Latania borbonica had already attained considerable size, the former furnished with a trunk 5 feet high by 2½ feet in diameter, and the latter with one 3 feet by 12 inches—the admiration of every passer-by. Many of our neighbours, profiting as they supposed by our successful experiment, made similar plantations upon a smaller scale, and therefore the part of New Orleans in which we reside had begun to assume quite a tropical appearance. But, alas! for all our joys and hopes, on the 8th of January, 1886, there came from the far-off Rockies in the north-west a "blizzard," which carried death and destruction not only to all delicate and half-hardy vegetation, but also destroyed many of our indigenous trees and shrubs, and even extended its ravages into countries ten or twelve degrees south of us, destroying some large plantations of Coffee trees on the east coast of Guatemala. The thermometer registered 12° Fahr., and the ground remained frozen for a week—a circumstance which had not happened along this coast before for more than sixty years. It was not until the weather became warm that we began to realise our losses, and, in some cases, not until the following spring. Suffice it to say, there now survive one Phœnix canariensis, two large Sabal Palmetta, two Chamærops, one Cocos australis, one Jubea spectabilis, and several small Sabal Adansoni and serrulata. Although greatly discouraged, yet, hoping that we may not live to experience such another visitation of northern weather, we have inaugurated another similar experiment. I ought to say, in praise of the Sabals, Chamærops, Cocos, and Jubea, that they stood the severe trial without any protection whatever.

The length to which my remarks have already run forbids even the enumeration of other plants which succumbed to this terrible frost. The death of four-fifths of all the Orange trees in this neighbourhood was, of course, the greatest loss, both on account of their economic and decorative value. T. G. Richardson, M.D.

NOTES.

Flowers of December.—Up to the second week in December we could have made sure of plenty of outdoor Chrysanthemums and other flowers, and even yet with hoary Garrya leaves, each shoot tipped with its soft grey tassels, Smilax sprays, and the berries of the Spindle Tree (Euonymus europæus), the fruit and flowers of Arbutus, purple Ivy leaves (Hedera atro-purpurea), Christmas Roses and the scarlet, red, crimson, orange, and pale yellow berries of various Hollies, there need be no lack of freshness and colour for the biggest of flower vases, if necessary. But, fond as I am of praising the open-air garden, I must for once frankly confess that, like a snail, I must pull in my horns, and retire to the indoor garden for flower-colour and flower-fragrance at this season. It is after all this winter of our discontent in the frost-bound flower garden which gives to the genial hothouses their main charm at this season, and also makes us welcome with a delight all the more keen and enjoyable the first warm, genial days of a budding and flowery spring. As it is, most of our flowers for the next month or six weeks—that is, until the advent of the Snowdrop—will have to be supplied from under a glass roof. Here and there Christmas Roses, Violets in frames, Schizostylis, and Iris stylosa may be had of course, but this cold snap has been pretty general, and has practically cut off the outdoor supplies. Even from Nice and Cannes come the news that flowers are scarce and dear, so that we may console ourselves and feel grateful for a glasshouse variety of climates in which well-nigh all things are possible. I see the pale amber buds of the Japan Allspice (Chimonanthus) here and there on the walls, and 12° of frost—the mercury having gone down to 20° on the index—have not robbed these of their delicious odour, suggestive of a spicy day in spring.

White Daffodils.—The difficulty of dealing with, distinguishing, and naming the distinct varieties of such a polymorphic species as Narcissus pseudo-Narcissus assuredly is need not here be enlarged upon, since to all who have grown Daffodils in quantity it is self-evident; hence I was delighted to read on p. 571 what our friend Mr. Wolley Dod writes as follows on this matter: "I by no means propose to increase the number of Haworth's names for wild white Daffodils. My contention is that, as far as our present knowledge goes, the one name N. moschatus is wide enough to include them all." Of course, if Mr. Dod means to add English varietal names to the Latin binominal N. moschatus, such as N. moschatus var. William Goldring, or N. moschatus var. Colleen Bawn, for example, I agree with him; otherwise of course I do not. Even as now used, N. moschatus means or is applied in gardens and bulb lists to two very distinct and different white Daffodils, viz, to the large white, sulphur-crowned N. moschatus as grown in Holland, and to the much smaller and whiter little Swan's Neck, as found wild on the Pyrenees, and as figured in The Garden (p. 571). I never suggested that Mr. Dod or any other cultivator should send bulbs of white Daffodils to the Chiswick Garden and trial grounds of the Royal Horticultural Society for the purpose of their being named. Bulbs sent there under names or numbers will be grown side by side, and the main object is to note accurately first of all whether they really differ from each other—say, for example, as much as the N. moschatus of the Pyrenees differs from the two forms of N. moschatus as figured in the *Botanical Magazine* (t. 924 and t. 1300). After we have decided for certain that we have some dozen or two of varieties worthy of popular names, it will be time enough to decide amongst ourselves what they are to be called. Let all who send bulbs be enrolled on the Chiswick white Daffodil trial committee, and then let such committee settle as to the names, while those who do not send bulbs should be excluded from the committee.

The Strawberry tree.—There are two Strawberry trees, but what I call the true Strawberry tree is Arbutus Unedo, while the Indian, or Nepaulese, Strawberry tree (Benthamia fragifera) is different, and a far rarer shrub or small tree in our gardens. Both are barely hardy, and so are apt to become injured or even cut down to the ground level during exceptionally hard winters. Wherever the Arbutus grows well it is of all shrubs one of the most pleasing during the winter season. It is evergreen, and when old its trunk and main branches are of a beautiful reddish brown tint, quite different from that of the stems of anything else, although in colour a little resembling the Californian Redwood (Taxodium sempervirens). During November and December the Arbutus is at its best—a rare gain—and when its clusters of waxy white Erica, or Clethra-like, flowers are contrasted with its rich red, Strawberry-like fruitage, it is a sight worth seeing. Years ago I saw it in fruit for the first time in the cemetery at Brompton, but it is in Devon and Cornwall, in the Isle of Man, or in Wicklow, or, better still, at Killarney, where it is most luxuriantly at home, and most ornamental. There is a tradition that salmon is never eaten in perfection unless cooked as pulled fresh from the water, on the glowing embers of an Arbutus wood fire. Is it not in that enjoyable little book called "A Little Tour in Ireland," by Canon Hole (when an Oxford undergraduate), that I have seen a sketch of the cooking process as above alluded to? and have I not myself reason to feel grateful to the genius of John Leech for that same illustration, seeing that the memory of it once suggested to me a mode of cooking some delicious, but nameless, fish I once caught off an island in the Eastern Seas, where cook-pots were *non est?* Nothing eatable was there indeed but the fish and the fire, and with good appetites a rich banquet was made of such scanty fare. As I write, some rich, Grape-like clusters of Arbutus fruits are before me amongst their own glistening leaves in a China bowl. They have all the deep rich, rough ruddiness of the old Black Prince Strawberry at its best, and but few other of our hardy fruits surpass them for indoor ornaments or for church decoration at this season.

The first Chrysanthemum.—If we take the direct evidence of the plate in the *Botanical Magazine*, t. 327, we may consider it as the first large-flowered Chrysanthemum that ever flowered in English gardens. Whether it is identical with the seedling raised by Mr. Harding in 1864-5, when he was gardener to Dr. Sharpe, of Tunbridge Wells, must remain a matter of individual opinion, but I believe it to be the same, and so do other observers who remember that the drawing was made from a plant that would scarcely be so well grown in the year 1795 as is possible with us to-day. So far as I know, Mr. Burbidge never has said that it is the same, but has merely drawn attention to the resemblance of the modern variety, Dr. Sharpe, to the *Botanical Magazine* illustration of what is therein figured as C. indicum, but which is really, according to modern lights, C. sinense. In "The Chrysanthemum," p. 100 (2nd edition), I find the following account of this variety: "Dr. Sharpe (Ref.), raised in 1864-5 by Mr. G. Harding, then gardener to Dr. Sharpe, of Tunbridge Wells, who is said to have crossed Madame Poggi with Golden Queen of England. Result: Seven seeds, all grew, yielding Dr. Sharpe, Mrs. Sharpe, and five worthless varieties. The plants were sold to Mr. Forsyth, then of Stoke Newington, who named and distributed them. It has quilled florets of crimson-purple or rich maroon, backs of florets (and quills) silvery rose, fine colour, early, and of good dwarf habit. Dr. Sharpe seems of all modern varieties to approach most nearly to the plate in the *Botanical Magazine*, t. 327, which represents the first large-flowered Chrysanthemum which bloomed in England." After all this is the point, for out of the 2000 to 3000 Chrysanthemums grown to-day in English and French gardens I am not aware that any one resembles this figure so closely as does Dr.

Sharpe. That Mr. Harding did really raise it is, with me, a foregone conclusion, but it is an old trick of Dame Nature to go back or revert to a former type or variety when seeds are sown in hope of an improvement. Sometimes she fixes on a point in the middle distance, so to speak, as in Mr. Poë's (p. 563) seedlings from the white Everlasting Pea, which so often persisted in bearing pink or rosy flowers.

Outdoor Grapes.—When the barking of a watch dog is rewarded with brick-bats instead of bones, he is perhaps wise in his generation if he curls himself up in his kennel and goes to sleep comfortably; but, of course, he seldom does this unless the brickbats actually hit him, which they very seldom do. Neither does the quotation from *The Field* (p. 570) quite apply to what I wrote in The Garden (p. 539). I have all respect for Mr. Robert Marnock's opinion, but I submit that "gardens of the better class" are not quite the places in which to look for outdoor Grapes. In such gardens there are, as a rule, good Grape houses, and I have never yet said that outdoor Grapes are better than hothouse ones. My own experience may not be quite so extended as that of Mr. Marnock, but I have seen good open-air Grapes in English gardens, and especially on cottage walls. Allow me now to ask in these pages of anyone who has seen useful crops of outdoor Grapes in England that they will tell us where and how they were grown, and how the fruit was utilised. That vineyards formerly existed in England which yielded fairly good wine is perhaps beside the point; the question being whether such success is now possible, or, if possible, acceptable to more modern, and perhaps more fastidious palates. Was not Lee's Vineyard Nursery at Hammersmith once a Vine field? and was not the wine there made sold to the wayfarer in a thatched-roof office above the cellar or wine store? Even in a green state I think the Grape preferable to the Gooseberry for jelly or confections. It is not quite fair, however, to put questions of this kind either for or against, but to avoid prejudice let the question be put in a manner quite neutral. I do not think the open-air Vine likely to be so profitable as many other hardier fruits, but under the most favourable natural conditions I have no doubt that fairly good Grapes may be grown in Southern England.

Plant shelters.—I think it is in Mrs. Bridges' "A Lady's Travels Round the World" that we are told that the Japanese gardeners had no greenhouses when she was there, but that their tenderest plants were sheltered in pits, tanks, or caves dug into the earth and exposed fully to the sun. These sunken pits could, of course, be easily covered over with frames of oiled paper or branches of coniferous trees during actual frost. What most surprised Mrs. Bridges, however, was the extreme facility and apparent carelessness with which the Japanese gardeners and nurserymen dug up their finest Camellias, when in bloom, for the decoration of their temples or dwellings. They did this with as much security from actual damage apparently as in the case of our own employment of Rhododendrons for the floral exhibitions in April or May. I think there can be no doubt that the introduction of glass-houses to our gardens has not, on the whole, been an unmixed advantage, since before their introduction many protective plans for protecting and sheltering tender plants were in vogue which are now unused. There can be no doubt that caves as cut into dry banks of earth, or as formed by turves or rough stones, are extremely useful for sheltering half-hardy things. A broad coping on a wall, or even the leafy branch of an Evergreen tree laid over a plant during frost, often bridges over the difference between life and death; while the same may be said of a forkful of dry leaves or a shovelful of dry ashes or sand. Delicate bulbs and other plants may often be preserved by keeping them dry; and Mr. Ewbank's suggestion as to the Willesden paper for the covering of things of this kind when at rest will enable us to enjoy the beauty of many things previously thought ungrowable in the open air. Veronica.

Rose Garden.

PROTECTING TEA ROSES.

The winter has come in with a rush at last, and to the tune of from 15° to 20° of frost. True, the cold has not lasted long, the thermometer rushing up from 12° to 50° within a few days. These short frosts seldom work such severe havoc as those that last longer—or see-saw—upon or among such plants as Tea Roses with pertinaceous persistency; still they are far too much of a cold thing for the well-being of Tea Roses if any such were caught all unfurnished—that is, unprotected. Neither do these stinging frosts reveal the evils they inflict on the instant; on the contrary, plants often look as if they had passed through severe frosts with impunity, and not till the sap tries to rush through their branchlets in the spring is the fact revealed that their substance has been ruptured into mere masses of dead tissue, impermeable to fluids and incapable of revival into new life. Early protection is the obvious lesson taught by these early December frosts, but with Tea and other Roses blooming through November such lessons are apt to be forgotten. But it is far better to clothe autumnal or winter beauty with a handful of Fern fronds any time in November than run the serious risk of sudden frost-bites through leaving tender Roses unprotected too late in the season. But better late than never, and those who may not yet have protected their Teas should not lose a moment in doing so.

It would be a grievous error to reason that because the plants had passed through one severe frost with impunity that others would not cripple them; for this impunity is more apparent than real, as we have already seen; and, besides, frost never hardens tender plants; on the contrary, each freezing leaves them the more susceptible of injury for the next, and so on in succession until such plants as Tea Roses finally succumb to frosts that would hardly have injured them in the least had they been duly and carefully shielded from previous chills—not that overcoddling is desirable, though it is safer far than excessive exposure.

One gets almost ashamed to repeat such advice to infinity as to leave the top intact when applying protection. The latter not seldom proves the most potent of all protection, and, being posted at the point of danger, is the more efficient on that account; and yet not a few cultivators, to save time and husband sap in the spring, prune their Teas before protecting them. No practice could be more dangerous, for early pruning fosters early spring growths and it is these first fruits of the first fitful, genial days of spring that invariably fall victims to the late frosts.

D. T. F.

The Everlasting Rose.—Ought we not rather to write Everlasting Roses, for are there not many more varieties than ordinary folk dream of? In an old garden the other day I found four distinct deep crimson kinds, one with a peculiar smell like that of a fruit shop, and this plant had grown—so I was told—for full fifty years where I saw it; still it was in perfect health. There were several forms of pink and rose-coloured kinds also, but in no case was there a name for any of them. More recently in another garden I saw a large round bed of the common pink Monthly in full flower in this present month of December. This bed consists of bushes fully 4 feet high, which have grown into each other. They get next to no pruning, except perhaps now and then a rough going over with the hedge shears. The owner of the place told me that this bed was just as I saw it twenty years ago. In the same garden are huge bushes 6 feet high and fully as wide of a light crimson-coloured sort, and also of a deep red-coloured kind which is new to me. Some time ago I also came across a big bush of a large-spined, big-leaved sort, with very full rosy crimson blossoms with a paler reflex and a sweet scent. This had no name, and had occupied the position in which I saw it so long, that the oldest inhabitant and the garden records failed to establish anything whatever as to its history. Again, I found a very beautiful nameless variety growing only 1 foot or so high, and bearing in profusion most brilliant crimson blossoms. The only white sort I know is Duchére, a plant of moderate growth, bearing flowers that open badly. There are hundreds of gardens up and down the country in which any of these China Roses would be quite at home, and as permanent subjects they have no equals. What we want, however, is to gather all the kinds together, and get acquainted with them. In a French list before me I find no fewer than twenty-six kinds enumerated, including the green-flowered one. Does this list of twenty-six include, I wonder, all the known kinds, or are these twenty-six distinct? Who will tell us something about these old favourites, that will enable us to distinguish them—to know, in fact, the one from the other?—T. S., *Newry*.

SOME TEA ROSES OF 1886.

I give below the results of our tests of the new French Roses grown in our trial grounds in the past season. We carefully noted all the characteristics shown by the plants—of which we had several thousands—with a view to being able to furnish an accurate description of each from personal observation. Of course, one season's trial is not conclusive, and after another year's trial we may find some worthy Rose or Roses other than those we mention, but the following is the result of our experience with them up to date:—

Claudius Levet.—A moderately vigorous grower, with dense short growths. Colour, a carmine-rose with a peach centre. This variety produces quantities of buds, but its greatest charm is in the open state. Buds on young plants were somewhat disappointing, but as the plant grew and became established, the open flowers were grand, and warrant us in recommending the variety. In colour it is not unlike Mdme. Watteville, but differs from it in having shorter petals and a larger and more double flower.

Comtesse de Frigneuse.—In colour, charming; in freedom of bloom, second to none, with finely-coloured foliage. Buds not unlike those of Niphetos in form, being long and of good size. Colour, a charming canary-yellow, with a softer shade on inside of petals. We are so well pleased with this variety, that we are growing it by the thousand. We find it to force finely, and its buds are eagerly sought after. A beautiful Rose for bedding purposes, and a good winter bloomer.

Edmond de Biauzat.—A strong, vigorous-growing Rose, with fine leathery foliage and erect shoots. The petals are very thick in texture, but rather short. Colour, peach, tinged with salmon and pink. We shall have to test it further before recommending it.

Marquis Vivens.—Carmine-rose, centre shaded bright yellow, delicate and beautiful in its colouring. Not unlike Madame Cusin in colour, but with buds similar in shape to those of Safrano. This variety, from its freedom of bloom and exquisite colouring, is destined to be used extensively by florists for forcing. To the amateur it will be welcome in the bud state for cutting from, but as an open flower it cannot be considered a success. The more we see of this Rose the better we like it.

Flavian Budillian.—Vigorous in growth, with fine, healthy foliage. Colour, soft tender rose, with brighter shading at times. Cannot speak definitely of this variety; will require further trial to determine its standing.

Sussane Blanchet.—Colour of outer petals a clear flesh white with deep flesh centre. Perfection itself in colour, and charmingly beautiful. In shape similar to certain varieties of the old Provence Rose; outer petals very large and broad, with short inner petals. Of delightful fragrance. We think highly of this beautiful Rose, and if it continues to preserve the same charming colours and unique form, it will undoubtedly be in great demand. Foliage large, erect in growth; beautiful.

Souvenir Victor Hugo.—Bright China Rose, with copper-yellow centre; ends of petals suffused with carmine. A charmingly beautiful combination of colouring, and each colour blends nicely with the other. This variety will take rank with the best, and is a Rose of decided merit. It is not improbable that it will prove useful for forcing. The evident relationship to Comtesse de la Barthle assures us a free bloomer, and in size and length of bud it is the equal of the best Teas. Of merit. —E. G. Hill, in *American Florist*.

OWN-ROOT ROSES.

"T. W. G." (p. 516) states "that the suckers from the base of the plants make their appearance in July just as the flowers are about to open; consequently, if the suckers are left alone, the flowers seem to stand still and never attain their greatest possible beauty, or, if the suckers are sacrificed to the flowers, the plant is damaged for the next season." The first may happen to some extent, if by greatest possible beauty is meant the highest perfection and largest size for showing, but hardly otherwise, and, besides, the suckers start in June, not July, provided the shoots of the previous season are pegged down, as they ought to be, either the previous autumn or very early in the spring. So treated, I have not found the suckers at the base of the shoots or springing from the root-stocks to practically or sensibly so lessen the supplies of food to the flowering shoots as to cause the blooms on the latter to stand still. On the contrary, suckers and flowers run fairly well abreast, and the latter develop in such numbers and to such perfection as to make own-root Roses by far the most useful for decorative effects in the garden, and for cutting for all purposes, except showing for prizes. Should, however, the suckers of any particular variety, or in any exceptional case, manifest any tendency to an excess of vigour, such may be simply checked in two ways without any damage to the plant for the next season. They may be pegged down to the level of the flowering branches, and this bending from the vertical to the horizontal checks their vigour for a considerable time. A still simpler and better method is to stop the strongest suckers at three or, at the most, six eyes from their base. The one strong shoot will then break into three or more, and as the season advances, and all danger from any excess of vigour has been grown out of the plants, the shoots from the suckers may be thinned down to such numbers as sufficient space can be found for. One more very important point must be noted here. "T. W. G." writes, "In the case of worked plants, these strong growths from the base of the plant do not appear until the flowers are expanded, and hence never interfere with the others." My experience would say that, as a rule, these strong shoots do not appear at all on worked plants. Of course, there are exceptions, but they are so rare, that very few attempts to renew worked plants, through a regular succession of strong shoots equivalent in regularity of development or in recuperative force to suckers, have proved successful.

Neither have I found the difference in time in the appearance of base shoots from worked plants and that of suckers anything like so marked as that indicated by "T. W. G." Possibly, however, this rosarian will be able to throw further light on the wide disparity of time in the appearance of suckers and base shoots on worked plants, for the subject is one of vast practical importance, as well as of the highest physiological interest. It also seems almost a physical impossibility that the few roots of the Brier and an inch or two of its root-stock should have the power of holding back the Roses worked upon it for a month or a fortnight. Nay, the power claimed is even more marvellous than this, for it is an elective choice between Rose shoots of different character, viz., the blooming and growing ones, the former keeping time or never getting in advance on own-root Roses, the latter being made through the magic of the Brier stocks to lag behind them. If Brier stocks can do this, then indeed we may readily grant that nothing is impossible to them, not even the making of Rose roots to bloom instead of their tops. D. T. F.

New Rose Comte de Paris.—The Journal of the Tuscany Royal Horticultural Society (Florence) publishes a plate of a new Hybrid Perpetual Rose distributed under this name. It is described as superlatively good; the flowers are large and of a bright red, shading to velvety purple; the stalks are strong, so that the blooms are seen to advantage. The blooms, when open are, on account of the regularity of the petals, excellent; while, in the bud state, they are invaluable for cutting. Altogether "it is a plant that no Rose lover would be without." The name is not well chosen, as there is a Rose already in gardens under the title of Comte de Paris.

Roses for a small garden.—Twelve dwarf plants may consist of three Gloire de Dijon and one each of Cheshunt Hybrid, Abel Carrière, A. K. Williams, Baroness Rothschild, Captain Christy, Charles Lefebvre, Duke of Edinburgh, Victor Verdier, and Prince Camille de Rohan. For walls I should recommend Gloire de Dijon, Aimée Vibert, Belle Lyonnaise, Bouquet d'Or, Devoniensis, and Jules Margottin. In this selection of eighteen plants, I have suggested planting four Gloire de Dijon, for the reason that it is, without doubt, by far the best outdoor Rose grown, and will produce during the season more satisfactory blooms for cutting than any other Rose—which, to my mind, is the chief object. Devoniensis is a more beautiful flower, especially in the bud state, but then the proportion of bloom is about one to six. Aimée Vibert, with its vigorous growth and beautiful foliage, clad in summer with a canopy of snow-white blossoms, is very beautiful, but still not to be compared in usefulness to Gloire de Dijon, which from May until November yields blooms of excellent quality, shape, and perfume. As regards stocks, have them on the common Brier and plant low, so that they may form "own roots."—J. K.

Sunless propagating houses—One of the relics of the past is assuming considerable importance in connection with many Rose-growing establishments, says the *American Florist*, and to the north-side houses may be attributed no small amount of blame for the degeneracy in the vital energies of the Rose. Let us for a moment reflect on the *modus operandi* in vogue in many places. Cuttings of Roses are taken from plants grown in the full blaze of the sun and in a temperature productive of fine growth, and are supposed to be full of life and vigour. The next step is to remove them to a sunless house with top temperature in the forties. This lowering of temperature and avoidance of sunshine is considered essential by some of the leading lights in the Rose-growing world. Reflection will show at once the unnaturalness of the whole operation. The change is so sudden, that a check is given to the future plant's action, and granulation is retarded instead of accelerated, and consequently we have that sickly, watery look so prevalent in establishments where this method is practised. Better by far plant your cuttings on a bed with full southern exposure, using light paper shading in the middle of the day, when the sun is hottest, and that for only a limited time after the cuttings are inserted. Experience will prove and common sense will endorse this method as against the practice so commonly employed. Every observing man will see at once the desirability of securing the beneficent rays of the sun to not only preserve, but help along the cutting after granulation has commenced. If we all practised the saucer-and-sun method in rooting our Roses it would be far better with the Rose, especially our forcing varieties. I know I am treading on the toes of many who profess to know all about Rose propagation, but I am prepared to back old Sol and common sense against all the theories in the world.

Flower Garden.

TULIP BULB "DROPPERS."

As a grower of the Tulip in its florist varieties, and for many years a raiser of it from seed, I have become intimately acquainted with the "dropper." It is, however, a form, whether of renewal or of increase, which is not adopted by the full-sized flowering bulb. This produces the new one for the following year, upon the radical plate of the old one, while offsets are attached to the same part also, nestling at the base of the folds of the parent bulb. Occasionally an axillary offset is formed at the junction of the lowest leaf with the flower-stem, but never up and down the bulb in the way that the fat Window Onion (Ornithogalum longibracteatum) or Vallota purpurea produces offsets. Neither is the "dropper" but very occasionally formed by offset bulbs, unless they are very small, say from the size of a Hazel-nut downwards. It is in the seedling bulb of the Tulip in the years before it blooms that we find the "dropper" as the all but invariable form of reproduction.

Some "droppers" of the larger sort will have an offset or two, and there is very often a tiny bulb left behind on the site of the remains of the old exhausted bulblet. It is entirely owing to the tedious "dropper" that we cannot flower the Tulip from seed in less time than from five to seven years. It might not so much matter if but one "dropper" were produced, although the tube that carries it down is always at the cost of the "dropper's" substance. The loss and delay occur through there being several of these "droppers," varying but little in size in each case, and of which only the largest can be selected, to avoid growing a vast accumulation of what may be but worthless when they bloom. Thus the advance in the seedling Tulip bulb is very small up to the fourth year, by which time some are bold enough to renew the bulb on the radical plate, after which they rapidly attain a flowering size.

It is crediting the "dropper" with too much sagacity and too fine an instinct to suppose that it descends in order to place the bulb in a proper deepness of earth. The Tulip is not at all particular to an inch, though from 3 inches to 4 inches is the customary depth of planting. A bulb that may have accidentally been dug in will cheerfully come through 12 inches, and bloom, too. I have planted young seedling bulbs both deep and shallow, and always found the "dropper." I have left "droppers" two years in the ground, and found them "droppers" still. They are not soon out of their depth, and can easily avoid that, either by shortening their descent or by the upward direction at first of the hollow underground pipe, at the end of which, as in a sac, they are developed. I have unsuccessfully tried to discontinue the "dropper" by the experiment of planting two-year-old seedling bulbs so shallow that I could watch the "dropper" shoot appear. I have removed it forthwith, but only to find another one produced, and after the removal of this, another still, till at last I felt obliged to let one go for fear of exhausting the plant. It used to be a practice to offer a formidable check to "droppers" in the shape of large broken crocks or coarse drainage materials a little way below the

soil. These impediments, however, had no effect beyond that of distorting some of the new bulbs, according as a "dropper" had flattened its nose against a big crock, or had taken a sort of negative impression of a broken brick.

"Droppers" start either from the base of the young bulb downwards, or emerge from the top, and then descend, probably regulating their course at first by the way of the least resistance, or the direction in which their shooting point may be laid. But why the young seedling bulb should have no single leading bulb-germ like those mature in size, but several that strive for the mastery; and why these bulb-germs instead of clustering at a mother's side, as offsets do, should be sent away from home as "droppers," I think we cannot tell. We only know that it is the seedling habit of the Tulip always, and of very small offsets not infrequently. D. F. Horner.

Burton-in-Lonsdale.

Old double yellow Wallflower.—This is a favourite with cottagers in this locality; in summer bushes of it may be seen laden with golden blossoms, which render the air redolent with perfume. Like many old-fashioned flowers, this possesses so many good qualities, that one wonders how it could ever have fallen into disrepute. Of course, the comparative mildness of the climate on this coast has much to do with its abundance; it rarely gets injured by frost, and when once planted it lasts for years, spreading out into large bushes. The soil being naturally light and dry favours sturdy growth, which gets well ripened, and its hardiness is thereby increased. It is readily propagated by means of slips or cuttings. The usual plan with the cottagers is to slip off small side, flowerless shoots in autumn, and insert them in a shaded spot where they remain until the following spring; they are then transferred to permanent quarters. For supplying cut flowers this Wallflower is invaluable, as its bloom-spikes are large and expand regularly. Anyone desirous of growing this really fine plant in cold, wet soil where frost is severe should plant it close to a wall, and take the precaution of having a reserve of young plants in a cold frame. In many parts this old-fashioned Wallflower has been superseded by the double German variety, but the last is by no means equal to this fine old plant, and it ought to be more generally grown than it is.—J. G., *Gosport.*

Siphocampylos bicolor.—This is quite hardy at Newry, planted at the foot of a sunny wall where it never gets any other protection. When I first saw the coloured plate of Lobelia Cavanillesi, it struck me as being identical with this Siphocampylos, a plant not frequently met with, though good and ornamental. As a matter of course, it gets killed down annually, but it shoots up again in spring in a very vigorous manner. It usually attains 4 feet in height, and sometimes, in very genial summers, even more. Its pretty red and yellow blossoms are borne in great profusion, and continue long in beauty; in fact, this season they kept in good condition until the first week in December, when a frost-nip spoiled them. I hope that the identity, or otherwise, of these two plants will be clearly established.—T. Smith.

THE AFRICAN LILY.

(AGAPANTHUS UMBELLATUS.)

This fine old favourite is one of the many Cape plants that do good service in English gardens. Though not available as a hardy plant throughout the country, it is in very general use in pots or tubs to stand out in the summer. Its bold, massive character, both of flower and foliage, especially adapts it for association with masonry, hence its most frequent use as an ornament on terraces, steps and entrances. It grows and flowers admirably planted out in a cold greenhouse or conservatory where the glistening dark green leaves seem to be always in good order. The fast-growing roots have great bursting power, and woe betide any vase of ordinary pottery in which they are confined; they are only safe in wooden tubs strongly hooped with iron.

The African Lily (Agapanthus umbellatus). Engraved for The Garden from a photograph.

Hedychium carneum.—Of the various species of Hedychium this is one of the best. It has recently flowered in the Cambridge Botanic Garden, and has been much finer than the figures in the *Botanical Magazine* and Roscoe's "Scitamineæ" represent it to be. The flesh or salmon colour of the flowers, too, is much brighter. It grows about 4 feet high; the leaves are lanceolate and almost 18 inches long; the best spike measured about a foot in length. The colour of the flowers makes it very desirable. It is apparently rare, though introduced a number of years ago.

PLANTS FOR WINTER BORDERS.

A wise gardener will always make provision for furnishing lawn borders with spring-blooming plants and bulbs which would produce a pretty effect in spring, and also relieve the bare appearance of empty beds during the dullest and darkest time of the year, say from November to February, when people are often confined to the house, and the view from its windows is the only one obtainable. Many of the most effective spring flowers that are annually raised from seed, such as Silenes, Nemophilas, and others, will not stand ordinary winters if sown early enough to fill the beds before frost sets in; if sown late and the plants are small, they are hardy enough, but beds filled with them are by no means satisfactory until spring growth commences and the bulbs begin to break through the soil. After trying several combinations for producing a cheerful effect from the time the summer bedding plants are removed until the season comes round for replacing them, I find that the most satisfactory plan by which we can get beds really well furnished and full of brilliant or graceful foliage, supplemented by a mixture of flowering plants and bulbs as the spring advances, is to obtain a quantity of very dwarf well-rooted evergreen shrubs, such as Hollies, Rhododendrons, Euonymuses, Laurustinuses, Laurels, Barberries, Aucubas, Heaths, Arbor-vitæs, Cupressus, Junipers, Vincas, and others, and with them fill the centres of large beds or vases quite full, edging with hardy flowering or fine-foliaged plants and bulbs in proportion to size. In the case of large beds, an outer edging may be made of Golden Feather Pyrethrum, London Pride, Crocuses mixed; and a second line may be of Myosotis, Silene, &c., with Hyacinths or Tulips, and a back line of Wallflowers, with Narcissi or Jonquils. Smaller beds should only have one line of flowering plants, and the bulbs should be planted between the dwarf shrubs. These look at all times bright and cheerful, and, being perfectly hardy, defy all weathers. Shrubs are as easily obtainable in any quantity as bulbs, and if shortened back both root and branch in spring, when planted in their summer quarters they will last several seasons, or when too large for this purpose, they may be finally utilised for making new plantations and improving the borders of woodland walks. Sheltered positions might be reserved for Pansies, Daisies, and the earliest harbingers of spring, as in mild seasons they are seldom destitute of floral beauty.

G. H.

Fuchsia simplicaulis.—This is a very beautiful Fuchsia, somewhat similar to F. dependens. In the Cambridge Botanic Garden it grows close under the roof of a greenhouse, in which its pendulous racemes are very effective. The stems are long and branch

but little; the leaves are large and pass into leafy bracts among the flowers, which are long and bright crimson in colour. The petals are shorter than the sepals, while those of F. dependens are equal in length. It is a very suitable plant for pillars.

Fruit Garden.

DWARF APPLE TREES.

Where there is a possibility of establishing a good orchard of standard trees on the Crab stock this will be found to be by far the most profitable method of growing Apples. One fine tree will frequently produce more fruit than a dozen or more dwarfs, but the latter are not to be altogether despised, as they can be made very serviceable in small as well as in large gardens, and a few good fruits are better than none at all. We unfortunately have very few orchard trees, and have to depend principally upon the dwarf or bush-shaped trees which surround about one-half of the vegetable garden. Some of the latter have been established upwards of thirty years, and others have been quite recently planted. It is the comparatively young trees that are the most profitable, and it is my practice to gradually replace the worn-out, much too deeply-rooted old ones with young ones fresh from the nurseries. We purchase what are known as pyramids, but this shape is rather unsuited to the habit of the Apple, although it answers well for Pears. Our first proceeding, therefore, after planting is to boldly cut out the centre of the tree. This has the effect of diverting the sap to the formation of much stouter side branches, of which there are usually about fifteen. If there were much fewer, it might be advisable to cut back all the side branches to within 6 inches of the stem, the most weakly ones being the most severely shortened. Sometimes merely shortening one or two of the stoutest branches will be followed by sufficient breaks to complete the number required for the foundation of a good tree. Not being pressed for room, nor very particular about the shape of a tree so long as the branches are evenly distributed, we do not resort to the use of stakes, but those who may wish for well-formed specimens are advised to place a moderately strong and straight stake to each main branch; in this manner a good even double circle of straight limbs may be formed. From these a few laterals also allowed to extend are sufficient, and a profitable tree is thus formed without much trouble. I readily admit that a well formed pyramid is usually more attractive in appearance than these headed-down trees, but in most cases where the latter plan of training is adopted a maximum of growth and a minimum of fruit are the result. Unless every branch receives the full benefit of light and air little fruit will be produced, and many pyramids bear only on the outer surface of the tree; whereas a properly managed bush fruits as much on the inside as on the outside branches. Nothing in the shape of summer pruning is now attempted with our bush trees, whether these be 4 feet or 12 feet high; all the pruning which they receive is done about this time.

In the case of young trees only the surplus laterals, or those not required for furnishing the future main branches, are cut hard back to within 2 inches of the starting point, all the rest being retained at full length. Strong well matured wood, if shortened in the old style, only results in the production of still more strong shoots; whereas if left full length, it not unfrequently forms fruit buds at nearly every joint. Thus trees planted in 1883 bore well this year, three and four dozen fine fruits being taken from several of them, and I have noticed that the leading growths, as well as strong laterals, that were reserved full length last winter are now well set with fruit buds. No root-pruning has been resorted to in order to bring about this satisfactory state of affairs, nor is this often necessary when the knife is withheld. Some of the trees are on the Paradise stock, but the majority are on the Crab, and the latter soon become as fruitful as the former, besides being much more robust. When the trees have reached the desired height (many of ours are 12 feet high and 12 feet through) the main branches should be stopped at the winter pruning, and all lateral growths also spurred back, every main branch eventually becoming well clothed with fruit spurs. In a few instances, where the trees had become unfruitful from various causes, we left several laterals full length, and these have since borne well, also apparently renovating some of the more stunted of them, but, as before mentioned, I have more faith in young trees than renovated old ones—unless taken in hand at the roots as well as the tops. Very old trees will not always recover from the effects of rough root treatment; we have a row here only just recovering from the effects of lifting and replanting, operations which were to have done them so much good. Twelve years ago my predecessor took every pains with them, doing one half of the tree one winter and the remainder the next. They were too old for close pruning; but since I have allowed a thin sprinkling of laterals to remain, a marked improvement has been the result. I believe in lifting all the trees, no matter in what shape they may be trained, once early in their career, or, say, when they have been planted about three or four years, not so much with the view of inducing fruitfulness as to check the downward tendency of many strong roots. No sub-soils, and especially those of a cold, clayey nature, are suitable as a rooting medium, and trees kept rooting nearer the surface are the most fruitful and the longest to remain in good health.

Espaliers.—I have not seen many examples of espalier-trained trees in the western or midland districts, but in the home counties and in North Wales this old-fashioned plan of training Apple trees still finds adherents. It has still much to recommend it, and for small gardens it is especially suitable. A row of trees at the back of herbaceous borders serves to neatly divide these from the rest of the garden, and besides being fairly ornamental they bear generally heavy crops of good fruit. Then, instead of bush or pyramid trees in a line with and near the principal garden walks, espaliers may be substituted, these encroaching much less upon the limited garden space. Many nurserymen still supply small espalier or horizontally trained trees, and these, being duly planted on fairly good garden soil, soon attain a serviceable size. Each probably would have about three tiers of branches 9 inches apart, and a strong leading shoot. The latter should at planting time or soon after be shortened to about 10 inches of the topmost pair of branches, and from the young growths eventually resulting, the topmost should be staked upright, and two near to this, and as nearly oppositely placed as possible, should be trained horizontally, the rest being stopped. This should be annually repeated till such times as a height of 4 feet or 5 feet is reached, when no leader should be reserved. Some support the main branches with neat upright stakes placed about 18 inches apart, but these stakes, even if tarred or charred at the lower ends, naturally do not last long. A wire fence is neater and more durable. In the latter case as many wires as there are tiers of branches are required, and if the trees are planted from 15 feet to 18 feet apart, in the course of a few years a neat and continuous fence of Apple trees will be formed. If espaliers cannot be purchased, a start may be made with maidens. These, having one straight unpruned growth, will require to be cut back to within 9 inches of the ground, the subsequent treatment being exactly the same as that recommended for the older trained trees. Many now prefer to start with maidens, as they are found to grow more strongly than the more stunted older trees, and in time to surpass the latter. None of the reserved side branches should be shortened in any way till their limit is reached, but all lateral growth from these as well as the main stem may be lightly stopped in summer, when this can be done with the finger and thumb, spurring them back to within 2 inches of the old wood at the winter pruning. If this treatment is not accompanied with fruitfulness, then root-pruning should be resorted to, though this should not be done till the tree is of good size or has reached its full height, or the severe check necessarily given may stop all further healthy development. On no account should any strong central shoots be allowed to run up above the horizontal growths, or these will soon attract all the sap from the latter, rendering them comparatively useless. I ought to add that, if the trees are worked on the Paradise stock, they must be planted not more than 12 feet apart, otherwise gaps will always be observable in the fence.

Cordons do not as yet find much favour with gardeners, but they are suitable for all places, and for covering circular trellises and archways they are sometimes tried with very good results. At Sherborne Castle, Dorset, there is a fine lot of horizontally-trained cordons, three lines of them in different heights so as to slope to the front, completely surrounding one of the large quarters of the kitchen garden. Each tree consists of two main branches trained in opposite directions, and three unbroked lines, supported by strong wires, are in this manner obtained. Some of the trees when I saw them were fruited so as to resemble somewhat the proverbial rope of Onions, and the produce was also of a very superior character. It is a simple matter to train these cordons in any direction or form needed, the leading branches being regularly laid in to their full length, and all laterals treated as advised in the case of the espaliers. Any that are inclined to be very vigorous must be root-pruned occasionally, or no fruit will be obtained, and that is one drawback attached to the system, root-pruning in many gardens being necessarily, at least, a bi-yearly operation. Sometimes cordons commence bearing the season following planting, and continue annually to bloom and fruit if not damaged by frost. In this case they are liable to become stunted, and will require to be lifted and replanted in fresh and rather rich compost, much of the fruit also being removed early in order to induce a more free growth. Cordons on dwarfing stocks are particularly to be recommended to those who may require a quick return for their outlay, or who may wish to form a large collection of varieties. They commence to bear at once, and may be planted thickly, or, say, in lines 18 inches apart, and for training up stakes or over trellises 15 inches from plant to plant.

Selections of suitable varieties.—For bush, espalier, and cordon trees I have found the following most suitable, all being good, well tried varieties, and arranged somewhat in their order of ripening. For dessert purposes we have Beauty of Bath, Irish Peach, Kerry Pippin, Worcester Pearmain, Gravenstein, King of Pippins, Cox's Orange Pippin, Margil, Braddick's Nonpareil, Ross Nonpareil, Adam's Pearmain, Pearson's Plate, Court Pendu Plat, Northern Spy, Lamb Abbey Pearmain, Cockle Pippin, and Sturmer Pippin, and, if more than these are wanted, I can recommend Summer Golden Pippin, Wormsley Pippin, Court of Wick, Ribston Pippin, Wyken Pippin, Claygate Pearmain, Newtown Pippin, Nonpareil, and Duke of Devonshire. The best culinary Apples are Carlisle Codlin, Lord Suffield, Keswick Codlin, Duchess of Oldenburg, Stirling Castle, Emperor Alexander, Golden Noble, Cellini, Lord Derby, Echlinville, Kentish Pippin, Warner's King, Blenheim Pippin, Tower of Glamis, Dumelow's Seedling, Royal Somerset, Alfriston, London Pippin, Winter Greening, Hambledon Deux Ans, and Norfolk Beaufin.

W. I. M.

Fruit buds.—Seldom have leaf and bloom buds on Black Currant and on Gooseberry bushes shown up so prominently as now. Whatever may be the cause—and it is perhaps due to the very fine and lengthened autumn season which we have had—it will be exceedingly interesting to note next spring what is the result of this early development. Whilst some may regard it as indicative of a good crop next year, others may feel that such early budding renders the trees liable to injury from severe weather. On Apple

trees there is also an early swelling up of fruit buds visible, but that may be the natural result of sparse cropping during the past year. One advantage of this early plumping up of the buds is that winter pruning can be better done than if the buds were less prominent. Still further, it may be wise with such promise of strong growth before us to prune more freely than is usual, for if the trees are about to carry heavy crops, it should be our care to assist them by judicious thinning rather before the crop is due than afterwards. The roots are then less distressed and more capable of recuperating during the following year. When trees make gross growth and produce little fruit we find it desirable to furnish some root check, but when heavy crops are produced with, of course, lessened growth, then all possible root action is needful. The very best help in such cases is pruning in good time and mulching with manure.—A. D.

RENOVATING OLD VINES.

I was recently asked to look at a large vinery planted mostly with Black Hamburgh Grapes. The Vines were not very old, but a moment's inspection revealed the fact that they were badly managed, especially as regards the training of the young wood. Not only were they badly trained last season, but they had been badly managed from the first. Now Vines, such as those in question, which were certainly not more than twelve years old, could not be called old Vines in need of renovating; and yet if they were pruned and trained in the same way much longer, the bunches, which were very small, and the Grapes poor in quality, would get gradually smaller and smaller, until their value as a marketable commodity would not be sufficient to balance the expense of their culture. The system of training seemed to be this: The rods were led up too thickly in the first place, and by bad management had not broken regularly throughout their length. Some of the spurs were therefore too close to each other, and others too far apart. The pruning had been badly managed; one shoot from each spur is sufficient, but in this case several growths had been produced and allowed to grow. These, in their turn, were cut back until quite a cluster of growths pushed from each spur; and nowhere in the house were young rods being trained up to take the place of the old ones, and this in a house about 100 feet long and 24 feet wide. Such a house, if well managed, ought to produce a grand lot of Grapes year after year. But it should be well understood that good management consists not only in pruning properly at the resting season, but far more in training the young growths in the right way after they have been sufficiently thinned out.

I have more than once had to deal with Vines badly trained as well as exhausted, apparently from old age. In one instance the leaves and fruit were quite smothered with mildew, owing to the border being badly drained, an evil further intensified by the rain water being allowed to run from the roof on to the border. The first operation was to provide gutters to carry off the rain water, and a good tank in which to collect it. As the outside border was in the worst condition that was seen to first, and an examination revealed the fact that it had never been properly made. I had a deep trench dug out parallel with the vinery, and at the part of the intended border furthest removed from the front wall. This was dug out to the depth of 3 feet. The next operation was to fork out the whole of the soil contained in the border, taking care to save as many of the roots as possible. The latter were all tied up against the front wall and covered with mats to keep them fresh. We now put in about 6 inches of drainage composed of old brickbats; over this was placed some turf with the Grass side down. The compost, which had been previously prepared, was wheeled in, and the roots spread out at the level of the path. Six inches in depth of the compost were then placed over them, and over all a dressing of 3 inches or 4 inches of decayed stable manure. A drain to carry off superfluous water was also laid down at the outside of the border and parallel with it. The inside border was not disturbed, as it was supposed that the roots there would be required to start the Vines into vigorous growth. Three parts of the old, stumpy, and perfectly useless wood were cut out, its place being supplied during the season with vigorous young canes, made during the first season, the whole length of the rafters. They were also allowed sufficient space in which to develop laterals, and none of the growths were overcrowded. We had a very few good Grapes as well as sufficient young wood the first season, and no mildew; the latter, indeed, never appeared at all, proving conclusively that the precaution of thoroughly cleaning the wood, washing it first with soapy water and afterwards painting it over with similar water thickened with flowers of sulphur was sufficient to destroy this pest. The new border, it may be added, consisted of good material, viz., turfy loam mixed with crushed bones, mortar rubbish, and a sixth part of decayed manure; this became during the season quite permeated with fresh rootlets. Next season the whole extent of the roof glass was furnished with healthy young wood laden with good Grapes. The inside border required to be done subsequently in the same manner.

The training of the Vines during the growing season is a matter of considerable importance, and here I would remark that one lateral or leading growth that has sufficient space for development is worth six that have been over-crowded, but it seems very difficult indeed to impress this fact upon those who have but a superficial knowledge of gardening, and who have no idea that the leaves have important functions to perform. Indeed, I know of one case during the past season in which a person of ordinary intelligence and the owner of a large vinery called upon me to say that as his Black Hamburgh Grapes were not colouring well, he had "stripped off nearly half of the leaves to let the sun at them." I told him he had committed a grave error in so doing, and on visiting the house I found that the most important leaves on the laterals, those nearest the base, had been removed. Every one of those leaves so ruthlessly sacrificed for the supposed benefit of the Grapes ought to have been preserved with the greatest care. In the first place, the Grapes would not colour so well without them as with them. In the next, it is a fact that they are the most important leaves on the Vine, being essential to the perfect ripening of the fruit, and after that has been removed they are required to aid in the formation of the buds at their base. Indeed, those same leaves have been busily employed performing both functions all through the growing season, and up to the time when they become yellow and drop off, but not before the work allotted to them has been completed. Their work has been to form and store up in the buds at their base the material from which leaves and flowers will be developed next season. Many cultivators know this, but there are scores, nay, hundreds, who do not. If leaves are required for garnishing dishes containing fruit, there is always plenty of the right kind on the secondary laterals beyond the bunches; none ought to be removed between the bunches and the main stem. Ever since I was an apprentice, no season has passed that I have not had to train and prune Vines of all ages and under widely different conditions, and the conclusion at which I have arrived is this: that, with very few exceptions, the short-spur system of pruning is best—that is, rods trained at 2 feet 6 inches or 3 feet apart, with lateral growths on each side and as nearly opposite each other as convenient, the average distance apart being about 18 inches. Each of these growths would, if allowed, bear a bunch of Grapes, but it is necessary even with moderate-sized bunches to thin out more than half of them. In fact, every strong lateral will show three bunches, but two out of the three are removed before or at the time of stopping the laterals; and here I would specially remark, that all laterals formed subsequently to the first stopping should not be allowed to grow until it is necessary to cut them with a knife; indeed, where Vines are vigorous they grow so rapidly that it is desirable to go over them for the purpose of stopping laterals once every week. If this is done, all the stoppings removed would not be more than a handful or two. This does not check the Vines in the least; whereas, going into a vinery with a knife and cutting out later growths a foot or two in length at or before midsummer must be injurious. The late Mr. Pearson, of Chilwell, an ardent and successful Vine grower and seedling raiser, believed that it caused shanking in Grapes.

One rather important detail is that of renewing the rods. After a time the spurs get unsightly through lengthening out. This is caused by cutting back the laterals annually to a good eye, and in order to do this about an inch of young wood is left every year. I have seen some of these rods upwards of twenty years old, and the spurs anything but short. We never have any rods more than ten years old. They are cut out before they become more aged, and young ones are put in their place. Some grow one rod only from a root. This is very well to start with, but after a time it is desirable that two or more should be trained up from one root. The way in which we manage is this. Suppose there is room for ten rods in a new vinery, I would in the first place plant ten Vines. Every alternate one would be rather heavily cropped the first two or three years, and when they showed signs of exhaustion they would be cut out, but not all at once, as their place would be gradually supplied with the permanent Vines, from which a second rod would be trained up from near the base. J. Douglas.

GRAPES IN THE OPEN AIR.

I am very much interested in the cultivation of the Grape Vine both under glass and in the open, and few articles appear on the subject in any of the gardening periodicals that escape my notice. I read Mr. Cornhill's paper on the cultivation of Grapes in the open air in The Garden with much pleasure, and can endorse all that he has written about the adaptability of many varieties for open-air culture on walls in the southern counties. From my own experience, I believe that if Vines in this country received the attention pointed out by Mr. Cornhill in pruning and training, so that the leaves and fruit were fully exposed to the sun's rays at all times, as good Grapes could be grown on walls in many parts of England and Wales as in the neighbourhood of Paris. About 100 yards of the Castle wall here is covered with Vines trained perpendicularly to the height of from 50 feet to 60 feet. There are several varieties, but the Chasselas de Fontainebleau does best. It is a good bearer, and ripens its fruit to perfection in good seasons. I have gathered bunches of Grapes from these Vines more than 2 lbs. in weight, each of which are equal in quality to that of any Grape which I have seen at the table in France. The Vines are subject to mildew and suffer much some seasons from its effects. It was difficult, from the great height of the Vines here, to apply sulphur effectually to the leaves infected, and therefore I adopted the old-fashioned plan of painting the rods after they were pruned with a mixture of soft soap, sulphur, and lime, and mildew has not done harm to any extent since. The Vines in the open vineyard at Castle Coch have not been attacked with common mildew since they were planted, but sometimes they have had slight attacks of Oidium Tuckeri, which seems to burn holes through the tissues of the leaves. The best remedy I find for it is to pick off the affected leaves as soon as it makes its appearance, and burn them.—A. Pettigrew, *Cardiff.*

*** This is the most hopeful report that we have yet seen of Grape-growing in the open air in England. It would be interesting to hear from Mr. Pettigrew as to the quality of the fruit pro-

duced in the vineyard at Castle Coch. We believe that in favoured spots, and with such care as the French give at Thomery, certain Grapes might be ripened, but that does not lessen the danger of persons advising Grape culture generally for the open air in England, because the wisest and eldest gardeners know that it has been attempted a thousand times without success.—Ed.

—— Most people, I think, will admit that, taking one season with another, but slight hope can be entertained of succeeding with outdoor Grapes north of the Trent, although I have some recollection of seeing (many years ago) ripe Black Hamburghs produced by a Vine in the open air a few miles north from the town of Leicester, but the Vine occupied a sheltered and favourable situation, and the season had been exceptionally fine. Now, however, when glass is so reasonable in price, it is unadvisable to plant the Grape Vine extensively in the open air in either the northern or southern portions of the country. The Vine is, however, well worthy of consideration as an ornamental plant, independently of fruit, for as Mr. Cornhill truly says, "A well-trained Vine is at all times pleasant to see," and few plants are better adapted for clothing the front of a cottage or dwelling-house which may face the south than a Vine.

Near the ruins of the celebrated monastery at Bury St. Edmunds may yet be seen the terraces where were grown the Vines which produced the fruit from which the monks of old are said to have made excellent wine; and there is no reason for supposing that the climatic conditions of this locality in these days were in any respect more favourable than they are at the present time. At a much later period, too, than that of the monks, the late Mr. Darkin, of Westgate Street, Bury St. Edmunds, in his unique garden formed on the site of an ancient and extensive chalk pit, long unused, and open to the south, but sheltered on the three remaining sides, managed for years to ripen Grapes of many kinds. The Vines were trained to a high wall facing the south, to the perpendicular surface of the chalk, and also to short stakes like Raspberry canes; and the wine which he made from fruit thus produced was, and is still considered by connoisseurs to be equal, if not superior, to much of the wine imported from the Continent. This garden also affords a proof that very rich soil is not altogether indispensable to the production of Grapes of excellent quality. There are also other successful growers of Grapes in the open air in this town. And where the walls are low—that is, some 5 feet or 6 feet high—on which the Vines are trained, a young shoot is brought annually from the base to take the place of that which produced the fruit of the current year, which is annually removed. But in cases where Vines are trained to a high wall, such as that of a building or dwelling-house, what is known as the spurring system is doubtless the best; that is, training the rods vertically from a horizontal rod near the surface of the soil, at a distance of not less than 18 inches from each other. These rods will produce young shoots in abundance, which should be thinned out to the necessary distance apart, retaining the strongest and best placed. These will generally show a bunch at the fourth or fifth leaf, and the shoot should be stopped at the first leaf beyond the bunch. Each shoot with its embryo bunch should be loosely tied to the rod, thus leaving a portion of the wall between each vertical rod exposed to the influence of the sun. By this method the brickwork absorbs the heat communicated to it, and parts with it gradually, and a more equable temperature is the result. This mode of training also presents a very neat appearance, and prevents the fruit from coming in actual contact with the wall. If, however, fruit of fairly good quality is expected from Vines in the open air, not more than one bunch should be allowed to each shoot, and the berries of each bunch should be carefully thinned out. In this way I have this season (which has not been exceptionally favourable for outdoor Grapes) ripened bunches of Buckland's Sweetwater close upon 2 lbs. in weight.

I am surprised to see that the French have so many varieties of hardy Grapes which have never been introduced to this country. Surely English nurserymen will see to this matter before long. If a variety of the Grape Vine exists which in the south of Germany will ripen its fruit in August, it surely ought to do so in the south of England by the middle of October. Might not the Grape of Mr. Cornhill's boyhood have been the Esperione, which is the best black Grape for open-air culture with which I am acquainted? Indeed, the varieties of Grape Vine which can at present be recommended for open-air culture are but few, and may be said to consist of the Royal Muscadine, Black Cluster, and Esperione. Although Buckland's Sweetwater and Black Hamburgh have been mentioned as having ripened out of doors, they cannot safely be recommended to plant in the open air. But let us hope that the list of trustworthy hardy varieties suited for this purpose may soon be considerably extended.—P. G., *Bury St. Edmunds.*

—— I was pleased to see from the remarks made in The Garden (p. 570) that a practical view of this subject had been taken, a result thoroughly justified by past experience. To advise cottagers to plant Vines out of doors in England as a profitable speculation is a great mistake. From what source could profit possibly arise? Inferior Grapes are practically unsaleable at a profit at the time when these would be ripe; they cannot be utilised for preserving, and one would hardly recommend a cottager to plant them solely for wine-making. Better plant any fruit at once hardy and productive that can be sold at a remunerative price, or that can be used up as jam. Any cottage walls at liberty would be better covered with Victoria Plums or Red Currants than Vines; north aspects should be planted with Morello Cherries. I have given outdoor Grapes a thorough trial near London, and have obtained abundant crops and good sized bunches, but in berry and flavour they were only fit for wine-making. There is, however, one thing as yet untried, and that is thinning the bunches. There are so many things requiring immediate attention just at that particular time, that up to the present I have not been able to try the experiment. Our situation is about as favourable as it well could be for outdoor Vines. The border consists of light loam well drained, and it lies well up to the sun. It faces the south and south-east, and is well sheltered on all sides. Nevertheless, with all these natural advantages and contemplated thinning, I am by no means sure that we shall have good outdoor Grapes.—E. B.

ORANGE TREES AND ORANGERIES.

The introduction of fine-foliaged plants to our gardens, especially such hardy ones as Yuccas, which are thoroughly fitted for adorning terraces and parterres, has done much to supersede the Orange trees, which appeared equally out of place, either in the full glare of the terrace or when their defects were partially concealed in their dreary-looking winter quarters. When the old orangery was replaced here by a conservatory, the large beds in it intended for permanent plants provided a good situation for the old occupants of the orangery, some of which had been in their tubs for an indefinite period. The beds were emptied to the depth of 4 feet, and at the bottom we put broken bricks to the depth of 18 inches, and covered them with turf to keep the drainage perfect, the remainder being filled up with a compost of turf, peat, leaf-mould, and old mortar rubbish. In this the old worn-looking subjects were planted. By keeping up a moist genial atmosphere, and syringing the stems frequently, they soon showed signs of returning health, the Oranges especially sending out both flower and wood-buds from the bare hard stem that had not produced a leaf for years. The bloom was so abundant the following year, that we picked off thousands in order to concentrate the energy of the plants in the growing buds, only leaving enough for a good crop. These are now ripening as fine fruits as can be desired, that cluster amongst the deep green foliage, and are really interesting and decorative objects, very different from what they were in their best days in tubs, while the labour attending them is greatly reduced. When associated with Camellias, Myrtles, New Zealand Flax, and such plants as flourish in temperate houses, the Orange tree is indeed a noble object, bearing, as it does, three distinct crops of fruit at one time, and blossoms that rival our choicest Orchids for delicacy of perfume and purity of colour. I would therefore strongly advise all who have Oranges in tubs, the appearance of which is not satisfactory, or such specimens as one often sees in our public gardens, to plant them out, when they will repay all the care bestowed on them, and the owner will soon be able to gather his own Oranges in abundance. When arranged with some of their fresh green foliage attached, Oranges form a by no means unimportant addition to our home-grown dessert fruits. G.

GARDEN FLORA.

PLATE 576.

CHINESE HERBACEOUS PÆONIES.

(WITH A FIGURE OF P. ALBIFLORA VAR. ADRIAN.*)

The herbaceous Pæonies, noblest of hardy plants, yet long neglected in gardens, have within recent years gained the popularity which they deserved. At one time the common European Pæony (P. officinalis) was almost the only representative of this important genus in general cultivation. Now one sees the lovely Chinese varieties in nearly all good gardens, and since a few hybridists in France have turned their attention to them, we have varieties innumerable of every hue which the Pæony is capable of producing. All, too, are beautiful, and generally combine rich or delicate tints with exquisite fragrance, which vies even with that of a Tea Rose itself. The genus is a large one, and very widely distributed. Pæonies occur in various parts of Europe; one is widely distributed in America, while a few are natives of the extreme east, viz., China and Japan, and to the herbaceous species inhabiting this region our present notes are confined, leaving the Tree Pæony (P. Moutan) and the European species and varieties for comment, when coloured plates will be given representing each section. Nearly a century ago Mr. George Anderson devoted a deal of attention to this genus, and being a keen cultivator as well as a good botanist, he dealt with Pæonies both from a cultivator's and a botanist's point of view. The result of this study of the genus he published in the Journal of the Linnean Society in 1817, and to this day Anderson's monograph may be taken as the basis of all other works, so complete and full of reliable information is it. Sabine also worked with Anderson in producing the Linnean mongraph, and to them jointly gardeners are deeply indebted. Through Anderson many species of Pæonia were introduced and cultivated, but no one in after years appeared to pay much attention to the subject; indeed, several fine species and many charming varieties dropped out of cultivation, and Pæonies again suffered much from neglect. Until Mr. Baker took up the subject a few years ago, no one had reviewed the genus since Anderson's time. The review of the genus which Mr. Baker published in a contemporary is the most complete we now possess; in it he directs attention to various fine species either not introduced or very rare, and only in specialists' collections. To Mr. Peter Barr we are also indebted, not only for hunting up neglected species, but also for introducing others to cultivation; in short, he is endeavouring to do with

* Drawn for The Garden in Mr. Anthony Waterer's nursery, Knap Hill, Woking, in June.

PÆONIA ALBIFLORA ADRIAN.

Pæonies what he has done with Daffodils and Hellebores. Of the only three species not in his collection he has been promised two, and the third, which is also a Chinese one (P. obovata), he is in a fair way of obtaining.

The cultivation of these Chinese Pæonies is comparatively easy; indeed, a good garden soil not too stiff suits them to perfection. They are, however, voracious feeders, and can stand a large amount of stimulants, liquid and others. They require plenty of water during the summer season; indeed, the most robust we ever saw were in such a position that they could be flooded when necessary. Position, whether in sun or

Single-flowered Pæonia albiflora.

shade, seems to be immaterial, as they flower well under either condition. We once saw a large rough bed of them in a wood on the Surrey hills quite shaded, and flowering most profusely. We suggested sunshine, but were told that the flowers stood longer in the shade (often a fortnight or three weeks) than those exposed to sunshine. Great care is required in lifting or dividing them, operations which had best be resorted to as little as possible when once they are fully established. The following are a few of the best:—

P. ALBIFLORA.—This is by far the most fertile of all the hardy herbaceous Pæonies in cultivation as regards the production of garden varieties, and next to P. peregrina it is the latest to show flower. In the neighbourhood of London the blooms seldom appear until after the beginning of June. The albifloras, of which there are considerably over 200 in gardens, form a distinct set, easily distinguishable from the others by the dark shiny colour of their leaves, and the marked way in which the flowers stand above the tufts of foliage. From officinalis they differ in having more slender, rounder, and more rigid stems, scarcely grooved, while in officinalis they are deeply six or seven-grooved. The leaves also are much larger, biternate, with broader, smoother leaflets shining on both surfaces. The blooms have also a pleasant smell, which much resembles that of a Narcissus. The stems, which grow 2 feet or 3 feet long, are quite glabrous, generally branching and bearing from two to five large milk-white or pink flowers. They have long been in cultivation in this country, and Loureiro, in his "Flora Cochinensis," states that albiflora is found both wild and cultivated all over the Chinese Empire; it is therefore probable that many fine varieties of it could be picked up in those districts where it has been so long an object of attention. Anderson has described the following varieties in vol. xii. of the "Linnean Transactions," viz.:—

P. ALBIFLORA VAR. VESTALIS.—This was grown by Messrs. Lee and Kennedy as albiflora, and was at that time more common in gardens than the type. It is distinguished by its large white eight-petalled flowers, rarely or very slightly tinged with pink at the base. The leaves, which are broader, are more flat and shining than those of the others, and the stems are darker in colour.

P. A. VAR. CANDIDA differs from the foregoing in having its leaves and stalks hardly tinted at all, and the stigmas flesh-coloured instead of yellow. When opening, the buds are pink. It was first discovered in Mr. Knight's nursery at Chelsea.

P. A. VAR. TATARICA.—The original plant of this was sent from Tartary by Pallas. Its flowers are much larger than those of vestalis, and fuller of petals, which retain a pale pink colour until they drop; stigmas pink.

P. A. VAR. SIBIRICA.—This is said to have been first received by the Messrs. Loddiges from Siberia, through Pallas. The leaves are yellowish green; the flowers pure white, even in the bud; and it is altogether divested of that purple tint in the stalks and leaves which some others have. Flowers much larger than those of any of the others.

P. A. VAR. RUBESCENS.—This is a very diminutive variety, and its flowers are of the darkest colour. The leaves, too, are small, blunt, concave, or channelled above.

P. A. VAR. UNIFLORA.—This was introduced by Pallas. It has very narrow leaves, and is easily distinguished from all others. It has a disposition to produce only a single flower on each stem. The flowers are white, with a pale pink tint at the base; stigmas dull yellow.

P. A. VAR. WHITLEYI.—This charming variety was introduced by Mr. Whitley, nurseryman, of Fulham, from China, in the year 1808. When well grown the stems are fully 3 feet high. The leaves are rough and less shining than those of any of the others. The flowers are large, very double, with the outside of the petals red and the inner dull straw coloured, the whole becoming nearly white before they drop off, and emitting a scent not unlike that of Elder flowers. They appear about the middle of June.

P. A VAR. HUMEI.—This was brought from China in 1810. It is by far the largest of all the

Double-flowered Pæonia albiflora.

herbaceous Pæonies, its stems sometimes exceeding some 4 feet in height. The flowers are quite double, reddish coloured, and almost scentless The stems bear about three flowers each; leaflets broad, pitted, and invariably rough.

P. A. VAR. FRAGRANS.—This fine variety was introduced from China, by Sir Joseph Banks, about the year 1805. It has upright slender stalks, pale green leaves, which are often slightly serrated on the margins. It flowers about the end of June. The blooms are large and double, of a pale rose colour, and very sweetly scented. The centre petals are longer than the outside ones and erect.

Since the above varieties were described, florists have been most energetic in adding to the number many really charming and desirable forms, the following being only a few selected, and by no means exhausting the store:—

Adrian (see plate)
Carnea elegans, delicate pink
Candidissima, blush
Madame Calot, one of the finest, a delicate blush
Etendard du Grand Homme, brilliant rose, large
Festinæ maxima, pure white
Grandiflora nivea, white, large
Laciniata, very large pure white, one of the best
Leonie, blush
Noblissima, full deep rose
Prince Imperial, rose-purple
Reine des Fleurs, rich rose
Superbissima, purple-crimson
The Queen, blush-rose
Virgo Maria, pure white
W. E. Gladstone, blush, rose scented
Sir Garnet Wolseley, rose
Faust, blush white

and others with equal merits too numerous to mention in detail. D. K.

WORK DONE IN WEEK ENDING DEC. 21.

DECEMBER 15 TO 21.

WITH the exception of the morning of the 16th, when we had 0·06 in. of rain, the week has been fine throughout, and these last two mornings the frost has been sufficiently sharp to admit of our getting the remainder of manure wheeling and mulching done in the kitchen garden. All our Strawberry plots are now thickly covered; Asparagus the same, and so are Raspberries, and Apricots and Plum borders. We have no more good manure, else Pears, Cherries, and the less vigorous-growing Apples would also be mulched. Trenching has gone on without interruption. Some new ground that we are breaking up in which to plant Rhododendrons and Azaleas is covered with Bracken, which so protects it that we can keep on with the digging, no matter how great the frost. Continued the turning of gravel on paths that had got Moss grown, the verges being levelled and cut before the gravel is turned. For the Christmas decorations of the church we are responsible, and as a good length of wreathing is required, we are attempting to do two jobs at once; that is, to serve both church and garden. The latter we are doing by shearing over large bushes of Box and Yew, that if not done now would have to be done a few weeks hence, and the sprays that are now being clipped off make the finest wreaths imaginable. Box and Yew, with here and there a sprig of Holly, are simply perfection for the massive stone columns and arches that we have to deal with. The wreaths are made as light as possible, and we make up what they lack in bulk by using a couple on each pillar twisted across each other. The window-sills we do entirely with green Moss and flowers; of the latter, Christmas Roses, Roman Hyacinths, white Camellias, and white Chrysanthemums are amongst the best, both for effectiveness and length of time they continue in good condition. Holly berries are scarce, but Ivy and Cotoneaster are well fruited, and both are excellent substitutes for the Holly. We have quite completed the pruning of all bush fruits, and soon as may be the trees will now have a good splash over with fresh slaked lime and soot in about equal proportions, which, besides destroying Moss and Lichen, makes the buds distasteful to small birds that might otherwise destroy the prospects of a crop of fruit next year by picking out the buds. Work in the houses has been much the same as for a week or two past. Flowering plants we keep well freed from decaying flowers. Chrysanthemums we cut down soon as their flowers are over; nearly all our cuttings are now put in, and therefore a quantity of the old plants that were no longer required for stock has been wheeled to the fire heap, to be burnt up with the prunings from fruit trees, clippings from hedges, and rubbishy leaves that are not worth stacking for hotbed purposes. All tender bedding plants that require strong heat we have arranged on shelves in Pine stoves, and to less tender species in frames we have given all the space possible; we water them only once a week, and then very carefully. Damp and mildew are the evils to

avoid if we would safely winter these plants. The cold weather necessitates increased heat in plant-stoves, and with it we have had to be more free with the watering-pot, but over-head syringing we have quite discontinued, as Calanthe flowers began to spot, and thus syringing did more harm than counter-balanced the little good it did to Ferns, Palms, Dracænas, and Crotons. Early Peaches are just showing the pink of their flowers, and no further overhead syringing of these will now be done till the fruit has set. Present temperature by night, 45° to 50°, and 5° higher by day. The manure on the floor of the early vinery we turn once a week, at which time we take out any forcing plants that may be coming into flower too rapidly, and others are introduced. Callas, Lily of the Valley, Solomon's Seal, a few Tea Roses, and Spiræas have just now been put in. Tied late Peach trees to trellis; pruned young Vines, Madresfield Court and Gros Maroc, and gave the inside border a regular drenching, as the soil was cracking in all directions; sowed Tomatoes and Melons; put another batch of Potatoes in boxes to sprout, to be eventually planted in frames set on hotbeds of leaves and litter, and which is now being made up. Hants.

FRUITS UNDER GLASS.

Cucumbers.

So far, although the atmosphere has been heavy, the weather has been very mild, and winter plants have neither felt sudden depressions nor the ill effect of hard firing. How long this may go on it is impossible to say, but one thing is certain: preparations for the worst must be made, and in no way can a sudden change to wintry weather be better met than by keeping the beds replenished with well worked fermenting leaves and the provision of external covering. This, provided it is never allowed to exclude daylight, not only economises fuel on cold, wet, boisterous nights, but it prevents the escape of moisture, and maintains an even temperature between the foliage and the glass. Cucumber houses, as a rule, are low, compact structures, and by no means difficult to cover; but then the question arises, what is the best material for the purpose? Shutters are unwieldy. Mats in the morning are generally found where they are not wanted, but oiled canvas, now coming into general favour, both on the score of efficiency and economy, can be prepared to fit the roof at a very moderate price. Fruit in December is of little value; consequently growers for market husband the energies of their plants by cropping lightly and keeping them steadily progressing until the turn of the year, when the quantity they produce in some measure compensates for the low prices now realised. In private gardens a different system prevails; the space devoted to a few plants may include the back of a Pine stove, or perhaps one or two miniature compartments in a forcing range. The demand may not be heavy; perhaps not more than one fresh young fruit every day; but the mode of culture must be right, otherwise an acre of glass will not yield what is wanted. Two important items, as I have just remarked, are bottom heat and good covering; another is thin planting to allow for extension of the young growths; and the last is a succession of healthy maiden plants for throwing into bearing when old ones begin to fail and require cutting over. The present time is favourable for cutting over, if not a whole house, perhaps a plant or two, as the young growths not only favour root action, but come into bearing when good fruit is scarce, consequently valuable. When plants are so treated, every fruit and blossom and the worst of the old leaves should be cleared away. Those left should then be cleansed from spider by the persistent use of mild insecticides, and the bottom-heat being brisk, a portion of the exhausted or sour soil may be removed or replaced with a smaller quantity of sweet, warm compost. Lumps of light turf broken up by hand, a little fibry peat, rough lime rubble, and charcoal, make a suitable winter compost, as the roots lay hold quickly, and tepid water, of which they must have enough to keep them constantly moist, passes freely away. A supply of this compost kept constantly on hand can be used little and often as the roots show on the surface, and the stems of plants in pots, after the turn of the year, can be earthed up with great advantage. The enemies to which winter Cucumbers are exposed are innumerable, and must be dealt with before they have time to do mischief. Red spider springs up as if by magic after or during a period of hard firing or heavy cropping. For checking this, sulphur in some form is accepted as the best remedy, but a weak solution of soap or Gishurst compound used regularly is an excellent preventive. Where these do not produce the desired effect, the roots should be examined, as spider cannot be got rid of where dribbling is made an apology for good watering. Green-fly and thrips are not very active in winter, but the plants being also comparatively inactive, slight attacks soon affect them, whilst heavy smokings frequently prove quite as injurious as the insects. Still, tobacco smoke must be introduced, not in the old-fashioned way, but through the ingenious machine invented by Bloxham; not in opaque clouds, but little and often before these pests get established. We have had this handy puffer in use more than a year; never consumed so small a quantity of tobacco paper, and have never been so free from insects. When mildew attacks the foliage, as sometimes happens in badly ventilated pits, a sharp bottom-heat and plenty of tepid water must be applied to the roots, which may be dry or sluggish. The ground ventilators must be kept constantly open to admit fresh and force out vitiated air, and the foliage well syringed with sulphur water or a solution of sulphide of potassium by those who know how to use it. Yet one more enemy the winter Cucumber grower has to contend with, and that is canker. The best remedy for this is quicklime and flowers of sulphur well rubbed into the parts affected, but prevention being preferable to cure, rough lime rubble, lumps of charcoal, and other absorbents should be placed about the stems, and provision for the admission of air on or below the level of the bed should not be overlooked.

Young plants.—Where space is limited, and not more than one batch of plants is grown through the winter, it is necessary to get a stock of young ones ready for filling up gaps or replenishing a pit early in the new year. These may be raised by means of layers or cuttings from clean, healthy parents, or, an abundance of top and bottom heat being at command, a few seeds may be sown singly in small pots plunged to their rims in a temperature of 80°. If the pieces of light turf from which the fine particles have been shaken is damp, water will not be needed until after the young plants are through the surface, and then it must be given with the greatest caution. A small propagating pit is the best place for this early work, as the plants can then be kept close to the glass, which should be well covered every night to maintain an even temperature about the tender foliage. One of the great secrets of success in after-management is repotting in warm soil as soon as the young roots touch the sides of the seed pots, or, better still, transplanting to small cones of light, warm compost.

Melons.

Growers who intend cutting ripe fruit in April will now be putting in a few seeds of some favourite early variety. Like the preceding, they must have plenty of top and bottom heat, and light is a very important factor. Indeed, the treatment of the two through the early stages being so minutely similar, one and the same nursing pit will answer every purpose. Having so often enumerated good early sorts, and their name being legion, every grower who starts in December will do well to commence with his own special favourites. Moreover, he will not trust to one sowing, but follow up with others until his pits are furnished. Unless the pits are very narrow and the compost in which very early Melons are planted can be kept at a temperature of 80°, fruiting in 12-inch to 14-inch pots will be found the safest and most expeditious mode of culture. Although a few weeks will elapse before the fruiting pots are wanted, the pit should be cleansed and made as fresh and sweet as a living room at earliest convenience. Well-worked fermenting leaves or tan may then be introduced, and clean pots plunged ready for the compost. As success depends more upon quality than quantity, sound friable loam in a dry state may be broken up by hand, corrected or enriched, and placed where it will get thoroughly warm before it is put into them.

Figs.

Short, dark, wet days are not favourable to rapid progress in the forcing of heat-loving subjects like the Fig. Still, where ripe fruit is wanted in April, these, like all other exotic fruits whose season is changed, must be helped forward during the short hours of daylight, and rested through the night. Where the first crop is gathered from trees in pots, fermenting material is preferable to fire-heat, as it can be turned and renovated at pleasure, whilst the warmth and moisture which it gives off dispose of the necessity for constant syringing. If, as previously suggested, the pots have been placed on hollow pedestals, a quantity of loose leaves thrown in amongst them will gradually raise the temperature of the balls to figures ranging from 70° to 75°, when the well ripened buds will soon burst into leaf. Until this stage is reached, the night heat may range from 50° to 56°, according to the state of the weather, and 5° to 10° higher by day. Afterwards the latter may be increased, especially under gleams of sunshine in bright frosty weather—by no means the worst for early forcing; but for some time to come no advance should be made on the night. Figs being so subject to insect pests require copious supplies of water throughout the growing season and good syringing from the time the first leaves are formed to keep them free from spider. The walls, floors, and dry corners also should be well washed every day, but on no account should the foliage be found wet when daylight closes. Fruitful trees established in small pots, unless well mulched with rotten manure, may be watered with weak diluted liquid and occasionally with soot water from the time they are started. The latter may also be used for syringing purposes, not only in the Fig house, but also amongst Peaches, Strawberries, and in vineries, where it will be found an excellent insecticide and stimulant. It must not, however, be used strong, neither should new soot, which is fiery, be used if old can be obtained. Soot water, the uninitiated must be told, cannot be prepared and used immediately, as it must be bright and clear; but being grateful to the roots as well as to the foliage, a daily supply may be had by filling small bags and sinking them in the cisterns in the different houses. The water from these at first may require diluting, as this, like all other stimulants, is valuable in proportion to its reduction to a strength below that which the roots and foliage will bear.

Figs on trellises.—These are generally planted in well-drained internal borders, and force quite as well as trees in pots; indeed, many people now prefer this mode of culture, as the fruit is finer if not more abundant, quite as early, and the trees, having more root-room, are less addicted to casting the earliest fruit. If properly made, the borders will be divided into sections, with open spaces left between the trees for the introduction of fermenting materials, the warmth from which soon draws through the compost and drainage. Some build single brick walls across the borders, but I give preference to sods of light rich turf, which sustain the roots when they get into it, and, being open and elastic, they absorb warmth, ammonia, and moisture, and never become water-logged. Moreover, they can be forked down every autumn, replaced with fresh, extended or diminished in area according to the requirements of the roots. Brick walls, on the other hand, are cold, cumbersome fixtures, through which warmth passes

slowly, and, being non-elastic, the compost is apt to become wet, solid, and sour when the roots strike downwards into the drainage, and dropping follows. When trained trees in permanent borders are started, the soil should be thoroughly moistened with warm water, at a temperature of 80°, and the air-temperature may be precisely equal to that of the early vinery, viz., 50° to 55° through the night, and 60° to 65° by day. If sharply root pruned early in the autumn, and the trees are large, a good covering of rotten manure will do them no harm, or fermenting material may be placed on the surface as well as in the linings, to draw the young roots upwards to the influence of warmth and away from stagnant moisture. The young shoots being regularly trained on trellises within 1 foot or 18 inches of the glass, a syringe may be used two or three times a day, as the wood, owing to its elevated position, dries quicker than pot trees in low forcing pits.

Late houses.—If the trees in these have not been put in order, the knife should now be run through them before they are let down from the trellis. Autumn is the best time to cut out all superfluous wood, but no matter how carefully this work may be performed, a final dressing after the leaves have fallen is always necessary. When pruned they should be let down and washed with an insect-destroying solution more or less strong, in accordance with their freedom from these pests or otherwise. We find a strong solution of soap or Gishurst's compound quite sufficient, but where bug is present, all the old wood may be painted with the tar mixture recommended for Vines. The trellis and woodwork, too, must be painted with white lead, oil, and turps, and the walls carefully washed with quicklime, soft soap, and sulphur. Bug often travels down the main stems into the borders, and, notwithstanding the fact that every insect above ground has been destroyed, they soon find their way up again in the spring. To counteract this, all loose soil and surfacing should be removed and burned, and replaced with fresh compost. When tied in, late houses may be used for Strawberries or other plants capable of withstanding a few degrees of frost, but it is not good practice to allow them to fall below the freezing point.

Trees in cold houses and wall cases so far are safe, and being kept dry they will stand a few degrees of frost, but with all the winter yet to come and having no hot-water apparatus to fall back upon, no time must be lost in preparing for the worst. This is not a difficult matter, as Figs, so long as they are dormant and dry, take no harm from being kept in total darkness under a good covering of Bracken or straw. The better to accomplish this, all trees on trellises should be released and allowed to drop away from the glass, when they can be bundled and protected. Others on back walls, which are safer than trellises, can be securely thatched with Fern, and well mulched with the same to keep frost out of the borders.

Eastnor Castle, Ledbury. W. Coleman.

Hardy fruits.—Dr. Hoskins, says the *Country Gentleman*, writes to the Maine Board of Agriculture, that fully one-half of New England, all of New Brunswick and Quebec, a large part of Ontario, a fourth of New York, Wisconsin, Dakota, Minnesota, Montana, Eastern Washington, Northern Illinois and Iowa, and Manitoba must grow what are called ironclads, or grow nothing. Three varieties of the Apple have been well tested for this purpose, their hardiness being proved in the following order, namely, Red Astrachan, Alexander, Oldenburg, the latter enduring any climate. The Russian Apples vary in hardiness. The Oldenburg withstands 40° below zero without harm. Among the hardy summer Russian Apples he names Yellow Transparent, Tetofsky, Summer Red Calville, and Charlottenthaler. Autumn sorts —Alexander, Titovka, Oldenburg, Switzer, and Borovinka. Winter—Antonovka, Longfield, Cross Apple, Red Anis, Bogdanoff, and others. In addition to these Russian varieties, the following American seedlings are named—Wealthy, Wolf River, McMahon's White, Whitney's No. 20, and Scott's Winter. Some Pears and other fruits are under trial, but more time will be required for them.

Kitchen Garden.

SELECT VEGETABLES.

I never rely upon a new vegetable of any kind until I have proved it. This is especially necessary in the case of new Peas. These vary so much in the time at which they come into bearing, that until one has proved them there is risk of the supply being irregular, but if sown at the same time as proved kinds this risk is avoided, and opportunity is afforded for making comparisons under similar conditions. The best sorts of Peas for early sowing are Sangster's No. 1 and Kentish Invicta; the first-named is a white Pea, and the other green. These are, I think, amongst the earlies the two hardiest. The best dwarf sorts are American Wonder and Abundance placed in their order of merit, but they are a week later than the two just named. Laxton's Alpha is undoubtedly the best table Pea in the early section, but being a wrinkled variety, it is rather tender, and cannot be sown with safety until the middle of February; consequently, it is not so early as the others named. Amongst second earlies William the First is unequalled both for productiveness and high-class quality. If another sort is wanted, I should select Early Sunrise, a white marrow of fairly good quality. My favourite main crop varieties are Champion of England and Telephono. In a strong soil these grow from 6 feet to 7 feet high. Sorts in this section which grow from 4 feet to 5 feet high are numerous. My selection from these are Huntingdonian and G. F. Wilson. Where the soil suits it, Veitch's Perfection is, in my opinion, superior to any in regard to flavour. The best tall growers for late sowing are Ne Plus Ultra and British Queen. If dwarf sorts are required for the latest crops, there are none to surpass Omega and Hair's Dwarf Mammoth.

Broad Beans are not popular, but where they are required they are generally liked best when very young and small in size; large sorts are not much wanted. The old Mazagan is still as hardy and early as any, and, being small in size, it is often preferred to the large sorts. Leviathan is a wonderfully attractive large Bean. As to Runner Beans, a good selection of Champion is all that is wanted in this section. Of French Beans, Early Dun is the best for the first crop, and Canadian Wonder for successional sowings. These will be enough for most gardens.

Of Brussels Sprouts, a good strain from imported seed is still unsurpassed. Amongst Borecoles the tall Scotch Kale and the Cottager's Kale are the hardiest and most productive of any; and of Broccoli I would recommend Snow's Winter White, Early Penzance, Leamington, Chappell's Cream, Frogmore Protecting, and Veitch's Model. These will produce a good succession.

Of Cabbage, the best are Ellam's Early, Enfield Market, Chou de Burghley, and the Rosette Colewort.

Of Cauliflowers, the best are Early London, for standing through the winter, and Stadtholder for a successional summer crop. These will furnish a supply to the middle of August. Veitch's Autumn Giant should be sown in the autumn at the same time as the Early London, and then it will succeed the early summer crops. This sort should also be sown in April for a late autumn supply.

Of Celery I would select Turner's Incomparable Dwarf White and Major Clarke's Red. If larger sorts are wanted, I recommend Grove End White and a good strain of the Manchester Red.

Cucumbers for the winter supply should consist of Rollisson's Telegraph and Sion House. Carter's Model is a useful summer kind for growing in houses, and the same may be said of Tender and True. For frame work, Telegraph and Masters' Prolific are the best.

Of Endive, the best curled-leaved sort is Digswell Prize. The French Moss-curled is useful for autumn consumption, but rather tender. The round-leaved Batavian is the best of the plain-leaved kinds.

Of Lettuces for early spring use, the white-seeded Bath Cos is unequalled to stand through the winter. Hammersmith is a hardy Cabbage Lettuce that is fairly reliable. The best White Cos for summer use is the Paris Market and Kingsholme. The last-named is a distinct and useful sort. It is self-hearting, and grows to a large size. Of Cabbage Lettuces for summer use the best are Neapolitan and Perpignan. This last stands well in dry weather, and is crisp and tender.

Of Melons, I would grow Reid's Scarlet Flesh, and for a green flesh sort Victory of Bath. These two, if well grown, will disappoint no one, either as regards size or flavour.

Onions.—Of these there is a long list of names, but a good strain of the White Spanish and Brown Globe for winter supply will be all one wants; the last-mentioned sort I find to be the best keeper. For sowing in autumn there is no more hardy sort than the Tripoli.

Parsnips.—Of these the Student for main crop and the Maltese for early winter use are the best.

Parsley.—For the main supply none beats a good strain of Covent Garden Garnishing. The Fern-leaf kind is very distinct and handsome, but scarcely so hardy as the other.

Of Radishes, the best for early forcing is Wood's Early Frame. For summer culture the French Breakfast and Scarlet Olive-shaped are the best.

Spinach.—The Prickly-seeded for winter and the Round for sowing during summer are all the sorts that are needed.

Tomatoes.—Amongst these there is a great array of names, but for general usefulness the common Red is still unsurpassed. For exhibition purposes, Hathaway's Excelsior is equal to any of the newer sorts. Green Gage is useful for the sake of variety. The fruit is citron-coloured and nearly transparent, which adds considerably to its appearance.

Vegetable Marrows.—Muir's Prolific Hybrid is middle sized and wonderfully productive. Hibberd's Prolific and Green-striped are both good varieties.

Asparagus.—I have not been able to detect any difference between the ordinary Giant and Connover's Colossal. I therefore consider that one sort is sufficient.

Potatoes.—For the earliest crops no one can make a mistake if they choose the old Ashleaf and Myatt's Prolific. The best round sorts for second early are Porter's Excelsior and Early Coldstream. For late crops I would recommend Scotch Champion and Magnum Bonum.

J. C. C.

Early Broccoli.—I hear good accounts from a grower for market of Veitch's Protecting Broccoli as a valuable kind for present use. Everybody grows the Autumn Giant Cauliflower, but, as a rule, it is cleared off by the middle of November, and there is nothing left of the same character to follow it. It is just at this season when the Protecting Broccoli comes in so well, and those who have planted it find now a good market for it. This is just one of the things which in ordinary seasons will be certain to prove a safe crop, and it only needs to be more widely known to be widely grown. It may be that in exceptionally wet autumns the plants would not mature so as to enable them to flower early, but that would at least be a rare occurrence. It is not often that we get an exceptionally severe spell of frost before Christmas, so that the chances are greatly in favour of a good result. Many market growers fight shy of big, spreading, late Broccolies because they are not only subject to injury from hard frost, but also because the plants are so long on

the ground. The Protecting Broccoli happily avoids the first, and under the latter head is not troublesome. The seed of it should be sown about the end of March on good soil, and be well protected from birds until the plants have become strong. Many growers who complain of the moderate returns now obtained for the Autumn Giant Cauliflower would probably find it better worth their while to plant one-third less of that kind and make up with the Protecting Broccoli.—A. D.

MARKET GARDEN NOTES.

This is rather a slack time with growers for market as far as general work is concerned, only such things as must be done being now taken in hand. The principal crop now being taken into the markets in quantity is Cauliflowers, amongst which the Autumn Giant is still in fine condition. Its heads, which are very large, bear evidence of extra good culture. This variety will, however, soon be over, as a good sharp frost destroys all that are fully formed. Growers, however, take the precaution to break the leaves down over the heads, and thus save them from a few degrees of frost. Veitch's Winter Protecting Broccoli is getting into favour with market growers in this part for a Christmas supply. It is self-protecting, having plenty of foliage that curls close over the heads, thus keeping them perfectly white and safe from slight frost. When they realise good prices, growers lift them when nearly fit for use and shelter them in cold frames, sheds, &c.

Savoys never fail to put in an appearance about Christmas, let the season be ever so severe; in fact, a good sharp frost that cuts up the tenderer Cauliflowers increases the value of the Savoy. The Drumhead is the variety most in favour, and also the dwarf green curled.

Brussels Sprouts and Scotch Kale are in excellent condition this year, the season having been moist, and throughout favourable to growth; consequently, the Sprouts are fine and hard as bullets, and the heads of Kale beautifully curled. The dwarf green variety is almost universally grown.

Cabbages and Coleworts are plentiful and good; the former have formed beautiful little heads quite equal to what are generally thought to be the perfection of spring Cabbages from plantations made after Potatoes were lifted.

Celery in great quantities and very fine may now be seen on every wagon. The white varieties are being cleared off first, the red being hardier and better able to sustain a spell of severe weather, but covering up is not practised in this locality.

Turnips in bundles as white as snow are capitally got up by the market growers. Fine crops for this time of year are got by sowing after Peas, Beans, and Potatoes come off. The red-skinned and green round are left for a later supply, being much hardier. Chirk Castle Black Stone is one of the hardiest of all, and one of the best, being as white as any of the white skins under its rough exterior.

Horse Radish, although not in great request at all seasons, is sure to sell well at Christmas, good straight sticks realising good prices. It is one of those things which are made a specialty of by a few growers, who cultivate it thoroughly well, and which is not the rule in private gardens, it being a plant difficult to destroy, and one which grows in some sort of form without any attention; it gets very little care. Single crowns planted deeply in good soil, or long, thin sticks lifted carefully and planted full length, soon repay the extra trouble by yielding a very superior article that realises a good price.

Lettuces and Endive are now in great request. Brown Cos and the Cabbage varieties of Lettuces, such as Hardy Hammersmith, Grand Admiral, and others of that type that have been sown thinly in July, are the ones to be depended on at this date. Endive of the Green Curled and Batavian class, nicely blanched by tying up or laying slate on the leaves, makes excellent salading.

Beetroot is exceptionally good this season. I find the Turnip-rooted kind to be much grown in this district by market growers.

Radishes are much used hereabouts as a winter salad. The Black Spanish and China Rose Radish are the sorts grown for winter use, as, unlike summer sorts, they are eatable when fully grown.

Parsley is never in more request than at Christmas; the finest double curled only being in great demand. It is grown in any sheltered spot where protection can be given it in severe weather; up to the present frost has been merciful, and therefore there is an abundance of good vegetables of all kinds, the supply of Potatoes, Carrots, Parsnips, &c., being especially good this season.

Fruit of home growth is now very scarce, and those who declare that we are already overdone with orchards, should take note that we are really without fruit for half the year—at least such as cannot afford the luxury of glass forcing houses. Apples are now scarce, and sell freely at good prices; in fact, anything that will pass muster at all as fit for cooking is fetching 5s. and 6s. per sieve, and really good dessert fruits of home growth are worth double that price. American Apples are not nearly so much liked as they used to be. They sell because home-grown ones are scarce. Pears of dessert kinds are also getting scarce and realise good prices. Winter Nelis, Beurré Rance, and a few of the latest kinds are now the principal varieties obtainable. Culinary Pears are now in request; they are most useful at this season when anything is almost welcome in the shape of fresh fruit. I find that market growers are planting late-keeping Apples, but anything like a supply for market during the first three months of the year requires planting on a more extensive scale than has hitherto been done. We want, too, better systems of storage. At present we live too much from hand to mouth in the matter of home-grown fruit.

Gosport. J. Groom.

MARKET PRICES.

It is declared in some quarters that trade depression arises not so much from the falling off of trade as from the universal fall which has taken place in prices. A grower of market vegetables referring to this fact, said a day or two ago, "I have this morning sent up a big three-horse load of Brussels Sprouts, Savoys, Cabbages, Coleworts, &c., which a few years ago would have realised from £9 to £10, and now it will realise not more than from £3 10s. to £4. I remember that some twenty years ago prices were then as bad as they are now, but the fall was only temporary, and soon went up again." Now, all other things as well as vegetables have a downward tendency, and there is little prospect of a reaction. It would be exceedingly interesting to have the returns of this grower's market prices for the past twenty years. On every hand I see green crops spoiling, Cabbages bursting and decaying, and ample evidences that vegetables of the commoner class are far too abundant. If a check were to be put to this over-production, no doubt prices would go up to some extent, but the consumer would suffer; and still further, our deficits at home, whether purposely or accidentally produced, are very soon made good by foreigners. It is singularly contradictory to hear market growers, on the one hand, declaring that prices are unprofitable, and that with all their market knowledge and practical experience it is hard to make both ends meet; whilst in another direction we hear farmers advised to cultivate vegetables in place of Corn. My neighbour, allow me to state, does not send his vegetables into the market, and thus pay heavy dues and and take his chance of sale. He has regular and good shopkeeper customers, who always pay him fair market prices; hence he is in a better position than the ordinary market attendant. It is easy to talk about salesmen and market rings, but it may be taken for granted that the market trade is universally depressed, and that there is by no means any immediate hope of improvement. Kentish fruit growers have been taken to task because, market prices being unremunerative, they allowed their Plums to rot on and beneath the trees last autumn and did not convert the fruit into jam. Those who criticise in that way may not be aware that the jam trade even is overdone, and that jam manufacturers find stern competitors. Just now, for instance, the public can purchase for 4d. anywhere two-pound tins of the purest golden syrup, and no jam manufactured can compete with that. It is so highly rectified, that it is purer than honey. The days of the dark, thick compound called treacle or molasses have gone, and it is probable those of inferior jams have gone also. This result cannot certainly be deplored, for some of the jams were but miserable decoctions in which pure fruit figured infinitessimally. All must also remember that with fruit plentiful in private as well as in market gardens and sugar so cheap, great quantities of preserves are made at home, thus again checking the jam manufacturer's trade. Some more tangible suggestions for the removal of trade depression are therefore needed than have yet been offered as a solution of the difficulty.

A. D.

Indoor Garden.

PALMS FOR ROOM DECORATION.

(CHAMÆDOREAS.)

This genus consists of numerous dwarf-growing plants, with, for the most part, slender stems and elegant pinnate or feather-like foliage. In a wild state they are always found growing in comparatively elevated situations under the larger forest trees as underwood, and but rarely in the open. Under cultivation they thrive best in an intermediate house, well shaded and liberally supplied with moisture, and many of them are admirably adapted for room decoration, as, just after the first year from seed, they become extremely ornamental, and their bright, smooth, green leaves are easily cleansed from dust. Even in comparatively small pots they continue to increase in beauty and stature annually. As a matter of course, they should not be allowed to stand close to the windows in severe weather, nor should they be subjected to cold draughts. If the foliage is occasionally sponged and the roots well supplied with moisture, in the form of tepid water given at midday, few plants excel these Chamædoreas as decorative objects, a fact fully recognised in Germany, where they are largely used in this manner. Many of them flower annually, and their long branching inflorescence adds materially to the interest that attaches to them. As in most instances they perfect their seeds, a supply of young plants can be easily obtained at little expense, which is not the case with the majority of the Palm family. Chamædoreas should be potted in a mixture of peat and loam, and liberally supplied with water; indeed, failures with them are usually traceable to a meagre supply of moisture. The first year's seedlings produce broad, simple leaves, deeply divided at the ends, but even in this state they are ornamental. In the second year they begin to develop pinnate leaves, which increase in length and breadth as they get older. In a few instances, however, this broad, deeply-cleft leaf (bifid) is the normal condition of the species, of which C. geonomæformis affords an excellent example. The Chamædoreas are all natives of America, and the following kinds are amongst those which we have found to thrive best as indoor plants, viz., C. graminifolia. This is a slender, Grass-leaved kind, as its name implies, and it is one of the most elegant of the family. Its leaves are plume-like, dark glaucous-green, and when fully

developed attain a length of a yard or more ; its branching inflorescence is pendulous, and about a foot long. C. elegans has a more robust stem than graminifolia, and the foliage, which is gracefully arched, grows from 3 feet to 4 feet long in fully developed specimens, whilst the leaflets are some 6 inches long and about 1 inch broad, tapering at either end, and bright green. C. Sartori resembles elegans, but the leaflets are broader, and do not taper so much towards the base. It has a very hardy constitution, and is one of the best for the purposes indicated. C. Arenbergiana is also a very beautiful kind ; its bright green leaflets are pendent, and taper to a tail-like point. C. Wendlandi is another beautiful species, and perhaps the most useful of all for room decoration. Its bold, arching green leaves are about a yard long, whilst the leaflets are some 12 inches in length and 2 inches in breadth. C. glaucifolia is a slender-stemmed kind with long, arching, feather-like leaves, having a milky glaucous hue on both surfaces. C. geonomæformis attains a height of about 4 feet, and bears simple, deeply cleft or bifid, strongly ribbed, deep green leaves, which are some 9 inches or more in length, and from 4 inches to 6 inches in breadth. Its graceful pendent flower-spikes add much to the general effect, although the flowers are of the same hue as the leaves. C. Ernesti-Augusti is also a bifid-leaved species, which attains, when fully grown, a height of 5 feet or 6 feet. Its stem is about 2 inches in diameter, and conspicuously ringed by the scars of the fallen leaves ; these are broadly sheathing and stem-clasping at the base, from 1 foot to 2 feet long, cleft for about half their length, serrated at the edges, conspicuously ribbed, and dark green in colour. When in flower this little Palm is especially ornamental ; the male and female flowers are produced on separate plants. In the former the spadix is branched, the numerous long, slender branches being densely clothed with little round orange-scarlet flowers. The female plant produces a single (or more rarely a double) thick, fleshy green spadix, studded with numerous bead-like, coral-red flowers. W. H. G.

Roman Hyacinths at Christmas.—This charming early-flowering Roman Hyacinth, so dwarf and fine, and bearing chaste, delicately-scented, white flowers, is now largely imported fram France, Holland, and Belgium for forcing purposes. It forces with great rapidity, and the bulbs, though not nearly so large as those of our ordinary Hyacinths, produce several spikes of flowers each. There is a blue form of this early Hyacinth, sometimes called Parisian Hyacinth, that is a fortnight or so later than the white one, but is a useful succession notwithstanding. The early Roman Hyacinth is well worthy the attention of those who have a glass structure in which a few things can be got early into flower. Even when there is no artificial heat a few of these early Hyacinths can he had in bloom some time before our ordinary Hyacinths, even when planted at the same time. Last spring, having but little room to spare, I planted some of the ordinary Hyacinths in pots, using 6-inch ones, and placed one bulb in each. Round some of these I put a circle of Roman Hyacinths, using four, five, or six bulbs, according to their size, and I found that these started into growth, and actually came into flower, almost before the Hyacinths in the centre of the pots had made much growth. As soon as the flowers furnished by the Roman Hyacinths had died away, the foliage was removed with the decaying flowers, and thus the ordinary Hyacinth had space to grow, and in each case flowered finely, notwithstanding the presence of the bulbs just alluded to. Perhaps this practice is hardly to be commended, but I did it for economy's sake, and I was well pleased with the result. As a matter of course, the soil should be thoroughly good, and it is well to apply a little weak manure water, or a pinch of patent manure to the late Hyacinths. It matters not what care may be taken of the bulbs of the early Roman Hyacinth, or how carefully they may be preserved ; they never flower so early or so well as the newly imported bulbs do. —D.

NEW AND OTHER CHRYSANTHEMUMS.

New, or what are supposed to be new, varieties of these favourite flowers make their appearance in such numbers each year, that those who have not an opportunity to judge for themselves get bewildered as to the best varieties to select for the purpose of increasing their stock, which, however, should never be too large. Far better is it to grow a certain number of plants of acknowledged merit than to speculate in untried novelties. Let me, therefore, give an account of some of the best that have come under my notice during this season, and others brought out the year previous. In spite of the glowing terms in which some new varieties are described, many do not even equal older kinds, let alone excel them. It happens sometimes that some of our best, well tried varieties fail to produce what is yearly expected of them, but it would be folly to discard

Chamædorea geonomæformis.

such kinds on this account. Seasons vary greatly ; sometimes we have extremes of heat during summer and sometimes the reverse, and allowances are not always made for these contingencies. The plants do not receive treatment accordingly, and, as a matter of course, they suffer. Let me instance Belle Paule as an example of a Japanese variety which this season, owing to some cause or other, did not perfect its blooms, except in a very few cases, and these principally in the northern and midland counties. Perhaps next year it may come out again in true character. Princess of Wales in the incurved section has not been so good this season as usual, but who would think of discarding this, the finest, perhaps, of all the incurved class, on that account? By way of supplement to the list given by "C. H. P." (p. 561), allow me to furnish a few names of kinds which I consider worthy of a place in any collection.

New kinds belonging to the incurved section are produced so sparingly, that any addition to this class is always welcome. Only two sorts have appeared which promise to give satisfaction. The first is Mrs. Norman Davis, a yellow sport from Princess Teck. It is bright orange-yellow, and evidently possesses the form of flower and breadth of petal of its parent, which, as is well known, is quite first-rate. Yellows of this class are much needed. At present we have only two that can be called first-class, viz, Jardine des Plantes and Mrs. Bunn. The first cannot always be had in its best form, and the latter variety being naturally an early bloomer, it often happens that (in the south of England at least) the best blooms are past before the principal shows take place. This new kind just alluded to, if like its parent, will therefore be doubly useful.

Lord Eversley, a variety certificated at Reading last November, is also a sport from Princess Teck, which originated at Heckfield; hence its name. It is white, faintly tinged with cream. Its petals, which are very smooth, incurve better (if possible) than its parent, and being naturally a late bloomer, will be valuable. I should like to say a word in favour of Mrs. Ralph Brocklebank, the new yellow sport from Meg Merrilies—a grand stock. The sport is said to have even a better constitution than its parent. I regard it as the flower of the year in the Japanese section. Mrs. J. Wright is a seedling raised by Messrs. J. Laing, and an acquisition too. It is a lovely pure white with round, twisted florets of excellent form, and quite full in the centre. Alpha, another seedling, is likely to prove valuable. It is a full-centred flower with slightly twisted, round florets of a rosy purple colour, shaded with white. C. L. Teesdale, as shown by Mr. Cannell, is a creamy blush of excellent quality. Snowstorm, as exhibited by Mr. Davis, is a large-flowered, pure white sort, as its name infers. It produces blossoms in profusion, and is a valuable kind for cutting for indoor decorative purposes.

Of older Japanese kinds introduced a year ago, Mons. N. Davis deserves notice on account of its rich red colour. It is the nearest approach to a scarlet of any with which I am acquainted. Its florets are of a drooping character, which renders it graceful in appearance. Martha Hardinge, sent out last season, is sure to make headway. Its golden coloured thread-like petals are heavily suffused with bronze. An important point in its favour is the long time during which the blossoms last in perfection. Maiden's Blush, also sent out last spring, has come quite up to its representation. Some magnificent blooms of it have been shown this autumn. It possesses an admirable constitution, and its flowers are massive. The blush tint being of the faintest description renders it especially attractive, and it bids fair to take the place of Elaine as an exhibition flower.

Amongst new reflexed flowers of this season's introduction, Amy Furze comes first. It is a seedling, the colour of which is blush, mottled with pale magenta. It is of large size, excellent in form, and quite a type in the class to which it belongs. Temple of Solomon, an old variety again brought forward as shown by Mr. Davis, is excellent. It is rich yellow in colour, of medium size, and of good form, and should be extremely useful both as a decorative variety and for exhibition. Elsie is another of the reflexed type, the colour, a creamy white, being quite charming in appearance, and as shown by Mr. Cannell, it cannot fail to be much sought after. In addition to the varieties of Anemone-flowered kinds named by "C. H. P.," one belonging to the Japanese type, viz., Ratapoil, deserves notice. In colour it is buff or dull brown, with long guard florets and a medium-sized disc. This section being as yet not overloaded with good kinds, this should have a place on account of its peculiar colour.

A new departure has been obtained in regard to the varieties Chardoneret, Crœsus, and Scapin. They belong to what is termed the fimbriated section; the petals being deeply toothed give them a pleasing fringy appearance. The three just named received first-class certificates, and as shown were certainly worthy of them.

As to propagation, in my opinion, a good start goes a long way towards a successful issue in most matters connected with gardening, but in no case

does this apply more forcibly than in that of the Chrysanthemum, whether the plants be intended to produce cut blooms for exhibition or for home decoration. Opinions differ as to which is the best time to insert cuttings, but after careful comparison I have come to the conclusion that from now onwards is the best period at which to take the cuttings. By inserting them now the plants have an opportunity during their different stages to grow along quietly without any hurry or excitement, which is not good in the case of Chrysanthemums. Spring propagation is a mistake where first-class blooms for exhibition are required. The plants have not sufficient time in which to develop naturally, and in some stages have to be hurried, which does not answer. Another objection to late propagation is that valuable space must be occupied by the old roots which are to supply the cuttings. There are two classes of cuttings it should be borne in mind when selecting them. The wrong ones are those which come direct from the old stem, and which are likely to perfect a bloom-bud at a time when growth only is required. Cuttings terminated by a flower-bud should be discarded as worthless. Oftentimes some varieties throw up cuttings so freely that more can be had than what are required, and if allowed to grow, one injures the other by drawing it up weakly. The right thing to do, then, is to thin out the weakest, thus allowing more space for the strongest. This should be done some time previous to taking off the cuttings. The right kind of cutting to take is the one which comes up at a distance clear from the stem, and which does not form a flower-bud as previously described; select such cuttings about 3 inches in length and trim off the lower leaves. Some growers advocate the removal of wood-buds from the stems in order to prevent suckers being thrown up so freely during summer, but I do not consider this at all necessary. The cuttings should be inserted singly in small pots; those commonly called thumbs (2½ inches in diameter) are best. These should be perfectly clean. Place one crock over the hole at the bottom, and over this lay a little of the rougher material from the soil prepared for the cuttings, and fill up the pots nearly full with the following compost, viz., about equal parts of loam and leaf soil, with a free use of silver sand, all thoroughly well mixed by passing them through a half-inch sieve. Press the soil firmly, and over the top place a thin layer of sand to be pressed down with a blunt dibber for the cuttings to rest on, the rooting process being quicker in sand than in soil. In inserting the cuttings see that the base rests firmly on the bottom of the hole; press the soil around them firmly, and give a gentle watering through a fine rosed water-pot to settle the soil and sand. The next thing is to consider which is the best position for them to occupy while roots are being made. Many growers prefer to place them in cold frames, but I do not approve of this method, because much valuable time is lost during severe weather by the soil in the pots getting hard frozen. Such a state will not kill them, but they will not progress. The best place for them is inside a cool house in which there is just enough heat to keep out frost and damp. On the stage of such a house place some handlights or small propagating frames; inside of these, and also upon the stage, put some coal ashes, say 1 in. or 2 in. thick. These will stop draughts from coming through the latticed stages, and will keep the cuttings cool. Keep the lights closed until roots are formed, except for an hour in the morning, for the dissipation of moisture; in the evening, the glass coverings should be wiped dry to prevent damping off; shading will not be required. In about a month some of the cuttings will be rooted, the strongest growing varieties being the earliest to emit roots; a little air should be given to those rooted by tilting the sash; then gradually increase it until the sashes may be entirely removed. Some varieties will not root so readily as others. Those which show a tendency to flag should be removed to a separate compartment, where they can be kept close for a little longer. By keeping the frames closed little water is required during the process of rooting, yet the soil must nevertheless be kept sufficiently moist to suit the cuttings. E. Molyneux.

Swanmore Park, Bishop's Waltham.

Billardiera longiflora.—What a charming plant this is! Here a wall space 3 feet wide by 6 feet high is completely covered by it, and now and for a long time—months, in fact—it has been a mass of turquoise blue berries. It is planted in an ordinary, but fairly well made, Peach border. It grows in the most vigorous manner, runs up the wires and up the shoots of the trees, and at one time had got to the top of the 10 foot wall, entangling and threatening to strangle the trees themselves. It is never injured by any weather. Why is this beautiful plant so rarely seen?—T. Smith, *Newry.*

A much-neglected climber.—On visiting Drinkstone Park in October last, I was much pleased to see a grand plant on the roof of one of the stoves of Ipomæa Horsfalliæ. It had less foliage and more blossom-buds than I had ever seen before on this fine old plant. Some of the bunches of bloom were spiral-shaped and nearly a foot long, and I should be accused of exaggeration were I to give an estimate of the number of such bunches. Suffice it to say that, when expanded, the entire of one side of the roof must be crowded with brilliant blossoms. I have grown this plant fairly well in a pot, but when planted out it is apt to produce an excess of leafage. Mr. Palmer, however, has so managed this plant that when his profusion of shoots are tied down from the roof the latter will be all flower. Treated thus skilfully, we have hardly a plant to match this magnificent old Ipomæa either in brilliancy or usefulness for cutting. It enjoys direct sunlight; and Mr. Palmer attributes its abnormal floriferousness this season, partly at least, to his having rather severely pruned a fine Allamanda that used to encroach heavily on the preserve devoted to the Ipomæa. Be this as it may, this Ipomæa, as well as not a few other stove plants and climbers, the general collection of Orchids at Drinkstone, and the fine Grapes are worth a journey of many miles to see.—D. T. F.

Flowers at Mr. Arthur's funeral.—Klunder made a 3 foot cross of two shades of Heliotrope, Noir and Jersey Belle, for the casket of President Arthur. This was a rich design, as it looked as if cut from velvet, so evenly was it bedded, and the colours or shadings were so arranged that half the cross seemed to lie in a shadow. A mound of Marie Louise Violets was arranged by the same florist. This was 2½ feet high, and was composed of 3000 flowers. At one side there was a draping of two Cycas leaves (Cycas revoluta), and on this hung a large cluster of Perle Roses. A large cross of white Roses had at its base a bunch of Mermets and Lily of the valley. A cluster of 125 long-stemmed Niphetos Roses was held by a white ribbon sash, in which Jasmine and Lilies of the Valley were interspersed. Brower made a wreath of Russian Violets, which was fastened by a cluster of black Pansies. This was a superb piece. Gordon arranged a cross and crown composed of Lily of the Valley and Narcissus, with a sprinkling of fine Grasses and Ferns, which was an exquisite design. President Cleveland sent a scroll of Cape flowers lettered with purple immortelles—"Finis." A plaque of Cape flowers, inscribed "Requiescat in pace," was also sent from Washington.—*American Florist.*

Petræa volubilis.—This plant, though introduced more than a century ago, is still but little known. For profusion of bloom, grace, and exquisite delicacy of colour, it is, perhaps, without a rival. It is a twining stove shrub, with leaves not unlike those of some of the Bougainvilleas, but larger. The flowers are borne in marvellous profusion in elongated light airy racemes.—J. G.

THE PUBLIC GARDENS OF THE WORLD.

Locality of Garden.	Name of Director or Superintendent.
Algeria—1.	
Alger—Jardin d'Acclimatation du Hamma	Charles Rivière.
Australia—4.	
Adelaide (South Australia)	Dr. R. Schomburgk.
Brisbane (Queensland)	F. Cowan.
Melbourne (Victoria)	W. R. Guilfoyle, F.L.S.
Sydney (New South Wales)	Charles Moore, F.L.S.
Austro-Hungary—14.	
Buda-Pesth (Transylvania)—University Botanic Garden	Dr. L. Juranyi.
Cracow (Galicia)—University Botanic Garden	Dr. Jos. T. Rostafinski.
Czernowitz (Bukovia)—University Botanic Garden	Dr. Ed. Tangl.
Eibenschütz (Moravia)	Ad. Schwoeder.
Gratz (Styria)—University Botanic Garden	Dr. H. Leitgeb.
Innsbrück (Tyrol)—University Botanic Garden	Dr. Joh. Peyritsch.
Klagenfurt (Carinthia)	Ron. de Jabornegg-Gamsenegg.
Kolozsvar (Transylvania)	Dr. Aug. Kanitz.
Lemberg—University Botanic Garden	Dr. Th. Ciesielski.
Prague (Bohemia)—University Botanic Garden	Dr. M. Willkomm.
Selmecbánya (Transylvania)	Prof. A. Fekete.
Trieste (Istria)	Raimondo Tominz.
Vienna—University Botanic Garden	Dr. A. J. Kerner.
Vienna—Imperial Hort. Gardens of Hofburg	Fr. Antoine.
Belgium—5.	
Antwerp	Dr. H. Van Heurck.
Brussels—Royal Botanic Garden	François Crépin.
Ghent—University Botanic Garden	Dr. J. J. Kickx.
Gembloux—Botanic Garden of the Agricultural Institute	Dr. C. Malaise.
Liege—University Bot. Garden	
Brazil—1.	
Rio de Janeiro—Botanic Gardens	A. Glaziou.
Canada—1.	
Montreal (P. Q.)—Montreal Botanic Garden	Prof. D. P. Penhallow.
Canary Islands—1.	
Orotava (Teneriffe)—Jardin d'Acclimatation	H. Williquet.
Cape of Good Hope—3.	
Cape Town	Prof. MacOwan.
Graaf Reinet	J. C. Smith.
Graham's Town	Edward Tidmarsh.
Ceylon—1.	
Peradenia—Royal Botanic Garden	Dr. Henry Trimen.
Chili—1.	
Santiago	Prof. F. Philippi (fil.).
China—1.	
Hong Kong	C. Ford.
Cochin China—1.	
Saigon—Colonial Botanic Garden	Dr. L. Pierre.
Denmark—2.	
Copenhagen—University Botanic Garden	Prof. Eug. Warming.
Copenhagen—Royal Gardens of Rosenberg	Tyge Rothe.
Ecuador—1.	
Quito	Prof. R. P. Al. Sodiro.
Egypt—1.	
Cairo	Gastinel Bey.
France—22.	
Angers	Dr. M. Lieutaud.
Antibes	Ch. Naudin.
Besançon	F. Paillot.
Bordeaux	J. Comme.
Caen	Eugène Vicillard.
Cannes	Comte d'Epremesnil.
Clermont-Ferrand	
Dijon	Dr. Laguesse.
Grenoble	J. B. Verlot.
Hyères	Em. le Davrillon.
Lille	V. Meurein.
Lyons	Dr. Ant. Magnin.
Montpellier	Prof. J. E. Planchon.
Nancy	Prof. G. Le Monnier.
Nantes	Dr. Ecorchard.
Orleans	M. Rossignol.
Paris—Gardens of the Natural History Museum	Prof. Maxime Cornu.
Rochefort	Dr. Barallier.
Rouen	Emm. Blanche.
St. Quentin	Charles Magnier.
Toulon	J. B. Chabaud.
Toulouse	Dr. Dominique Clos.
Tours	Prof. David Bars.ty.
Germany—36.	
Aix-la-Chapelle	Dr. M. Debey.
Bamberg (Bavaria)	Dr. Funk.
Berlin—Berlin Botanic Gardens.	Dr. A. W. Eichler.
" —University Botanic Gardens	Dr. S. Schwendener.
Bonn (Rhenish Prussia)—University Botanic Gardens	Dr. Ed. Strasburger.
Breslau (Silesia)	Dr. H. R. Goeppert.

Locality of Garden.	Name of Director or Superintendent.
GERMANY—*continued.*	
Bronswick (Brunswick)—Botanic Garden of the Polytechnic School	Dr. W. Blasius.
Carlsruhe (Baden)	J. Pfister.
Cologne (Rhenish Prussia)	Prof. J. Nieprascbk
Darmstadt (Hesse)	Dr. Leopold Dippel.
Dresden (Saxony)	Dr. Oscar Drude.
Erlangen (Bavaria)	Dr. Max. Reess.
Frankfort-on-Main (Hesse-Nassau)	Dr. H. Th. Geyler.
Fribourg (Baden)	Dr. F. Hildebrand.
Giessen (Hesse)	Dr. H. Hoffman.
Goerlitz (Silesia)	Dr. R. Peck.
Göttingen (Hanover)	Dr. Comte Herm. de Solms-Laubach.
Greifswald (Pomerania)	Dr. J. Munter.
Halle-upon-Salle (Saxony)	Dr. Greg. Kraus.
Hamburgh	Dr. H. G. Reichenbach.
Heidelberg (Baden)	Dr. E. Pfitzer.
Herrenhausen (Hanover)	Herm. Wendland.
Jena (Saxe-Coburg)	Dr. E. Stahl.
Kiel (Sebleswig-Holstein)	Dr. Ad. Engler.
Konigsberg	Dr. Robert Caspary
Leipzig (Saxony)	Dr. Schenck.
Marbourg (Hesse-Nassau)	Dr. A. Wigand.
Munden (Hanover)	Dr. N. J. C. Muller.
Munich (Bavaria)	Dr. C. G Von Naegeli.
Munster (Westphalia)	Dr. O. Brefeld.
Potsdam (Brandenburg)	Dr. Jublke.
Rostock (Mecklenburg)	Dr. Jean Roeper.
Strasburg (Alsace-Lorraine)	Dr. Ant. De Bary.
Tharand (saxony)	Dr. Fred. Nobbe.
Tubingen (Wurtemberg)	Dr. W. Pfeffer.
Wurzburg (Bavaria)	Dr. Jul. Von Sachs.
GREAT BRITAIN AND IRELAND 12.	
Birmingham (England)	W. B. Latham.
Cambridge (England)	R. I. Lynch.
Crystal Palace, Sydenham	W. G. Head.
Hull	P. MacMahon.
Liverpool	J. Richardson.
London (England)—Chelsea Botanic Gardens	Thos. Moore.
London (England)—Royal Botanic Gardens, Kew	Prof. W. T. T. Dyer. (Curator, G. Nicholson.)
London (England)—Royal Botanic Society Gardens, Regent's Park	W. Sowerby.
London (England)—Royal Horticultural Society Gardens, S. Kensington	A. F. Barron.
Manchester (England)	Bruce Findlay.
Oxford	Dr. J. Bayley Balfour. (Curator, W. Baxter.)
Sheffield	J. McEwing.
Dublin (Ireland)—Royal Botanic Gardens of Glasnevin	F. W. Moore.
Dublin (Ireland)—Trinity College	F. W. Burbidge, F.L.S.
Belfast (Ireland)—Royal Belfast Botanic Gardens	R Motherell.
Edinburgh (Scotland) — Royal Botanic Gardens	Dr. A. Dickson. (Curator, R. Lindsay.)
Glasgow	R. Bullen.
GREECE—1.	
Athens	Dr. T. de Heldreich.
GUATEMALA—1.	
Guatemala	Dr. Francesco Abella.
GUIANA—1.	
Georgetown	G. S. Jeoman.
CARACCAS	Dr. F. Ernst, F.L.S.
HOLLAND—4.	
Amsterdam	Prof. C. A. J. A. Oudemans.
Groningen	Prof. P De Bo r.
Leyden	Dr. W. F. R. Suringar.
Rotterdam	J. F. Wilke.
Utrecht	Dr. N.W. P. Rauwenhoff.
INDIAN EMPIRE—7.	
Bangalore (Madras)	Col. W. L. Johnson.
Bombay	A. Shuttleworth.
Calcutta—Royal Botanic Gardens	Prof. G. King.
Darjeeling (Bengal)	G. Gammie.
Gauish Kind (Poonah)	G. W. Woodrow.
Madras	Prof. M. A. Lawson.
Ootacamud	Mr. Jamieson.
Pondicherry	
Saharanpur (Bengal)	J. F. Duthie.
ITALY—23.	
Bologna	
Cagliari	Dr. P. Gennari.
Caserta	Dr. N. Terracciano.
Catania	Prof. Fr. Tornabene.
Ferrara	Dr. Carus Massalongo.
Florence	Dr. E. Beccari.
Genoa	Prof. Fret Delpino.
Lucca	Dr. C. Bicchi.
Messina	Prof. A. Borzi.
Milan	Prof. Fr. Ardissone.
Modena	Dr. A. Mori.
Naples	Dr. J. A. Pasquale.
Padua	Cav. Dr. P. A. Saccardo.
Palermo	Dr. Aug. Todaro.
Parma	Prof. J. Passerini.

Locality of Garden.	Name of Director or Superintendent.
ITALY—*continued.*	
Pavia	Prof. J. Briosi.
Perugia	Prof. Al. Bruschi.
Pisa	Dr. J. Arcangeli.
Portici	Dr. Horace Comes.
Rome	Dr. R. Pirrotta.
Siena	Prof. Att Tassi.
Turin	Prof. G. Gibelli.
Venice	Sen. Ruchinger.
JAPAN—1.	
Tokio — Koiskekowa Botanic Gardens	Prof. K. Ito.
JAVA—1.	
Buitenzorg	Dr. M. Treub.
MALTA—1.	
La Valette	Dr. Gavino Gulia.
MAURITIUS—1.	
Port Louis	J. Horne.
NATAL—1.	
D'Urban	Mr. Keit.
NEW ZEALAND—2.	
Christchurch	J. B. Armstrong.
Wellington	Dr. J. Hector.
PERU—1.	
Lima	Dr. Mig. de los Rios.
PHILIPPINE ISLANDS—1.	
Manilla (Luzon)	Seb. Vidal y Soler.
PORTUGAL—3.	
Coimbra	Dr. J. A. Henriques.
Lisbon	Prof. J. de Andrade Corvo.
Oporto	Dr. F. de S. G. Cardoso.
REUNION, ISLAND OF—1.	
St. Denis	M. Richard.
ROUMANIA—2.	
Bucharest	Dr. Brandza.
Jassy	Dr. A. Fêtu.
RUSSIA—16.	
Dorpat (Livonia)	Dr. Ed. Russow.
Helsingfors (Finland)	Dr. S. O. Lindberg.
Kazan (Kazin)	Prof. N. W. Sorokio.
Kharkoff	Dr. A. D. Pitra.
Kiev	Dr. J. Schmalhausen.
Moscow	Dr. J. Goroschankin.
Nikita (Crimea)	Mr. Basarow.
Odessa	Dr. L. Reinhard.
Orel	P. G. Tretjikoff.
Ouman (Kiev)	Prof. L. Scrobichewski.
Penza (Penza)	L. Lontchinsky.
St. Petersburg — Imperial Botanic Gardens	Dr. Ed. de Regel.
St. Petersburg —University Botanic Gardens	Prof. André Békétoff.
Tiflis	Prof. W. Scharrer.
Woronesch	Dr. J. E. Fischer.
Warsaw	Dr. A. F. de Walther'm.
SCANDINAVIA—7.	
Christiania (Norway)	Dr. F. C. Schübeler.
Göttenburg (Sweden)—Horticultural Society's Botanical Gardens	Prof. C. Lövegren.
Lund	Dr. F. W. C. Areschoug.
Stockholm (Sweden) — Gardens of the Royal Academy of Agriculture	E. Lindgren.
Stockholm — Royal Gardens of Haga	Prof. M. A. Werner.
Stockholm—Swedish Society of Horticultural Botanic Gardens	M. A. Pital.
Upsala	Dr. Th. M. Fries.
SERVIA—1.	
Belgrade	Dr. Jos. Pancic.
SIBERIA—1.	
Tomsk	Mr. Schestakoff.
SPAIN—3.	
Barcelona	A. Chaves.
Madrid	Dr. Miguel Colmeiro.
Valencia	Dr. Jose Arévalo Baca
STRAITS SETTLEMENTS—1.	
Singapore	J. Cantley.
SWITZERLAND—5.	
Basle	Dr. H. Vöchting.
Berne	Dr. L. Fischer.
Geneva	Dr. J. Müller.
Soleure	J. Probst.
Zurich	
TASMANIA—1.	
Hobart Town	F. Abbot.
UNITED STATES—5.	
Brookline (Mass.)—Arnold Arboretum of Harvard College	Prof. C. S. Sargent.
Cambridge — Harvard College Botanic Gardens	Dr. G. L. Goodale.
Lansing (Michigan) — Botanic Garden of State Agricultural College	Dr. W. J. Beale.
St. Louis (Missouri)	H. J. Shaw.
Washington (D.C.)—U.S. Dept. of Agriculture Gardens	W. Saunders.
WEST INDIES 6.	
Havana (Cuba)	J. Lachaume.
Jamaica	W. Fawcett, F.L.S.
Port of Spain (Trinidad)	J. Hart.
St. Pierre (Martinique)—Colonial Botanic Gardens	M. Thierry.

GARDEN IN THE HOUSE.

PLANTS FOR HOUSE DECORATION.

DURING winter, and especially at this season, great numbers of plants are required for house decoration, and no one should object to this use of them, seeing how much they beautify the different sites assigned to them. So much are we accustomed to seeing and admiring well-grown plants in front halls, corridors, dining-rooms, drawing-rooms, and in other positions, that we really think a house desolate without them, and for this reason, as well as on account of the knowledge that plants thus employed are much more appreciated than those always kept where grown, that we never demur at any reasonable request for decorative flowering or fine-foliaged plants. Many are under the impression that a few days' sojourn in a house proves most injurious to plants so employed, and sometimes this is the case, the rubbish heap receiving many that have been ruined either from the effects of gas, neglect, or too long a stay in a darkened corner. Those who grow the plants, or someone equally experienced, ought also to attend to them when in a house. Over-zealous and inexperienced persons are apt to be too free with the watering-pot or jug, a daily saturation quickly ruining a plant. Many under-gardeners are also very reckless in this respect, both giving too much and too cold water. Some of the most effective decorative plants have to be taken from plant stoves, and, therefore, when in a cooler atmosphere they ought to receive less water than usual rather than more of it, and it ought always to be slightly warmed. Even cool-house plants require less water than usual in much-darkened rooms, where they are often placed, and where they suffer when watered daily almost as badly as stove plants. Not a few stands are water-tight, and unless a little judgment is exercised, the plants may soon be standing in water. Our plan is to change most of the plants every Saturday morning, those to be introduced being properly moistened at the roots before they are taken into the house. About three times during the ensuing week all are carefully examined, and if approaching dryness a little water is given. No house or window plant ought to stand in tins or saucers partly filled with water, yet such is too often their lot, and this is bound to soon ruin them beyond recovery. Nor, on the other hand, should they suffer from want of water, though they are more likely to recover from this check than they are from being over-watered.

It is really surprising how long some plants, notably the Maiden-hair Fern, will remain healthy either in a window or in a fairly light position, provided no cold draughts of air or water are given them, and they are carefully watered. Several other Adiantums, notably palmatum, gracillimum, assimile, Capillus-veneris (of which magnificum is the best form), mundulum, Lawsonianum, formosum, and Williamsi are very serviceable for house decoration, and will keep fresh for a long time. The same may be said of Pteris serrulata and its various crested forms. P. tremula, Asparagus plumosus scandens, and such Palms as Areca Baueri, Chamærops, Kentia australis, Latania borbonica, Phœnix dactylifera, and Seaforthia elegans are all good for house decoration, and these and other kinds mentioned are available for those who may only possess a greenhouse or cool conservatory in which to grow them when not required in the house. Pans or pots of Selaginellas are very effective in the house; and I know instances where they are kept near a window all the year round and always look fresh. For this purpose I can recommend S. Kraussiana (denticulata) and its golden and silver forms, Wildenovi and stolonifera. I know a case in which a handsome plant of the Filmy Fern (Todea superba) has been grown in a large pan under a bell-glass for six years, and it annually improves. It stands under a stained-glass window at the end of the principal staircase, and being frequently watered and never allowed to become very dry overhead, it

is always attractive in appearance. Begonias of the Rex type are also good house plants, and everybody must know what a good servant Ficus elastica is. Of greenhouse flowering plants Arum Lilies prove the most difficult to kill, and under fairly good treatment plants in 7-inch pots will flower freely in a window. Cyclamen persicum also thrives and blooms well under similar conditions; but Chinese Primulas are apt to lose colour, and present a miserable appearance unless much favoured. Cinerarias are not easily kept clean. Cypripedium insigne will last on a table, not far from the light, longer than any other flowering plant, provided always it does not suffer from want of water. Epiphyllum truncatum, or Crab Cactus, as cottagers prefer to term it, will, if not over-watered or over-potted at any time, flower beautifully in a window, and the old Cactus speciosissimus is still a favourite for house decoration. W. I.

CHRISTMAS FLOWERS.

The dead season is now almost banished from our gardens. The Orchids are a host in themselves. Forced pot plants *ad libitum* consist of Deutzias, Lilacs, Valley Lilies, Azaleas, and these are but samples of the flowers of the season which every day become more numerous and brilliant and fragrant; for among the latter, what flowers at any season can match the fragrance of the Violet, Valley Lilies, and early Narcissus, single or double? Where frames and sheltered warm nooks abound, Violets are almost as plentiful, and generally far larger and more fragrant, in December than March. Christmas Roses, too, add a special purity and richness to the flowers of the season where these abound, and form a charming combination with brilliant Poinsettias in dinner-table or other arrangements. There is something specially pleasing in thus crowning the Christmas festivities, and preparing to deck the infant brow of the yet unborn year with the delicate tenderness, fragrance, and sweetness of pure and beautiful flowers. Dust and care, toil and sorrow, disappointment and loss will come all too soon; and hence it is well to start with our fairest, sweetest, and best. When all without is frost-bound and bitten, or hidden behind the yellow veil of winter's foul fogs, the other side of the glass should wear its sunniest looks and its brightest apparel.

It is winter without, though there is a strange beauty, a powerful fascination, in the fair rime frost that so richly clothes each branchlet and twiglet, and clothes all the trees with beauty. But it is impossible to imagine a richer contrast to a world thus bejewelled in pearls than a brave display of colour under glass. Who loves a garden should love a greenhouse too, and there are few better methods of proving our love than the filling all such with beauty, especially in the time of winter. To enjoy all this with the thermometer down to 12°, a liberal amount of artificial warmth is needful; and fortunately plants are not now nearly so easily injured by any excess of heat as they are after the new year, so that now a comfortable atmosphere of from 45° to 60° may be enjoyed among our beautiful flowers under glass without damage to the plants in bloom. With the outside world frost-bound it is poor enjoyment at the best to shiver among our favourite flowers. I have seen many such cases where the stoker would have given more pleasure than a fresh batch of plants from the forcing pit or intermediate house—the latter is what all conservatories should be during the cold season. Just now they may safely bear more for a month or so towards the comfort of their owners in the matter of heat than merely providing for the safety of the plants.

Hortus.

Ivy in hanging baskets.—Amongst the very best plants for filling wire baskets that are hung up in corridors, verandahs, and other exposed places all the year round are some of the many beautiful varieties of Ivy, especially those with very small foliage and graceful trailing shoots. Some years ago I was very much pleased with the excellent effect produced by means of the common English Ivy alone, that an amateur friend used to employ in a great variety of ways, for decoration, and especially for filling hanging baskets both indoors and out, the windows being draped with elegant shoots from plants growing in the smallest possible root space. Since that time I have employed Ivies for baskets, for brackets, and balconies, and with excellent effect. Anyone who has not tried them can have little idea of the variety of form and colour to be found amongst these common hardy plants, and the smaller the root-space the better do they display their variegation. The golden blotched variety, that only produces a few golden leaves at wide intervals apart when planted in rich soil, becomes beautifully variegated when starved at the root, and some of the silver variegated sorts are equally interesting. The large-leaved kind called Hedera maculata, that in rich soil assumes a dull white variegation, is very much improved by basket culture, and the best of such hardy subjects is that they impart a cheerful look to a dwelling-house at a time when other less hardy plants need the shelter of heated glass structures. For lining the base of hanging baskets nothing is equal to the Stonecrops; they look fresh and green at all times of the year, except when covered with white or yellow flowers.—J. G., *Hants.*

Room plants.— I was much interested in reading Mr. Douglas's description of the exhaustion and subsequent renewal of the bulbs of the Amaryllis. Allow me to ask him whether a similar process takes place with regard to other bulbs In Vallota, for instance, which flowers at the end instead of the beginning of its leaf growth, has the bulb to be renewed after flowering and before going to rest? If so, it appears to me that late flowering must be injurious to it. I cannot succeed with Vallota as a room plant, though every care is taken as to watering sufficiently, but not over much. It loses its leaves and dwindles away, the roots dying. Yet my next-door neighbour grows it admirably, keeping it in a room without fire and even exposing it to a white frost. It also flourishes and multiplies in cottage rooms in Derbyshire. Imantophyllum miniatum, on the other hand, grows and flowers admirably with me in a window which it never leaves.—A. Johnson, *Blackheath.*

Trees and Shrubs.

TREES AND SHRUBS FOR THE SEASIDE.

In many cases the soil near the seacoast is sandy, and few things, indeed, will grow luxuriantly in it, but the impression is very common that sandy soil produces a great many roots, and so it does; but it does not promote a robust top-growth so strong and healthy as to resist storms to any extent, and this is one reason why seaside vegetation is so stunted. The remedy is to give more attention in planting by introducing new and good soil to the roots, or mixing some heavy material up with the sand. Manure, too, is beneficial, and may be applied largely, especially in the form of top-dressings, at the present time. This applies more particularly to trees planted at the outset without manure and are now in a half-starved condition. In planting, the manure should be introduced in the operation, and it is a good plan to trench it down to the depth of several feet, as this induces the plants to root deeply, and thereby resist the pressure of the wind; in fact, seaside trees should never be planted in shallow soil, as the roots will only run along the surface, and when the plants become large and present a large surface to the wind, they almost invariably get blown over; and this leads me to remark that beautiful as tall, well-furnished trees are in parks and inland, those of a tall-growing habit should never be planted on the seaside, or anywhere exposed to the high sea winds. Such trees may grow for a time, and even give promise of becoming handsome specimens; but this is only temporary, as they are blown down before gaining anything like maturity, and then the vacancy they leave behind them makes their owners wish they had confined themselves to dwarf and robust-growing subjects. This is the secret of successful seaside planting everywhere, and, speaking from experience and observation, I would advise planters to confine themselves mainly to the following plants:—

The evergreen Euonymuses merit special attention, as they are free rooting plants of compact growth. Excepting, perhaps, the Ivies, there is no class of variegated Evergreens to equal them in attractive colours, and they succeed admirably on the very margin of the sea. They may be used as hedges, planted as isolated specimens, or trained up a wall, and in every instance they will remain fresh and healthy from year's end to year's end. The Escallonias, especially E. macrantha, are excellent for the seaside. Their leaves are very pretty, and salt spray or strong gales do not injure them in the least. They are much of the same habit as the Euonymuses, and may always be planted with them. The Aucuba does not always thrive well on the sea-coast, and it is not recommended. The Arbutus is amongst the tall-growing seaside trees, and it does very well if sheltered by others, but we have had it injured when fully exposed, and although remarkably pretty when in flower, and showy above all berry-bearing plants when in fruit, I would only plant it to a limited extent on the margin of the sea, but a mile or two inland it may be more freely used. The Cotoneasters all do well near the sea, and as they are so very ornamental in berry at this season, they should be planted freely as wall plants, and to associate with other subjects. Few open-air shrubs are more valuable than Myrtles, and it is much in their favour that they can be safely classed amongst seaside plants; indeed, they grow much more luxuriantly near the sea than inland, and I know of many fine specimens in Wales that are frequently drenched with the spray from the sea. The Sweet Bay is another favourite that can be recommended as coming under this heading. Its leaves are valuable in many ways besides placing the plant in the foremost rank of Evergreens. In the early summer it becomes a mass of yellow flowers, and by the autumn it often droops under a heavy load of purple berries. The Laurustinus is not surpassed in its adaptability of withstanding the weather on the nearest borders of the sea, and, apart from its being a pretty evergreen bush, it is wreathed in white flowers from November until April or May. None of the Coniferæ are very meritorious in this respect, as they are all so much inclined to ascend. The Austrian and Corsican Pines are amongst the best of their class to weather the storms, and I would limit the Pine tribe to these two. Common varieties of Fuchsias grow and bloom profusely near the sea, and they should be included in all collections. Gorse is one of the hardiest of all, as it is squatty in growth and is never killed, but it is rather common. It does well for a margin to more choice subjects. The Guelder Rose is more valuable, as it is a very beautiful flowering shrub, and its drooping or curving habit of growth prevents it from being injured by the wind. The Privets are all extremely hardy, and may be planted freely, and the Sea Buckthorn is another which should not be forgotten. J. Muir.

Leycesteria formosa.—This is a capital plant for the shrubbery border, remaining, as it does, attractive for a great length of time. Towards the end of the summer the inflorescence appears in the form of long tassels, and as the flowers fade they are succeeded by black berries, which, with their peculiarly bronzy-coloured appendages, are curiously pretty. Leycesteria is not quite hardy in all places; it is, therefore, desirable to plant it where it is somewhat sheltered. It is, however, merely the young wood that gets injured, and that only during very severe frost. By judicious pruning at the end of March, when some of the old wood should be cut out

and some of the young branches shortened back, very handsome plants may be obtained. The pruning should never be done until the winter is past.—S.

CLETHRA ARBOREA.

Shrubs which blossom naturally in autumn are few and far between, but Clethra arborea is a conspicuous exception. It flowers with remarkable profusion in October and November. In some tree lists it is classed amongst hardy shrubs, but it would not, I apprehend, prove hardy in all parts of the country. We have four bushes of it here, but none of them are left out during the whole of the winter. They are grown in large square boxes like Orange trees, and are moved out in summer and are indoors in winter. The largest of them is 20 feet in height and 10 feet through, and very bushy. The others are about 6 feet in height, and the whole of them flower with the greatest freedom. Their blossoms, which are almost pure white, are produced in upright clusters or little racemes, which extend about 6 inches above the leaves, and the flowers emit a fragrance almost as sweet as that of Lily of the Valley. In fact, this Clethra is commonly called the Lily of the Valley tree, and it well deserves the name, as the blooms are very much like those of the Valley Lily. They are exceedingly pretty on the tree, and very effective when cut and arranged in glasses. The flowers, indeed, are admired by everyone, and the plant merits attention, as it is easily grown and capable of making a good return for the labour devoted to it. It may be placed in the open air in April, and allowed to remain there until the end of November. It will bloom in the open air, but rough autumn winds are apt to spoil the blossoms, and before this occurs it should be placed under cover. It grows freely in a mixture of two parts loam, one part sand, and one part half-decayed manure. It is not liable to be attacked by insects; indeed, I never saw one on it. It requires large quantities of water at the root when growing, but in winter it may be kept rather dry. After flowering it forms a great many seed pods, which should be removed. Some of our plants are very much root-bound, but that is rather an advantage than otherwise, as it prevents them from making too much wood, and causes them to produce a wonderful amount of bloom. J. Muir.

Sambucus racemosa.—The scarlet-fruited Elder is very seldom found in British gardens of such a size as to display its beauty. When laden with its large dense cymes of fruit, "which resemble miniature bunches of Grapes of the most brilliant scarlet," the tree truly presents a splendid appearance. Planted in open, dry situations it does not seem to thrive properly, but in a rather damp, cool spot it soon attains a considerable size, and fruits freely. For the woodland walk or the wild garden, where low-growing shrubs keep the ground shaded and cool about its roots, the scarlet Elder grows as freely, and would, perhaps, attain as large a size as our common native Elder, Sambucus nigra. S. racemosa is widely distributed throughout Central and Southern Europe, and in some of the alpine valleys makes a splendid show with its masses of brilliantly coloured fruits. Like most of the Elders, it sports freely, and a cut-leaved form and also one with variegated foliage are in cultivation in continental gardens.

Azara microphylla.—Though it can only be safely pronounced as perfectly hardy in very favoured localities, this South American shrub is such a beautiful Evergreen, that it is well worth the protection of a greenhouse, for it is one of those subjects that can be kept outside during the summer, and in the winter are available for the decoration of the conservatory, or for indoor furnishing in places where the more delicate plants might be injured by draughts or cutting winds. The glossy character of the foliage of this Azara is a considerable advantage when employed in this manner, as the accumulation of dust which sooner or later collects on room plants can be readily removed by the syringe. The Azaras are all ornamental evergreen shrubs, natives of South America; but the most graceful is A. microphylla, introduced a few years ago. It is a regular-growing shrub, reaching a height of 6 feet or 8 feet, with the branches arranged in a fan-shaped manner, and thickly clothed with small, deep green, glossy leaves. The flowers are inconspicuous, but this is atoned for by the beautiful foliage. When occupying an isolated position it forms a somewhat globular-shaped bush, built up, as it were, by numerous tiers of flat, fan-like branches. This Azara is not difficult to strike from cuttings of the half-ripened shoots put in a sandy soil and kept close till rooted.—Alpha.

THE HAWTHORN IN HAMPSHIRE.

No English landscape can be considered complete without the Hawthorn, adding, as it does, a richness to the scenery. When dispersed in clumps or singly in the park it possesses a charm which is not to be neglected by the landscape gardener; it forms the universal hedge plant, and for efficiency it has no equal, and when to this is added that it will grow in almost any soil, it is in use everywhere for the purpose. I have recommended where it is planted as a fence round plantations or meadow land that it should be trimmed on the sides only. From experience, I have found that it will still form an effective fence, while, at the same time, it affords shelter and allows the blossoms to make a beautiful fringe round the paddock or plantation.

There are two parks in this county, namely, Hursley Park, near Winchester, and Hackwood, near Basingstoke, which are notable for the number and age of their trees. "O'ergrown with Lichens to the very top and hung with heavy tufts of Moss," they present such a hoary appearance, that they seem to be the oldest of all living trees. In Hackwood Park, near the bridge over the ponds, is one with three stems springing from the ground and spreading with twisted limbs in most picturesque form baffling description. Those in Hursley Park are remarkable for the quantity of Mistletoe on them, giving the tree a green appearance in winter. The quantity is so great and the boughs so fine, that a watch is set for six weeks before every Christmas to prevent depredators. As a matter of course, it is abundant in this county, and what I have mentioned in a former paper with regard to the Holly will apply to the Hawthorn, that being so abundant it is difficult to say where the largest may be or that I have been fortunate enough to find it, and, further, I do not recollect ever having seen the girth of one recorded.

In front of the "Seven Stars" Inn at Tidcombe Bridge, near Fullerton Railway Station, stands one "with seats beneath the shade;" it has a circumference of 4 feet 3 inches, and a height of 20 feet. Soil, alluvium by the river Test. Measured in 1880.

On the breezy bare downs where the Stockbridge Races are held a solitary tree is conspicuous, and which is difficult to approach in consequence of all the broken bottles found on the racecourse being collected around it. The "broken bottle" Thorn consists of two stems closely united, and together have a circumference of 3 feet 9 inches. Soil, thin vegetable mould on the chalk. Measured in 1879.

A very fine specimen stands on the bank of the field at the cross roads on the west side of the road leading from Braishfield to Romsey; it is said to blossom every year, and it has a finely rounded head; the circumference is 4 feet 7 inches, with a bole of 7 feet and a sheer height of 30 feet. Soil, gravelly on the lower Bagshot beds. Measured in 1880. The one with the largest circumference is in the park of the rectory at Farley Chamberlayne; the girth is 5 feet 3 inches, bole 7 feet, and a height of 30 feet. Soil, clayey on the chalk. Measured in 1879. R. S. J.

The Silver Lime (Tilia argentea).—This handsome Lime stands out conspicuous from all the rest on account of its noble growth and silvery undersurfaces of the leaves—features which render it so distinct from all other kinds. Its greatest merit, however, is that of the foliage remaining in perfection long after that of the common Lime has fallen; it is, therefore, highly valuable on this account alone. It is somewhat remarkable that such a fine tree as this has been overlooked for such a long time, for it is a very old introduction. We have no instance of it, but we see no reason why it should not make a serviceable tree for streets and avenues, where its silvery foliage and bold habit of growth would be shown off to advantage.

PERNETTYAS IN WINTER.

In winter the Pernettyas are among the most beautiful of low-growing shrubs at that season. The many beautiful varieties raised in the Hillsborough Nurseries and put into commerce a few years since have already become very popular, and deservedly so, for there is amongst them great diversity not only in the colour of the fruits, but to a lesser extent in other particulars, especially in the habit of the plant. The common form, that is, Pernettya mucronata, is a low-growing evergreen bush, with sharp-pointed leaves, and the berries, which are about the size of Peas, are crimson in colour. It is a native of the extreme southern part of America, bordering on the Straits of Magellan, and is perfectly hardy in this country. Indeed, it is sometimes used for game coverts, and as birds are very fond of the berries, that should be a point in its favour when employed for such a purpose. In the berries of the newer varieties some beautiful shades are to be found, and, apart from the value of the plants as outdoor shrubs, they show to great advantage in a greenhouse during winter. The plants should be lifted carefully from the open ground and potted just before the berries begin to colour, and very beautiful they are throughout the winter, for the plants do not suffer any injury by being moved. In common with many other Eriaceous plants the Pernettyas can be lifted at almost any season without danger, owing to the dense mass of their hair-like roots. One thing to bear in mind is that, as the small fibres are very delicate, they should be exposed as little as possible to the drying effects of the atmosphere. Seeds not only of the older kind, but also of the newer varieties, come up readily enough; indeed, we have quite a crop of seedlings, the produce of the named varieties, but as yet none of them are large enough to fruit. The berries were simply rubbed up, and mixed with some silver sand to dry up the pulp and separate them from each other, when they were sown in a compost consisting of peat and sand, and were protected by a frame. Apart from any consideration as to their berry-bearing qualities, the Pernettyas are very pretty flowering shrubs; indeed, about May, when densely laden with small, but pure white Lily-of-the-Valley-like flowers, they at once arrest attention, and have the additional merit of remaining a long time in perfection. If a few sprays are cut just as the blooms are on the point of expanding and placed in water, they will keep fresh indoors for a long time. H. P.

Platanus californica.—The leaves of this Plane far exceed in size those of any other; it is a most distinct kind, and may easily be distinguished from all others. It is also said to be the hardiest of all, having been the least injured of any during the past two winters. Even a young plant of it is a noble object, and too much cannot be said in its favour as an ornamental tree. The plants are of course all young, but, judging by the rapid growths which they have made even this season, they will soon make fine trees, especially well adapted for avenues, streets, &c. One would think that such large leaves would be injured by wind and wet, but such is not the case; indeed, on exposed places they succeeded the best during the past season. It is the same as P. racemosa of Nuttall.

Malus Halleana.—In general characters this resembles the now well-known Malus floribunda, the principal point of difference being that the blooms of Halleana are considerably deeper in colour, and consequently, when seen in masses, are more starry than in the older kind. It is a remarkably handsome flowering shrub, and, like floribunda, very useful for small-sized gardens, as it does not require much space, and may always be relied on to flower well. When treated as a standard, the branches grow in a very graceful manner, or, as a bush, the outline is totally devoid of any stiffness or formality. Besides their great value

as flowering shrubs for the open ground, these kinds may be readily forced into bloom early in the season, and are then very valuable for the greenhouse.—A. P.

THE BROAD-LEAVED KALMIA.

(K. LATIFOLIA.)

Grounds of small size might be made much more interesting and enjoyable by introducing a few choice flowering shrubs, such as the above, instead of a repetition of Laurel, Box, and plants of that description. The Kalmia is a native of North America, and is there found growing on rocks slightly covered with vegetable soil. It is also found overhanging the margins of streams, and on the sides of hills in sterile looking soils containing a large quantity of grit. Notwithstanding this, the plant, like other American shrubs—the Rhododendron, for example is fond of moisture, a good supply of which is necessary to its successful cultivation. The Kalmia forms a small compact, dense growing little shrub, admirably suited for the embellishment of the front of shrubbery borders, or for forming beds or clumps on lawns or pleasure grounds. The foliage being of a lively deep green shining hue sets off the lovely pink flowers to great advantage. There are several varieties now in cultivatien, but the old latifolia is still one of the best. Any soil in which the Rhododendron thrives will be thoroughly adapted for the growth of Kalmias. It is not necessary for either that the soil should be peat, although this is best suited to the cultivation of both, and where it is only a question of a single clump, or a few plants, it is better to make sure of success, and begin with that material to grow them in. Where this is not readily obtainable, the parings from the sides of roads or paths, having plenty of grit in them, are a good substitute. With this, mix about a third of thoroughly rotten leaves, and, in planting, tread the soil firmly about the roots. It must be borne in mind that these plants, like Rhododendrons, have a strong aversion to chalk, and any soil containing this in any form is sure to prove fatal to them. The Kalmia is a plant which is somewhat fond of shade; therefore, in planting, make choice of a position where this can be afforded naturally for a few hours during the day. When growing, give a good soaking of water, as the succeeding year's bloom depends on the kind of growth that is made by the plant previous to the flower-buds being formed on the terminal ends of the young shoots. These swell gradually on during the autumn and spring, and at the beginning of June they burst forth, forming a compact bunch of rich pale pink crimped-looking flowers, as singular in that respect as they are beautiful. The Kalmia is a first-rate subject for forcing, and may be bought for that purpose well set with bloom buds at a moderately cheap rate.

Ribes Lobbi.—Though this Ribes cannot compare with R. speciosum, it is still worth consideration as a flowering shrub, for the blooms, which are borne in profusion in May, are in shape a good deal like a Fuchsia, and of a brownish crimson colour, while the petals are pinkish. The individual blooms are rather less than an inch in length. It is a native of California, and was originally introduced by Lobb. The name Lobbi is given it by Dr. Asa Gray in "The Flora of California," but in the *Botanical Magazine* it is figured under the name of R. subvestitum.—A.

December bouquet flowers.—Though this is far from being a favourable time of year for obtaining a good supply of cut flowers, still many varieties are offered for sale in our markets, and those, too, unusually useful for decorative purposes. Among them are the following, viz, Bouvardias, Begonias, Camellias, Chrysanthemums, Cyclamens, Heaths, Epiphyllums, Eucharis, Fuchsias, Gardenias, Gloxinias, Roman Hyacinths, Heliotropes, Lilies, Lilacs, Mignonette, Daffodils, Pelargoniums, Primroses, Spiræas, Roses, Stephanotis, Tuberoses, Tulips, Violets, and Veronicas. Surely, therefore, with such flowers as these at hand, there is no necessity for having flower vases and tubes standing empty, as one often sees them about this season. It may be remarked that flowers are expensive at this time of the year. True, some varieties are so, but not all; and a handful need not cost much, yet this handful, lightly arranged, will fill several specimen glasses, and, if varieties only be chosen which are lasting, such little bouquets will remain fresh for at least a week, provided the water is daily changed, and they are otherwise freshened up a little. Should Fern fronds be introduced, only those which have been well hardened off should be selected. From the list of flowers just given, enough may be obtained for vases, bouquets, wreaths, button-holes, and, indeed, for nearly every kind of floral arrangement, either large or small, according to the taste, or expense to which the decorator may wish to go. The bell-like flowers of the Arbutus are also very useful at this season for cutting, as are also the berries of the same plant a little later in the season. For small decorations, the Gladwin is too heavy; but for large ones it is most effective.

FILLING THE ICEHOUSE.

The proverbial fickleness and uncertainty of the English climate render the season of ice-getting a time of some anxiety to those who are held responsible for securing a supply of a luxury that has of late become almost an article of necessity in large establishments. For ice to keep well when collected, it is of the greatest importance that plenty of good clean straw should be used. This should be got in readiness by having it tied in small bundles that measure about 9 inches through, and are used for the purpose of lining the walls of the house, and for covering the ice-well. The main point is to have the house thoroughly air-tight, for, unless it is well-lined, a cavity is sure to occur between the ice and the brickwork; and, when this takes place, it melts at a rapid rate. Many, although in possession of good houses, fail to keep ice throughout the year, from not using a sufficiency of straw, probably thinking that, because they have a larger supply, they can afford to lose some of it, and yet have sufficient for use as long as it is wanted. This, however, will not prove to be the case, as the whole art of keeping ice is to preserve it from the atmosphere; and the only effectual means of doing this is to pack it well in straw. When this is not done a space is left between the ice and the brickwork, and the whole body of air surrounding the ice is changed every time the house is opened. This, of course, has a very wasting effect on the ice, as the volume of warm air shut in every time the ice is removed is some time in being cooled down. By the use of small bundles of straw, however, it can be done with the greatest regularity, much more so than when loose straw is used, as the pressure of the ice reduces the thickness of the bundles forming the lining to about 6 inches. Till I adopted this plan, I had always a difficulty in having the house regularly lined, as it generally happened that the loose straw which I then used would be bulky in one part and not sufficient in others, on account of getting displaced while filling the house. I may just observe that the bundles of straw are placed on end up the wall of the house, as they remain best in that position. The ice should be well smashed up by using long-handled mallets made for the purpose. This should be done before pushing it into the well of the house, as then it can be done more readily, and a man or two will be able to ram it well round the sides of the house as fast as it can be delivered to them. Sufficient room should be left for plenty of straw to be placed on the top. This should be thrust in as tightly as possible, and the passages filled with the same material. In taking ice out for use when wanted, the outer door of the house should always be kept closed while the inner one is open, so as to prevent the external air from entering. Those not having the convenience of an ice-house may easily have a supply by forming a good large stack, which, if properly made and covered, will last through the summer months. This should be formed on the surface of the ground, and as near the pond as possible, so as to save labour in carting. First of all, a rough circle, of about 15 feet in diameter, should be marked out, round which are placed hurdles to support the sides of the stack. These should be kept in position by driving some large stakes on the outside, so as to withstand the pressure of the ice till the mass has time to freeze together. The inside of the hurdles should then be lined with straw, Bracken, leaves, or any dry littery stuff that may be at hand. Whatever is used should be placed at least a yard thick, as less than that would not exclude the air. This will allow room for a stack about 9 feet through, which, if carried 7 feet or 8 feet high, will form a large body of ice. The bottom of the stack should have a few rough bushes laid over it, and on these some clean straw, so as to secure free drainage. In forming the stack, the ice should be well rammed and broken, much in the same way as when filling the house. As soon as sufficient is got together, the whole should be covered in with a good thick layer of dry litter or Braken, over which a coating of straw should be placed, so as to form a rough kind of thatching to keep out the wet. S.

Winter Violets.—Violets, when well grown, are of great value during the dull months. To be successful with them they should be placed in their winter quarters about the middle of October. Many fail to bloom them well in early winter, simply because they are too late in planting in frames. They ought to be well rooted in the new soil before winter sets in. When planted in the frames a good watering should be given them, the lights kept off night and day till such time as frost appears. Violets delight in being kept cool; place them near the glass, over which put mats when frosty. If wanted to bloom in pots, pot them so as to have them well rooted, for without plenty of roots Violets always fail. I consider the good old Neapolitan to be the best for every purpose. Cannell's White or Comte de Brazza is also a good kind.—W. B. Leach, *Albury Park.*

Blechnum corcovadense a good room plant.—This noble Fern is very effective during winter in rooms, the dry air, warmth, and light of which seem to suit it. It is easily cultivated, requiring in summer only ordinary care and attention; but in a low temperature it dislikes moisture on the fronds. It delights to grow in bright sunshine, and the stronger the light the more beautiful the deep red of the young fronds becomes, and the longer they will retain their warm tints.—A. B.

Ferns for room decoration.—Few plants are so well adapted for indoor decoration as the cool-house Ferns called Pteris serrulata, P. longifolia, and P. cretica albo-lineata, also the several varieties of Adiantum known as Maidenhair Ferns. These, if allowed to make their growth in a cool temperature, form excellent room or window plants the whole year round. It is after forced growth in a high moist temperature that they so quickly suffer from cold draughts, which have little effect on plants gradually and well hardened off.—G.

OBITUARY.

Papers from Honolulu, Sandwich Islands, announce the death of Mr. Thomas Brown, many years ago the senior partner in the firm of Messrs. Thomas and Edward Brown, Royal Nursery, Slough. About 1840 Thomas Brown gave up the nursery business founded by his grandfather at Slough nearly a century previously, and soon afterwards emigrated to Honolulu, where he has just died at the age of eighty-two. He will be remembered as the introducer of Lilium Brownii, Lonicera Brownii, and as the raiser of the once popular white herbaceous Phlox, P. omniflora.

QUESTIONS.

5538.—**Fruit shrivelling.**—I would be glad to know why Cox's Orange Pippin and Ribston Pippin Apples, and Pears shrivel soon after being gathered, although they were well grown and apparently ripe. The trees are young and healthy, and the soil is sandy loam.—Constant Reader.

5539.—**Medicinal plants.**—I have a plant said to be recommended by doctors in Switzerland to be kept in the wards of hospitals as a preventive against rheumatism. It resembles a Coleus somewhat, but has very light green, large leaves and a woody stem. The leaves, when bruised, have an aromatic camphor-like smell. I should much like to know its name.—A. J. C.

Names of plants.—*W. H. M.*—1, Cotoneaster buxifolia; 2, C. microphylla; 3, C. thymifolia.—*A. B. C.*—1, Coelogyne speciosa; 2, Odontoglossum cordatum, not maculatum; 3, Masdevallia infracta.—*R. T.*—Erica gracilis.—*C. W. R. Paignton.*—Brassavola nodosa.

BOOKS RECEIVED.

"Chrysanthemum Culture and Rotation of Vegetable Crops." John Brun. (Stead's Exors., Bolton.)

WOODS & FORESTS.

ENGLISH FIREWOOD.

Fires made of resinous woods are harmless and useful enough in the open forest, but in dwelling-houses they are both disagreeable and dangerous. But we are in nowise bound to the use of the Pine tribe, as among the commonest of our native trees we have excellent firewood. It is claimed by some, I know, that Yew makes the best firewood, but this, on account of its scarcity, is quite out of the question. Therefore in the first group I place Ash, Beech, Maple (this is seldom to be had in any quantity in the form of cordwood), Oak, and Elm. There are comparatively few places where one or the other of these kinds are not to be found, and in many the whole of them. The choice must be controlled by the woods in most abundance, but, on the whole, I regard those consumers living in Beech districts as being the most favoured in the matter of firewood. This is certainly so if the ease with which it ignites when seasoned is taken into the reckoning. Ash is equally good, except that it is less abundant, commands a higher price, and the corresponding portions of the tree which, in the case of Beech are of little value for anything but firewood, can generally be sold at a figure which would make it bad economy to burn it. Oak in such counties as Sussex, where it predominates, is naturally the chief firewood. In other counties where Elm is plentiful, it is a wood largely used; it is, however, more suited for keeping up a constant fire than for igniting it. There is quite another group formed by the kinds which do not usually grow to timber size, and which, instead of being subdivided by beetle and wedge, are of such small dimensions as to require to be bound together for convenience of removal and stacking. The very small branches of trees are, of course, treated in the same way. Chief among these smaller woods, then, for firewood occurs the Hazel, the Hawthorn, the Blackthorn, and the Willow. The last-named, perhaps, is not usually ranked as a firewood, but, judiciously used, makes a very good fire. With regard to the Thorns, with the very small branches there is the disadvantage of the crackling sound they emit. With the larger and more solid portions this objection does not exist.

The sources from which these different firewoods may be drawn are many, but for such as come under the heading of cord-wood, the larger branches of trees is the chief. The precise amount and size of the wood which will go respectively to the fire and to the merchant will be regulated according to the supply of firewood wanted and the smallest size saleable in the market. With the larger trees, such as Ash, Beech, Oak, and Elm, except in special cases, it will be found that there is very little to be gained by selling anything under 6 inches in diameter. Where the trees are very gross in growth, or have begun to die back from the branches, it will be often advisable to cut up much larger sizes for the fire. If the wood is burnt on the open hearth, so much the better, as it will only be necessary to saw it into lengths of from 18 inches to 2 feet or so. Generally, however, the dimensions of the fireplace will not admit of such a simple method of preparation. In this case the cross-cutting and cleaving must either be done upon the spot where the trees fall, or in the wood-yard or shed. When the wood is prepared for sale, there is a good reason for cleaving it in the open field or forest, but when it is for home consumption, it is obviously a saving of labour to remove the logs entire and for the work of preparation to be completed where the wood has to remain until wanted for consumption. Here may be added a word as to seasoning and preservation. To judge from the way in which firewood is commonly dealt with, it would seem that no such processes are necessary. For due economy they are, and it is highly desirable that if a suitable building is not at hand, the stack in which the wood is placed should be thatched, or in some way covered and kept dry. The proper preparation and care of firewood is a thing which would repay a little more attention than is usually given it. The preparation is perhaps better understood than the care of it afterwards. This applies to the fagot or small wood, as well as to the cord or larger cleft wood. The first season it may perhaps be neglected, but if it is likely that it will not be used during the current year, some precaution must be taken to keep it dry. If kept dry the second and third year, the cleft wood especially will burn so much the better; but if left exposed, each month after the first season will tell detrimentally. After removal from the woods to the place where it has to be prepared or stacked, it matters but little at what time it is prepared, providing it is fairly dry weather. It very often happens, however, that the time when firewood is cleft is when it is so excessively wet that no other occupation can be followed. Where, therefore, a building, no matter how rough, can be had, it is well to get a supply of the logs as they come from the forest put in whilst they are dry. This is much more important when the place of storage is a close building than when it is a stack. In the latter case the stack is merely roofed, and the air has the opportunity of penetrating every portion of it. With a close building the moisture must remain, and consequently decay sets in. Considering that fagot wood is as easily built into stacks as Corn sheaves, and that the cleft cordwood can be just as easily manipulated where there are no buildings of sufficient extent to contain the main stock of firewood, there is no excuse for getting it spoilt. The slope of the roof can be formed of the same material as the body of the stack, and all that is wanted is a few inches of rough thatch. This, so long as it keeps out the bulk of the rain, will answer all that is required of it. It need not be straw, as Reeds or Sedge Grasses, or, in fact, anything of the sort which may be within reach, will be just as satisfactory as the most costly material, and fagots may be put above the cordwood stack to keep off the wet.—D. J. Y.

*** The way our English trees, native and commonly cultivated, burn is a very interesting subject, and we shall be grateful for any notes readers may send on it. More about the way each particular tree burns is required, and the age at which it burns best. For instance, what are the burning qualities of such very common trees as the Spruce and the Scotch? They are often considered almost useless as firewood, and yet we have seen old roots of Scotch give out a flame richer and prettier than from any other tree, or from the best coal. The many old Apple trees of poor sorts, are they useful as fuel? And our Field Maple and Sycamore and the common Lime, only to name a few of the commoner trees in cultivation.—Ed.

OUR TIMBER SUPPLY.

It is a pretty general belief that timber merchants never consider, or care a straw, about the state of the timber supply in this country so long as they can get hold of just enough to keep their yards and mills going from year to year. In many instances this may be so, but a few days ago I happened to be in the company of some members of the trade who introduced the question quite spontaneously. The subject was, therefore, discussed, I do not say very deeply, but still enough to show that those whose occupation it is to consume our forest products are not altogether insensible to the other side of the business. For the most part, I must confess they seemed but little acquainted with what has been done in the past, or is being done now in the direction of calling attention to the matter by means of the press; but all seemed ready to admit the necessity of bestowing more thought on the future. From this the discussion turned to timber as a paying crop, and instances were quoted which had come under the personal notice of the parties present where large amounts had been realised off what had previously been useless ground, and other cases were cited where the cost of replanting had reached very nearly to what the matured crop of timber had sold at. One portion of the company seemed to think that we need be under no apprehension as to where timber is to come from, as when it is exhausted here there would be unlimited supplies from abroad. On entering this phase of the inquiry I referred to what the foreigners themselves say. It may not directly bear upon what is or may be grown here, but there is one thing which I think calculators of how long different countries' supply will last generally overlook, and that is, as soon as the value of timber becomes appreciably enhanced through approaching scarcity, different materials will at once be substituted for purposes for which timber is now so greatly used. Take America, for instance, whence a great deal of alarmist literature on vanishing forests comes. So long as timber can be had for little beyond the work of clearing, where labour is a consideration, it will, no doubt, continue to be very largely used in building and similar operations, but as soon as a difficulty comes in of getting enough and at suitable figures, some other material will be brought into use which will gradually, but surely, supplant timber as the price rises and it becomes more scarce. I do not think this is likely to happen in the near future, but if the time does come when the timber supply is really within a measurable distance of exhaustion, some such natural remedy will step in and restore the balance by affording time for new supplies to mature The instance in our country which most clearly bears this out is perhaps the substitution of iron and steel in ship-building. Had the supply of timber continued sufficient, or more than sufficient, for the needs of the navy, it is extremely doubtful whether much would have been heard of any other material. Directly this is likely to fail the necessity arises for some other product which will take its place, and this is found in iron. According to many reports, there is now more Oak in the market than can be profitably disposed of, and this is the natural outcome of what occurred a generation or two ago, when, concurrently with the discovery of new products to take the place of timber which had become scarce and dear, a new era of planting commenced. The demand is reduced and the supply increased, and in this way in the course of a generation or two the balance is restored. In the discussion which has led to these remarks, we did not get upon this particular line of argument, but it seems to me that in many respects it is a true one. Simply left alone, the recuperative powers of Nature are marvellous, and in more than one district I know where heavy cuttings have from time to time taken place, there seems but little diminution in the supply. If the view which I have taken be sound, it is the forester's duty merely to preserve and replenish the kinds of trees which he knows to be the most scarce, and leave each other description to come in for attention as the necessity arises. At the present moment, upon these lines it is clear that the Ash is the one tree the supply of which needs to be increased, and this has often been urged when the question has been looked at in a totally different aspect. J.

HOW TIMBER IS VALUED.

I am not at all anxious to have the last word in this discussion, nor do I wish to misrepresent matters in the least; far from it; but I must say either the "Forester on the Duncombe Estate" or myself are very far out in our calculations. Your correspondent is not quite straightforward in his replies. The dispute as to prices between him and I does not refer to sales he may have transacted "a few weeks ago," or since this discussion commenced, but to sales anterior to that and during the past few months, or year, we may say. The present winter's sales are irrelevant as yet, but I will deal with the Duncombe Park prices for these also before I finish. I saw one of the purchasers the other day who bought some of the Larch near Helmsley (which I understand was taken to that station), and I asked him the question again about prices paid early in the season, as we know each other intimately, and his reply was, "about 4d. per foot as far as I can recollect, and it cost from 1½d. to 3½d. to lead it to the station." Now this figure correspondents reasonably with the rates of delivery in this neighbourhood about the same date, and corroborates what I have asserted. The Duncombe Park

forester knows perfectly well, I have no doubt, what lots I allude to, and yet he attempts to evade a plain question relative to them by quoting recent prices that nobody but himself at present knows anything about. But let us examine these recent prices of his, 8d. and 9d.—felling not allowed for, I notice—and I believe his estate fells all and sells the timber fallen and lotted, which entails much expense which is not deducted either. But let that go. It appears that "nine-tenths" of his Larch goes to Durham and the Cleveland district, where at present trade is duller than here, not to mention the fact that the carriage from Helmsley cannot be much, if any, less than it is to South Yorkshire. By the time his timber gets to Durham stations it will have reached consumer's price and have still to be delivered by the purchaser at a profit. And all this we are apparently expected to believe is going on when the vendors of Larch in the Durham and the Cleveland districts, or near there, are delivering Larch eighty or ninety miles distant at the other end of the country for 1s. per foot to the consumer. In other words, the Cleveland and Durham consumers are carrying Larch from the south for which they must be paying from 15d. to 18d. per foot, while the Larch from their own neighbourhood is passing their door at half that price, probably for want of a market at home! Does anybody believe it, especially considering the depressed condition of the Larch trade owing to the constantly increasing supplies of prop wood from abroad, delivered at the pit mouth all over Yorkshire at about 8d. per foot? The station, I may add in reply to the Duncombe Park forester, where the 1s. per foot Larch (from North Yorkshire, or near the border of Durham) was delivered is close to Sheffield, and it was delivered at two separate works. Let not the reader forget that all this discussion relates to the difficult art of valuing as portrayed by some of your correspondents, but which recent revelations show consists, on some large estates, in felling and lotting the trees and selling them to the highest bidder—a mysterious art truly. Y.

MATERIALS FOR FENCES.

Apropos of "T. B.'s" remarks upon the use of wood with iron supports for garden fences, I have seen such supports used for light paled fences round allotments and the like, but I doubt, unless the posts were very strong, whether it would answer for anything so high as 10 feet. The suggestion, however, is worth consideration, and is capable of being adapted in other ways. A height of 4 feet or 5 feet would be quite as much as would be likely to answer well with light iron supports, as the wind pressure above this would be so great. For heights above this the following plan, I believe, would be better. Build brick piers at intervals of say 10 feet, which would make a square bay or panel. This distance could, of course, be varied, but I give it as an illustration. Cement angle iron rails into these piers, and if necessary have a support in the centre of the bay. To these angle iron rails, which of course would be drilled before for the purpose, fix 1¼-inch or 1½-inch Elm boards, and when dry, tar them in the same way as would be done with the Spruce. The brick piers would be built with their greatest thickness at right angles to the line of fence so as to resist a side thrust, and the angle irons fixed as nearly as may be to the outside—in fact, just far enough from the back edge of the pier to allow of sufficient hold for the rail and for the boarding, which would be fixed on the outside, to finish level with the back edge. In this way each panel would be sheltered by the pier standing well out into the border, and if at any time a coping was wanted to further protect the trees or whatever may happen to be growing upon the fence, some boards could be kept for the purpose which would rest each end upon a pier, and on the top of the wood fence for the whole distance. The piers would, of course, be also available for stretching any protecting material across the bays in front of the trees, as they would have the advantage of standing a greater distance into the garden than in the case of the ordinary wall. Constructed in this way there would be the disadvantage of the angles of the iron standing out from the inside. This could be obviated by fixing the rails as nearly as possible to the back edge of the pier, but with the angles reversed and boarded inside. The drawbacks of this plan are that it would afford a foothold on the outside and would reduce the width of the pier on the inside. Other adaptations would suggest themselves according to circumstances, as there seems no good reason why brick alone should be rigidly adhered to. D. J. Yeo.